Tender Documents

Process Measuring **Instruments**

for Waste, Drinking Water & industrial applications

HACH LANGE

Product overview

valid from January 1st, 2009,

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HACH LANGE

UNITED FOR WATER QUALITY

HACH LANGE Tender Documents

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Sincerely

HACH LANGE GmbH, Düsseldorf (Germany)

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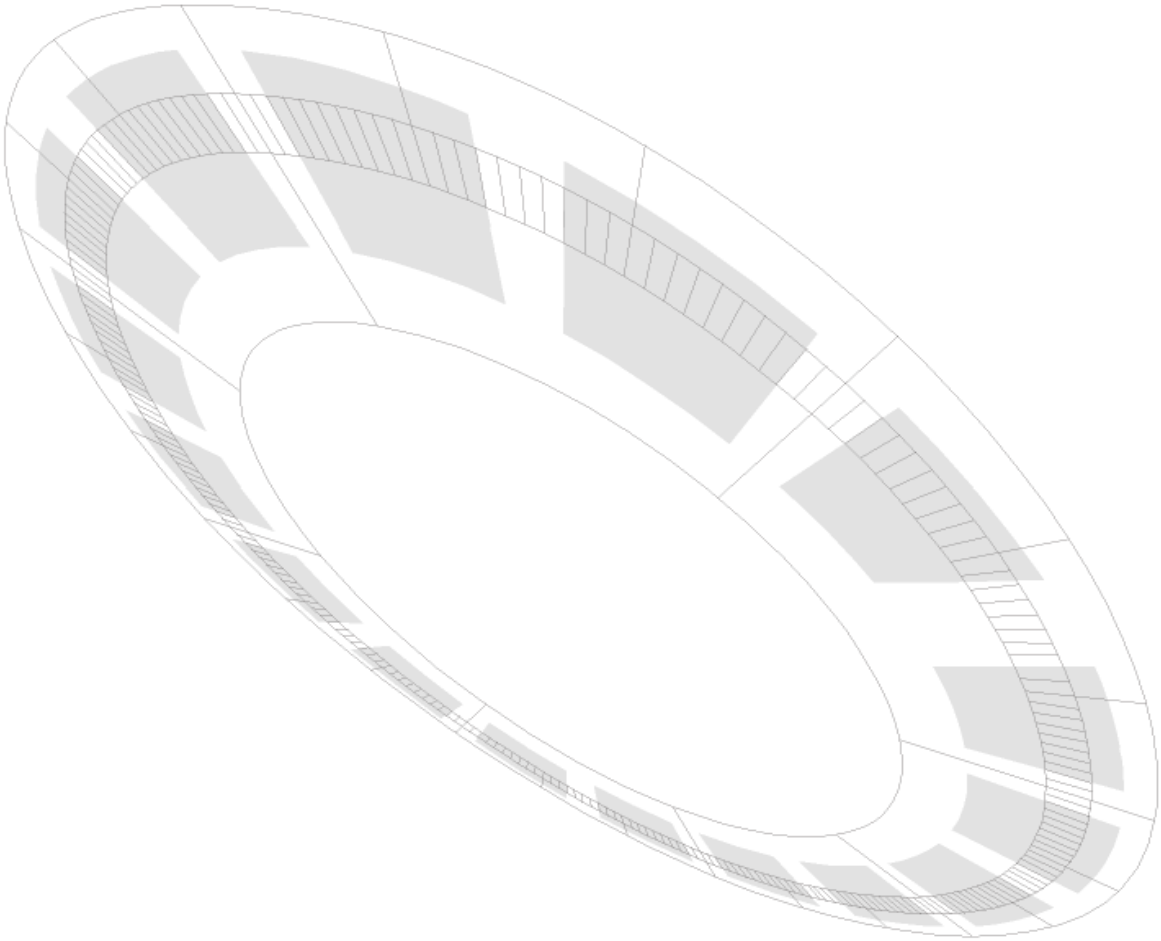
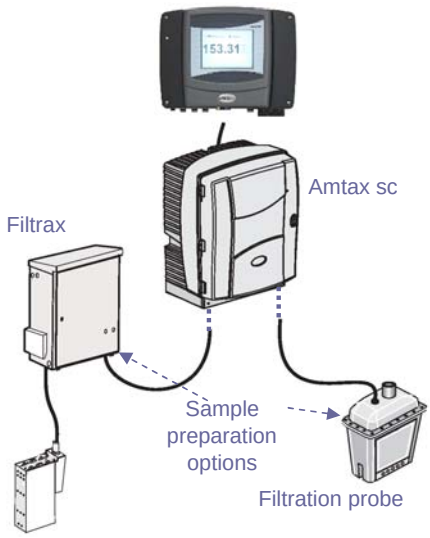
Product overview



Ammonium

AMTAX sc (DataSheet DOC033.52.00430)



High-precision Process-Photometer for the contiunous determination of Ammonium in water, waste water or directly from activated sludge basin.

The **G**as **S**ensitive **E**lectrode (GSE) measuring principle ensures very fast response time at low interference levels while providing a wide measuring range in parallel .
Optional sampling and sample prepartion using self-cleaning high speed "Filtration probe" or flexible "Filtrax" system respectively any feeding Ultra-Filtration systems.

Direct On-Site installation due to isolated construction in weather resistant enclosure, or inhouse installation.

Highest flexibility and extendability due to sc1000 controller´s freely selectable multi-probe/analyzer operation feasibilty.

Technical Data

Subject to change without notice

	AMTAX sc		
Measuring method	GSE (Gas Sensitive Electrode)		
Measuring range	0.05 ... 20 mg/l NH4-N	1.0 ... 100 mg/l NH4-N	10...1,000 mg/l NH4-N
Detection limit	0.05 mg/l NH4-N	1.0 mg/l NH4-N	10 mg/l NH4-N
Accuracy	3 % + 0.05 mg/l	3 % + 1.0 mg/l	4,5 % + 10 mg/l
Reproduceability	2 % + 0.05 mg/l	2 % + 1.0 mg/l	2 % + 10 mg/l
Response time T_{90}	< 5 Minutes (including sampling)		
Measuring Interval	5 ... 120 minutes (user selectable)		
Permissble pH range	pH 5 – 9		
Specific features	Automatic cleaning, automatic calibration, comprehensive self-diagnosis, optional: 2-channel version for continous sample feed		
Process connection			
Installation (Analyser)	Bypass; particle and oil free water sample - wall, stand or rail mounting		
Sample Inlet	3.2 mm OD		
Drain (outlet)	6 mm		
Sample flow	at least 200 ml/h feeded by HACH LANGE Filtration probe, Filtrax or general Ultrafiltration system		
Pressure range	non-pressurized; atmospheric		
Temperature			
Sample:	+4°C ... +40°C		
Ambient:	–20°C ... 45°C; 95 % relative humidity, non-condensing		
Storage:			
Analyzer:	–20°C ... 60°C; 95 % relative humidity, non-condensing		
Electrode:	–10°C ... 50°C; 95 % relative humidity, non-condensing		
Outputs	several (Relay, I/0 outputs, bus interface); please refer to sc controller specifications		
Power supply & consumption:	Power supply with power cable on the sc1000 controller 200 VA (mean), max. 1000 VA (with 10 m heated filter probe hose)		
Dimensions	540 x 720 x 390 mm (W×H×D)		
Cable length	2 m fixed cable, extendable by using Power Extension cable for sc1000, 5 m (only once)		
Weight	Approx. 31 kg, without filter probe and without chemicals		
Material	ABS Plastic, UV resistant		
Enclosure rating	Onsite (IP55) or Indoor		
Reagent capacity	3 Month minimum (depending on measuring interval)		
Inspection interval	2x / Year		
Maintenance requirements	1 h/month typical (Process dependant)		
Controller compatibility	sc1000 (recommended) or sc100 by means of external sc Analyzer power supply box		
Warranty:	24 month, fullfilling required inspection intervals, extendable to 60 month		

Ammonium

AMTAX sc (DataSheet DOC033.52.00430)

Part No. **Designation**

LXV421.99.XXX01 **AMTAX sc**, with 2 m connection cable, w/o controller

L	X	V	4	2	1	.	9	9	.	X	X	X	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Measuring range option

0.05 - 20 mg/l NH4-N	1
1.0 - 100 mg/l NH4-N	2
10 - 1,000 mg/l NH4-N	3

Sampling Option

without probe (Prepared for operation with sampling probe)	0
With filtration probe (5m heated hose)	1
With filtration probe (10m heated hose)	2
1 channel continuous sample from filtration unit, e.g. FILTRAX	3
2 channel continuous sample from filtration unit, e.g. FILTRAX	4

Power Supply Option for sampling probe:

230 VAC/50Hz sampling probe	0
115 VAC/60Hz sampling probe	1

Standard accessories (supplied with the instrument)

1 set of reagents
1 set of wearing parts for one year operation (10 min interval)
1 set of operating instructions
1 maintenance calendar
1 Factory Test Certificate

For further information about the Filtration probe & Filtrax, please refer to the Chapter Sampling systems.

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Reagents and consumables

Annual requirements for AMTAX sc	Measuring interval		
	5 min	10 min	20 min
Reagent sets depending on Measuring range			
0.05 - 20 mg/l NH4-N	4 x LCW865	2 x LCW865	1 x LCW865
1.0 - 100 mg/l NH4-N	4 x LCW871	2 x LCW871	1 x LCW871
10 - 1000 mg/l NH4-N	4 x LCW866	2 x LCW866	1 x LCW866
Set of electrolyt (3*electrolyt and 3*membrane caps)	2 x LCW868		
Standard Solutions:	(2 Standard solutions included in each Reagent Set)		
Cleaning Solution (250ml) consumption depending on water hardness level			
Hardness < 15°dH (2.685 mmol/l)	4 x LCW867		
Hardness < 25°dH (4.475 mmol/l)	12 x LCW867		
Annual reagent costs			
Hardness < 15°dH (2.685 mmol/l)			
Hardness < 25°dH (4.475 mmol/l)			

Wearing parts			
Amtax sc GS Electrode (LZY069)	1 x	1 x	1 x
Pump head for air pump (LZY181)	1 x	1 x	1 x

Total Annual operation costs (Reagents & Wearing parts)	5 min	10 min	20 min
Hardness < 15°dH (2.685 mmol/l)			
Hardness < 25°dH (4.475 mmol/l)			

Ammonium

AMTAX sc (DataSheet DOC033.52.00430)

Part No.	Designation
	Mounting Hardware
LZX414.00.50000	Rim mounting for filtration probe
LZX414.00.60000	Rail mounting for filtration probe
LZY413	Extension pipe, 1.0 m, made of SS
LZY414	Extension pipe, 1.8 m, made of SS
LZY285	Rail mounting for Amtax sc/Phosphax sc analyzer
LZY286	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer + 1 sc 1000 controller
LZY287	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer
LZX958	sc1000 weather guard for Outdoor Installation (also suitable for 2 x sc100 controllers)
	Accessories
LZY440	Keys for sc-analyzer enclosure, (1 pair) *Replacement*
LZY302	Heated drain/connecting hose, 2m, 230V
LZY189	Accessories for AMTAXsc/PHOSPHAXsc, for continous sample (1-/2-channel)
LZY431	Power Extension cable for sc1000, 5 m, 115-230 VAC limited to 1 extension cable only
LQV155.99.00011	Power supply for AMTAX/PHOSPHAX sc, with EU plug used to connect a sc Analyzer to a sc100 controler or 2 additional sc Analyzers to a sc1000
	Reagent Sets
	Note: Please refer to the Chapter "Reagents & Consumables" for further details
	Wearing Part informations
LZY464	AMTAX sc - wearing part set, (1st year in operation), 10 min Measuring Interval
LZY465	AMTAX sc - wearing part set, (2nd year in operation), 10 min Measuring Interval
LZY468	Filter probe sc - wearing parts, (1st year in operation), 10 min Measuring Interval
LZY469	Filter probe sc - wearing parts, (2nd year in operation), 10 min Measuring Interval including 2 Filter module for filtration probe sc
LZY140	Filter module for filtration probe sc, pk/1 (replacement; 2 modules are required)

Wearing parts continued

The following parts must be changed at regular intervals by authorised service personnel!

LZY176	Reagent pump sc analyser (pump valve)	Warranty/Replacement after:	2 years operation
LZY181	Pump head for air piston pump, 10 ml Cylinder + piston (pre-greased)	Warranty/Replacement after:	1 year
LZY154	Set of filter pads, pk/2, Filter element, fan enclosure	Replacement	as required
LZY149	Compressor switchable (115VAC/230VAC)	Warranty/Replacement after:	2 years
LZY138	Exhaust (2pcs) for air cleaning of incl. sealing and screws		2 years operation
LZY139	Exhaust (copper)		2 years operation
LZY130	Set of wear parts for sample pump, incl. Membrane, valve, screws		3rd year, typically

Ammonium

AMTAX Inter 2 (DataSheet DOC053.52.03086)

High-precision process photometer based on the DIN 38406 E05 Indophenol blue method for the continuous measurement of the ammonium concentration in wastewater samples, in order to optimise nitrification process, outlet monitoring, or drinking water, surface water and process water.

The principle of intermittent operation guarantees rapid measured values and economical consumption.

Technical Data

Subject to change without notice

	AMTAX Inter 2
Measuring principle	Photometric, Indophenol blue method, according DIN 38406 E5
Measuring range	0.02 ... 2.00 mg/l NH4-N (AMTAX Inter 2-2)
	0.10 ... 20.0 mg/l NH4-N (AMTAX Inter 2-20)
	1.00 ... 80.0 mg/l NH4-N (AMTAX Inter 2-80)
Measuring uncertainty	
model Inter 2-2	± 4 % of the measured value ± 0.02 mg/l NH4-N with standard
model Inter 2-20	± 2 % of the measured value ± 0.02 mg/l NH4-N with standard
model Inter 2-80	± 2 % of the measured value ± 0.02 mg/l NH4-N with standard
Process variation coeff.	2%
Response time T_{90}	5 min
Measuring interval	5 min or 10 min, selectable
Display	Graphics monitor with datalogger and curves display
Special features	automatic calibration at selectable intervals and auto-cleaning single channel or two-channel operation option Integrated refridgerator for reagent storage
Reagent capacity	approx. 4 ... 8 weeks (depending on measuring interval)
Process connection	
Installation (Analyser)	Bypass; particle free water sample - wall mounting dry installation, protected against direct sun light
Inlet	3.2 mm OD
Drain	Atmospheric, 4/6 mm connection for waste, 8/11 mm for overflow tray (ID/OD)
Sample flow	at least 100 ml/h solid free sample
Temperature	
Sample	+5°C ... +40°C
Ambient	+5°C ... +40°C
Outputs	
Current	1 x 0/4 - 20 mA, max. 500Ohm, (optional: 2x)
Limit value contacts	2 contacts, floating 24 V, 1 A (optional)
Interface	ModBus or ProfiBus DP (optional)
Enclosure rating	IP54
Power supply	230 VAC ± 10% / 50-60 Hz, 200 VA
Dimensions	550 x 1,190 x 390 mm (W x H x D)
Maintenance requirements	1 h / month, typical
Inspection interval:	6 months
Weight	approx. 43 kg (without reagents)
Controller compatibility	Stand alone instrument
Warranty	24 month, fullfilling required inspection intervals, extendable to 60 month

Ammonium

AMTAX Inter 2 (DataSheet DOC053.52.03086)

Part No. **Designation**

LPV397.52.01000 **AMTAX Inter 2**, Prozess-Ammonium Analyzer

L	P	V	3	9	7	.	X	X	.	X	X	0	X	0	

Language / Country Code Selection *please refer to Appendix E for further info*

GB language / EU power cord **5 2**

Measuring range

0.1 - 20 mg/l NH4-N **0**
1.0 - 80 mg/l NH4-N **1**
0.02 - 2.0 mg/l NH4-N **2**

Sampling Option

1 channel continous (Replacement for use with Seditax Sampling system) **0**
1 channel continuous (Standard configuration) **1**
2 channel continuous ..... LZV289 ..... **2**

Interface Option

No Bus connection (Standard configuration) **0**
ModBus ..... YAA857 ..... **1**
ProfiBus DP ..... LZV148 ..... **2**

Standard accessories (supplied with the instrument)

1 set of wearing parts for one year operation
1 set of reagents (suitable for 2 month operation in 10 min cycle time)
1 set of cleaning solution
1 canister of zero solution
1 canister of standard solution
1 set of operating instructions
1 maintenance calendar

For low maintenance sampling from the aeration tank or final clarification, we recommend our FILTRAX sampling device. Please refer to the chapter "Sample Preparation".

Note:

For further spare parts and consumables please refer to the chapter Appendix A
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Reagents and consumables

Annual requirements for AMTAX Inter 2	Measuring interval	
	5 min	10 min
Reagents	13 x LCW802	6 x LCW802
Zero Solution	1 x LCW804	1 x LCW804
Standards depending on Measuring range		
0.02 ... 2.0 mg/l NH4-N	4 x LCW862	4 x LCW862
0.10 ... 20 mg/l NH4-N	1 x LCW803	1 x LCW803
1.00 ... 80 mg/l NH4-N	1 x LCW808	1 x LCW808
Cleaning Solution	1 x LCW819	1 x LCW819
Wearing parts		
1 channel analyzer	1 x LZV281	1 x LZV281
2 Channel analyzer	1 x LZV281	1 x LZV281
+	1 x LZV278	1 x LZV278

Total Annual operation costs (Reagents & Wearing parts for 1-Channel analyzer)	Measuring interval	
	5 min	10 min
0.02 ... 2.0 mg/l NH4-N		
0.10 ... 20 mg/l NH4-N		
1.00 ... 80 mg/l NH4-N		

Further optional accessories

LPV361	MODBUS node, bus node for connection to MODBUS	
HDF170	AMTAX User Guide	
DOC023.52.03107	AMTAX inter2 Instrument Manual; GB	charged when ordered separately
LZX408	VIEWTAX - program for data analysis	

Ammonium

AMTAX Inter 2 accessories

Part No.	Designation
	Cabinets for outdoor installation (made of stainless steel)
LZH010	Cabinet TYPE I, for one instrument (Type: compact) - Mounting bracket for one compact instrument - Heater, fan, terminal box, 2 sockets - Insulation
	Optional
LZH024	Bracket
LZH027	Wind protection
LZH011	Cabinet TYPE II, for two instruments (Type: compact) - Mounting bracket for two compact instruments - Heater, fan, terminal box, 3 sockets - Insulation
	Optional
LZH025	Bracket
LZH027	Wind protection
LZH012	Cabinet TYPE III, for three instruments (Type: 2 compact, 1 N-bypass) - Mounting bracket for three compact instruments - Heater, fan, terminal box, 3 sockets - Insulation
	Optional
LZH026	Bracket
LZH027	Wind protection

Ammonium

NH4D sc (DataSheet DOC063.52.00476)

The NH4D sc sensor has been developped for municipal waste water applications.

The sensor with ion-selective electrode (ISE) is a continous online process sensor for measurement of ammonia directly in the tank. It operates without reagents and requires no further processing of the sample. The Ammonia ions are measured using ISE.

The only wearing part is a single sensor cartridge, which includes the ISE electrodes for Ammonia and Potassium, a pHD sensor used as superior reference and a temperature sensor.

An optional available cleaning unit is available for automatically cleaning, using compressed air.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	NH4D sc
Designation	
Measuring principle	Ionselective electrodes for ammonium and potassium, pHD reference electrode
Field of application	Municipal waste water treatment
Measuring range	0.2 ... 100 mg/l NH4-N 30 ... 1000 mg/l NH4-N
	1 ... 1000 mg/l K+
Lower detection limit	0.2 mg/l NH4-N
Precision	5 % of the measured value ± 0.2 mg/l NH4-N with standard
Reproducability	5 % of the measured value ± 0.2 mg/l NH4-N with standard
Process variation coeff.	2%
Response time T_{90}	< 2 min
Measuring interval	continous
pH range	pH 5 ... 9
Calibration	Sensor code for sensor head optionally 1 or 2-point process calibration for matrix correction (process dependant)
Process connection	
Installation (Analyser)	Submersed directly into the media; 1" NPT thread connection
Depth	0.3 ... 3 m depth (1 ... 10 ft.)
Drain	Atmospheric, 4/6 mm connection for waste, 8/11 mm for overflow tray (ID/OD)
Sample flow	< 4 m/s
Temperature	
Sample	0°C ... +40°C (32 ... 104°F)
Ambient	-20°C ... +45°C (-4 ... 113°F)
Outputs	
Current	1 x 0/4 - 20 mA, max. 500Ohm, (optional: 2x)
Limit value contacts	2 contacts, floating 24 V, 1 A (optional)
Interface	ModBus or ProfiBus DP (optional)
Enclosure rating	submersible up to 3 m depth max.
Wetted materials	316 SS with ends made of PVDF (Ryton)
Power supply	via sc100/sc1000 controller
Power consumption	1 W
Dimensions	350 x 44 mm (L x Ø)
Cable length	10 m fixed cable, extendable to 100 m using digital extension cables
Weight	~ 0.87 kg (without cleaning device)
Controller compatibility	sc100 and sc1000
Warranty	12 month for the sensor cartridge (typical application) 24 month for the sensor, extendable to 60 month

Ammonium

NH4D sc (DataSheet DOC063.52.00476)

Part No.	Designation
LXV437.99.00001	**NH4D sc**, Ammonia-ISE-Process-Probe with 10m cable, w/o sc controller

L X V 4 3 7 . 9 9 . 0 0 0 0 1 [ ]

Language / Country Code Selection *please refer to Appendix E for further info*

Standard accessories (supplied with the instrument)

1 factory calibrated sensor cartridge
1 set of operating instructions
1 Factory Test Certificate

Note: sc Digital Controller must be ordered separately.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly

Consumables

6188400 NH4D sc sensor cartridge, factory calibrated (replacement)
12 month warranty for typical application (municipal waste water treatment)

Recommeded accessories

6188300 Test cartridge (for "NH4D sc sensor function test")

Mounting accessories

6184900.99.0000 Rail Mounting Kit for NH4D sc, made of PVC

LZX914.99.12400 Chain Mounting for NH4D sc, made of PVC

LZY514 Additional weight for Cleaning unit
for use with Cleaning Unit and Chain mouting kit LZX914.99.12400

EXA173 Fitting, 45° angle, 2 x 1½" NPT connectors, made of PVC (replacement)

Optional accessories

LZY331.99.00001 Cleaning Unit for NH4D sc sensor, w/o compressor

6860X03.99.0001 HOAB - High Output Airblast Cleaning system

6 8 6 0 X 0 3 . 9 9 . 0 0 0 1 [ ]

Power supply option

230 VAc **1**
115 VAc **0**

Language / Country Code Selection *please refer to Appendix E for further info*

Standard accessories (supplied with the instrument)

The following items are included as standard components of the self-cleaning kit:
• Tubing, 7.6 m (25 ft), • Tie wraps, • HOAB compressor with mounting hardware
• Relay Barrier

Note: For further informations please refer to the chapter Sample preparation -> HOAB

HOAB Wearing Parts

LZX030 Air filter for inlet air tube for dusty environment

Ammonium

NH4D sc accessories

Part No.	Designation
	Digital extension cable (between sc controller and probe)
LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30m
LZX853	Digital Extension Cable, 50 m

Note: The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the above mentioned, will void the warranty.

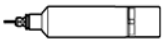
	Documentation (supplied with instruments, respectively on order with extra charge)
DOC027.52.00745	NH4D sc Operating Manual, GB
DOC307.52.00747	Cleaning unit Instruction Sheet, GB
DOC273.52.00145	Pole mounting hardware Instruction Sheet, GB
DOC273.52.00147	Chain mounting hardware Instruction Sheet, GB
DOC027.52.00746	High Output Airblast cleaning system Operating Manual, GB

	Reference Laboratory system for Process Calibration/Verification purpose
LZY571	Pocket Colorimeter II - LCK Ammonia - Validation Kit for NH4D sc LZY571 is a bundle which consist out of LCK-on-pocket "Ammonia-kit" P/N 5653000V.01), 1 box of LCK303, 1 box LCK304, pipettor, tips, filtration cartridges, cuvette stand etc Please refer to DOC012.98.90071 for further information.

Nitrate

NITRATAX sc variants - Product Selector

NITRATAX plus sc



Process sensor for continuous measurement in drinking water, wastewater, or activated sludge. Turbidity compensation using reference measurement.

NITRATAX eco sc

Low cost sensor for measurement, especially for sewage treatment plants with intermittent aeration technology. Turbidity compensation using reference measurement.

NITRATAX clear sc

Process sensor for continuous measurement in clean water sample streams, e.g. drinking water or WWTP effluent (in conjunction with Filtrax).

	NITRATAX sc plus	NITRATAX sc eco
Applications		
Control of intermittent aerated basin	✓	✓
Monitoring of aeration basin	✓	✓
Control of the recirculation of a pre-denitrification (concentration below 1 mg/l NO3-N)	✓	Not recommended
Applications with	✓	Not recommended
high suspended solids concentrations	✓	Not recommended
low Nitrate concentrations	✓	Not recommended
fast response time needed	✓	Not recommended
Outlet measuring wwtp	✓	Not recommended
Drinking & Surface Water	✓	Not recommended
Technical data		
Measuring gap:	1 mm, 2 mm, 5 mm	1mm
Lower detection limit	0.1 mg/l	1 mg/l
Upper detection limit as NOX-N	100, 50, 20 mg/l	20 mg/l
Measuring uncertainty	± 3 % from MV ± 0,5 mg/l	± 5% from MV ± 1,0 mg/l
Resolution	0,1 mg/l	0,5 mg/l
Sludge compensation	✓	✓
Minimum measuring interval	1 min	5 min
Response time (t100)	1 min	15 min
Material + Components		
Robust steel enclosure with double sealing	✓	-
Steel enclosure with single sealing	-	✓
Precision-Optic with elaborate adjustment	✓	-
Maintenance		
Maintenance time	1 h / month	2 h / month
Verification of sludge compensation	Once per month	Once per week
Inspection interval	6 month	6 month
Warranty light source	5 years	1 year
Warranty	24 month fullfilling the required service intervals	
Extended warranty with service contract	5 years	2 years

Nitrate

NITRATAX sc variants (DataSheet DOC053.52.03222)

Nitrate and Nitrite ions in water absorbs UV light at wavelengths below 250 nm. This inherent absorption allows to determine the nitrate and nitrite concentration without reagents.
As the measuring principle is based solely on the evaluation of UV light, the colour of the medium has no effect.

The probe has been designed with a two-beam absorption photometer with turbidity compensation and integrated cleaning system using proven wiper technology to measure even in media with SS contents, e.g. aeration basin.

The measured value is displayed as NO_x-Nitrogen in mg/l NO_x-N and provided on current outputs. Various operating modes for the relay outputs permit local regulation without further process data processing.

The probe design allows installation directly in the media (insitu) or in bypass.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

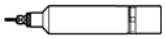
	Nitratax plus sc	Nitratax eco sc	Nitratax clear sc
Measuring principle	photometric, UV absorption measurement, reagent-free		
Measuring method	Patented 2-beam method		
Measuring gap	1, 2 or 5 mm	1 mm	5 mm
Measuring range			
1 mm	0.1 - 100 mg/l NO2+3-N	1.0 - 20 mg/l NO2+3-N	-
2 mm	0.1 - 50 mg/l NO2+3-N	-	-
5 mm	0.1 - 25 mg/l NO2+3-N	-	0.5 - 20 mg/l NO2+3-N
Sludge compensation	Yes	Yes	No
Lower detection limit	0.1 mg/l as N	1 mg/l as N	0.5 mg/l as N
Upper detection limit	100 mg/l as N	20 mg/l as N	20 mg/l as N
Measuring uncertainty	± 3% of reading ± 0.5 mg/l	± 5% of reading ± 0.5 mg/l	± 5% of reading ± 0.5 mg/l
Resolution	0.1 mg/l	0.5 mg/l	0.1 mg/l
Response time T_{100}	1 min	15 min	1 min
Measuring interval	1 min	5 min	5 min
Integration (average)	> 1 min, adjustable	15 - 30 min, adjustable	> 5 min, adjustable
Process connection	Immersion style (directly in the media) or bypass installation with atmospheric outlet		
Immersion	Yes	Yes	Yes
Bypass	Yes	not applicable	Yes
Sample inlet	4/6 mm (ID/OD)	-	4/6 mm (ID/OD)
Drain (outlet)	4/6 mm (ID/OD)	-	4/6 mm (ID/OD)
Required flow	0.5...10 l/h	-	0.5...10 l/h
Pressure p max	0.5 bar	0.5 bar	0.5 bar
Temperature			
Sample	+2°C ... +40°C	+2°C ... +40°C	+2°C ... +40°C
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables		
Dimensions (L x Ø)	333 mm x 70 mm	327 mm x 75 mm	323 mm x 75 mm
Wetted Material			
Sensor housing	SS 316, 1.4571 double sealed body	SS 316, 1.4571 single sealed body	SS 316, 1.4581 single sealed body
Wiper axis/arm	SSl, 1.4104 / SS, 1.4581	SS, 1.4571 / SS, 1.4581	SS, 1.4571 / SS, 1.4581
Cable gland	Stainless steel, 1.4305	Stainless steel, 1.4305	Stainless steel, 1.4305
Cable gland seal	PVDF	PVDF	PVDF
Profile carrier	SS, 1.4310	SS, 1.4310	SS, 1.4310
Measuring window	Quart glass, SUPRASIL		
Weight (approximately)	3.6 kg	3.3 kg	3.3 kg
Maintenance required	1 h/month typical	1 h/month typical	1 h/month typical
Inspection interval	2 x / Year		
Controller compatibility	sc100 and sc1000		
Warranty on light source	5 years	1 year	1 year
Warranty	24 month, fullfilling required inspection intervals, extendable to 60 month		

Nitrate

NITRATAX sc variants (DataSheet DOC053.52.03222)

Part No.	Designation

LXV417.99.X0001 **Nitratax plus sc**, with 10m cable, without sc controller



L X V 4 1 7 . 9 9 . X 0 0 0 1

Language / Country Code Selection *please refer to Appendix E for further info*

Measuring range

0.1 - 100.0 mg/l NO2+3-N	(1mm gap)	.....	**1**
0.1 - 50.0 mg/l NO2+3-N	(2mm gap)	.....	**2**
0.1 - 25.0 mg/l NO2+3-N	(5mm gap)	.....	**5**

LXV415.99.10001 **Nitratax eco sc**, with 10m cable, without sc controller

L X V 4 1 5 . 9 9 . 1 0 0 0 1

Language / Country Code Selection *please refer to Appendix E for further info*

Measuring range

1.0 - 20.0 mg/l NO2+3-N	(1mm gap)	.....	**1**

LXV420.99.50001 **Nitratax clear sc**, with 10m cable, without sc controller

L X V 4 2 0 . 9 9 . 5 0 0 0 1

Language / Country Code Selection *please refer to Appendix E for further info*

Measuring range

0.5 - 20.0 mg/l NO2+3-N	(5mm gap)	.....	**5**

Standard accessories (supplied with the instrument)

1 set of wiper blades (5 pieces)
1 set of wearing parts
1 NO3 Standard solution
1 Instrument manual
1 Factory Test Certificate

Immersion Mounting assembly LZX414.00.10000 or suitable Bypass installation assembly is essential for installation and must be ordered separately.

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

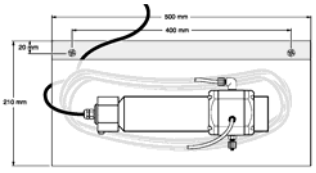
Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03211 Instrument manual NITRATAX plus sc / NITRATAX clear sc/Nitratax eco sc, GB

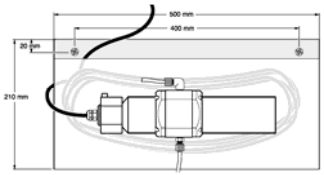
Nitrate

NITRATAX sc accessories

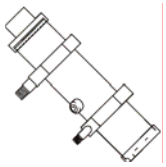
Part No.	Designation
	Mounting assembly for Immersion application
LZX414.00.10000	Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 90° adapater for fixing a NITRATAX, UVAS or SOLITAX to a tank or channel
	Mounting assembly for Bypass application
LZX869	Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (2 and 1 mm version)
LZX867	Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (5 mm version)
LZX866	Mounting Assembly Kit "Flow-Through", for NITRATAX clear sc



Nitratax plus sc version
Technical Data see Manual



Nitratax clear sc version
Technical Data see Manual



Sedimenter
(DataSheet DOC043.52.04060)

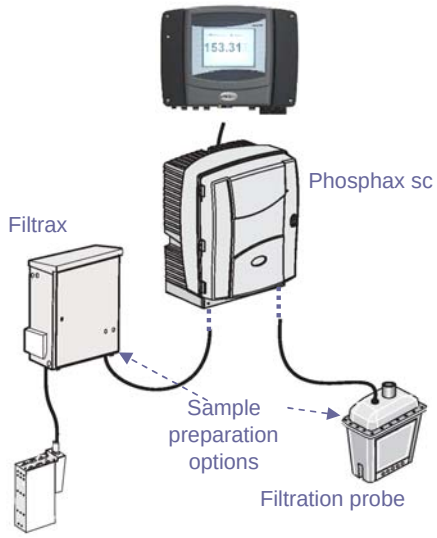
LZX450	Sedimenter, Flow-through Mounting Assembly unit for extremely turbid water including Monuting hardware; for use with NITRATAX plus / UVAS plus variants only!
LZX412	Mounting flange for Sedimenter LZX450
	Digital extension cable (between sc controller and probe)
LZX848	Digital Extension Cable, with molded plug and coupling, 5 m
LZX849	Digital Extension Cable, with molded plug and coupling, 10 m
LZX850	Digital Extension Cable, with molded plug and coupling, 15 m
LZX851	Digital Extension Cable, with molded plug and coupling, 20 m
LZX852	Digital Extension Cable, with molded plug and coupling, 30 m
LZX853	Digital Extension Cable, with molded plug and coupling, 50 m

Note: The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the above mentioned, will void the warranty.

	Spare parts
LZX148	Set of wiper blades for NITRATAX/UVAS, 1 mm, pk/5
LZX012	Set of wiper blades for NITRATAX/UVAS, 2 mm, pk/5
LZX117	Set of wiper blades for NITRATAX/UVAS, 5 mm, pk/5
	Standard solutions for instrument calibration/verification
LCW825	Reference standard 50 mg/l NO3 (11.3 mg/l NO3-N)
LCW826	Reference standard 100 mg/l NO3 (22.6 mg/l NO3-N)
LCW827	Reference standard 200 mg/l NO3 (45.2 mg/l NO3-N)

ortho-Phosphate

Phosphax sc (DataSheet DOC033.52.00430)



High-precision Process-Photometer for the continous determination of ortho-Phosphate in water, waste water or directly in activated sludge basin.
The measuring principle is based on the well proofed Vanadat-Molybdat method allowing a wide measuring range in parallel.

Optional sampling and sample prepartion using self-cleaning high speed "Filtration probe" or flexible "Filtrax" system respectively any feeding Ultra-Filtration systems.

Direct On-Site installation due to isolated construction in weather resistant enclosure, or inhouse installation.

Highest flexibility and extendability due to sc1000 controller´s freely selectable multi-probe/analyzer operation feasibility.

Technical Data

Subject to change without notice

	PHOSPHAX sc	
Measuring method	Photometric, Vanadat Molybdat Method (Yellow)	
Measuring range	0.05 ... 15 mg/l PO4-P	1.0 ... 50.0 mg/l PO4-P
Detection limit	0.05 mg/l PO4-P	1.0 mg/l PO4-P
Accuracy	3 % + 0.05 mg/l	3 % + 1.0 mg/l
Reproduceability	2 % + 0.05 mg/l	2 % + 1.0 mg/l
Reagent consumption	500 ml/ month	1000 ml/month
Response time T_{90}	< 5 Minutes (including sampling)	
Measuring Interval	5 – 120 minutes (user selectable)	
Specific features	Automatic cleaning, automatic calibration, comprehensive self-diagnosis, optional: 2-channel version for continous sample feed	
Process connection		
Installation (Analyser)	Bypass; particle and oil free water sample - wall, stand or rail mounting	
Sample Inlet	3.2 mm OD	
Drain (outlet)	6 mm	
Sample flow	at least 200 ml/h feeded by HACH LANGE Filtration probe, Filtrax or general Ultrafiltration system	
Pressure range	non-pressurized; atmospheric	
Temperature		
Sample:	+4°C ... +40°C	
Ambient:	–20°C ... 45°C; 95 % relative humidity, non-condensing	
Storage:		
Analyzer:	–20°C ... 60°C; 95 % relative humidity, non-condensing	
Outputs	several (Relay, I/0 outputs, bus interface); please refer to sc controller specifications	
Power supply & consumption:	Power supply with power cable on the sc1000 controller 200 VA (mean), max. 1000 VA (with 10 m heated filter probe hose)	
Dimensions	540 x 720 x 390 mm (W×H×D)	
Cable length	2 m fixed cable, extendable by using Power Extension cable for sc1000, 5 m (only once)	
Weight	Approx. 31 kg, without filter probe and without chemicals	
Material	ABS Plastic, UV resistant	
Enclosure rating	Onsite (IP55) or Indoor	
Reagent capacity	4 Month minimum (depending on measuring interval)	
Inspection interval	2x / Year	
Maintenance requirements	1 h/month typical (Process dependant)	
Controller compatibility	sc1000 (recommended) or sc100 by means of external sc Analyzer power supply box	
Warranty:	24 month, fullfilling required inspection intervals, extendable to 60 month	

ortho-Phosphate

Phosphax sc (DataSheet DOC033.52.00430)

Part No. **Designation**

LXV422.99.XXX01 **PHOSPHAX sc**, with 2 m connection cable, w/o controller

L	X	V	4	2	2	.	9	9	.	X	X	X	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Measuring range option

0.05 - 15 mg/l PO4-P	**1**
1.00 - 50 mg/l PO4-P	**2**

Sampling Option

without probe (Prepared for operation with sampling probe)	**0**
With filtration probe (5m heated hose)	**1**
With filtration probe (10m heated hose)	**2**
1 channel continuous sample from filtration unit, e.g. FILTRAX	**3**
2 channel continuous sample from filtration unit, e.g. FILTRAX	**4**

Power Supply Option for sampling probe:

230 VAC/50Hz sampling probe	**0**
115 VAC/60Hz sampling probe	**1**

Standard accessories (supplied with the instrument)

1 set of reagents
1 set of wearing parts for one year operation
1 set of operating instructions
1 maintenance calendar
1 Factory Test Certificate

For further information about the Filtration probe & Filtrax, please refer to the Chapter Sampling systems.

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Reagents and consumables

Annual requirements for PHOSPHAX sc	Measuring interval		
	5 min	10 min	20 min
Reagents			
Reagents LCW869 (2 l)	3 x LCW869	1.5 x LCW869	0.75 x LCW869
Cleaning Solution LCW870 (1 l)	1 x LCW870	1 x LCW870	1 x LCW870
Annual reagent costs			
Wearing parts			
Pump head for air pump (LZY181)	1 x	1 x	1 x
Total Annual operation costs (Reagents & Wearing parts)	5 min	10 min	20 min

ortho-Phosphate

Phosphax sc (DataSheet DOC033.52.00430)

Part No.	Designation
	Mounting Hardware
LZX414.00.50000	Rim mounting for filtration probe
LZX414.00.60000	Rail mounting for filtration probe
LZY413	Extension pipe, 1.0 m, made of SS
LZY414	Extension pipe, 1.8 m, made of SS
LZY285	Rail mounting for Amtax sc/Phosphax sc analyzer
LZY286	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer + 1 sc 1000 controller
LZY287	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer
LZX958	sc1000 weather guard for Outdoor Installation (also suitable for 2 x sc100 controllers)
	Accessories
LZY440	Keys for sc-analyzer enclosure, (1 pair) *Replacement*
LZY302	Heated drain/connecting hose, 2m, 230V
LZY189	Accessories for AMTAXsc/PHOSPHAXsc, for continous sample (1-/2-channel)
LZY431	Power Extension cable for sc1000, 5 m, 115-230 VAC limited to 1 extension cable only
LQV155.99.00011	Power supply for AMTAX/PHOSPHAX sc, with EU plug used to connect a sc Analyzer to a sc100 controler or 2 additional sc Analyzers to a sc1000
	Reagent Sets

Note: Please refer to the Chapter "Reagents & Consumables" for further details

	Wearing Part informations		
LZY466	PHOSPHAX sc - wearing part set, (1st year in operation), 10 min Measuring Interval		
LZY467	PHOSPHAX sc - wearing part set, (2nd year in operation), 10 min Measuring Interval		
LZY468	Filter probe sc - wearing parts, (1st year in operation), 10 min Measuring Interval		
LZY469	Filter probe sc - wearing parts, (2nd year in operation), 10 min Measuring Interval including 2 Filter module for filtration probe sc		
LZY140	Filter module for filtration probe sc, pk/1	(replacement; 2 modules are required)	
	Wearing parts continued		
	The following parts must be changed at regular intervals by authorised service personnel!		
LZY176	Reagent pump sc analyser (pump valve)	Warranty/Replacement after:	2 years operation
LZY181	Pump head for air piston pump, 10 ml Cylinder + piston (pre-greased)	Warranty/Replacement after:	1 year
LZY154	Set of filter pads, pk/2, Filter element, fan enclosure	Replacement	as required
LZY149	Compressor switchable (115VAC/230VAC)	Warranty/Replacement after:	2 years
LZY138	Exhaust (2pcs) for air cleaning of incl. sealing and screws		2 years operation
LZY139	Exhaust (copper)		2 years operation
LZY130	Set of wear parts for sample pump, incl. Membrane, valve, screws		3rd year, typically

ortho-PHOSPHATE

PHOSPHAMAT 9211, HR & LR

Industrial, continuously working analyser for the measurement of ortho-phosphates in highly purified water, e.g. boiler feed water, cooling water, semiconductor industry.

The analytical principle is the colorimetric molybdovanadate method, blue-method for low ranges and yellow-method for high ranges, up to 6 internal channels.

Technical Data

Subject to change without notice

	PHOSPHAMAT 9211
Designation	
Application	Power plant boiler, feedwater Steam generation, Water supply applications
Measuring principle	photometric; molybdovanadate method, blue-method for low ranges and yellow-method for high ranges
Measuring range	0...5 ppm / 0...50 ppm (mg/l) as PO43-
Repeatability	±0.1 ppm or ± 3% (whichever is greater)
Detection limit	< 0.1 ppm
Response time T_{90}	~ 10 min
Measuring interval	9 minutes typical per sample stream
Calibration	2 point calibration: chemical zero and slope Automatic optical Zero before each measurement
Calibration interval	user selectable
Process connection	
Installation style	Bypass installation, particle free sample
Sample Stream	1 ... 6, programmable in-built sequencer
Sample inlet	6 mm OD PE/PTFE tubing
Drain (outlet)	12 mm barbed hose with atmospheric outlet
Sample flow	15 ... 20 l/h
Pressure range	0.2 to 6 bar (3 to 87 psi)
Air purge	
Temperature	
Sample	+5°C ... +50°C Yellow method (0 … 50 ppm)
	+5°C ... +35°C Blue method (0 … 5 ppm)
Ambient	+5°C ... +45°C
Outputs	6 x 0/4...20mA (one per channel), electrically isolated, can be programmed as required (650 Ohm max) 6 relay outputs (more details see DataSheet) the six relays can be assigned to : phosphate high/low concentration limits, lack of sample,active channel information. RS485 MODBUS optional (300 9600 baud 32 stations max)
	Profibus DP (on request)
Power requirements	100 - 240 VAC ±10%, 50/60 Hz, automatical switching, 80VA max
Enclosure rating	IP65 (NEMA4X) Protection transmitter box
Material	Panel version: Polystyrene-polybutadiene copolymer Cabinet version: Stove enamelled steel IP54
Dimensions	Panel: 482 x 1015 x 254 mm (W x H x D) Cabinet: 600 x 878 x 425 mm (W x H x D)
Weight	Panel: 13 kg Cabinet: 65 kg
Maintenance requirement	appr. every 45 days "Refill of reagents and calibration solution"
Remarks:	Altitude: < 2000 m; 10 ... 80% relative Humidity
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

ortho-PHOSPHATE

PHOSPHAMAT 9211, HR & LR

Part No.	Designation
Z09211=A=XXXX	**Phosphamat 9211**, Panel version, I/O output, 1 channel (basis model)

Z	0	9	2	1	1	=	A	=	X	X	X	X

Measuring range option

0 ... 5,000 ppb	(5 mg/l)	**3**
0 ... 50,000 ppb	(50 mg/l)	**4**

Enclosure option

19" Panel version	(Standard)	**0**
Cabinet version	(Wall mounted)	**1**

Output option

I/0 Interface	(Standard)	**0**
I/0 Interface + RS485 MODBUS		**1**

Multi-Stream Sequencer (inbuilt)

1 channel version	**1**
2 channel version	**2**
3 channel version	**3**
4 channel version	**4**
5 channel version	**5**
6 channel version	**6**

Reagent Sets

Z09211=C=7000 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation, Low Range 0 - 5 ppm, pk/1

Z09211=C=7001 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation, High Range 0 - 50 ppm, pk/1

Sulfuric Acid is essential for operation and must be purchased locally in the market.
250 ml will be required for preparation of 2 l Reagent 1. Alternatively consider:

97949 Sulfuric acid, concentrated, ACS grade, 500 ml

Spare Parts

Z09210=A=8000 2-years-spare part kit - 921X (all ranges)
Includes items and quantities below
4 x Z151575,00006 PE tubing 4x6 mm (per meter)
0.5 x Z151400,22387 PE tubing 6 x 8 mm (per meter)
6 x Z590=050=060 Tubing Polyethylene 1.6 x 3.2mm (per meter)
0.2 x Z151065,08699 PTFE Tubing 0.8 x 1.6 mm (per meter)
6 x Z589=010=015 Fitting for 1.5 mm I.D tubing - 10/32 UNF thread

Z09210=A=8010 9211 PHOSPHAMAT Instrument Tech Spare Part Kit, pk/1
for 9211 PHOSPHAMAT Low range (0 ... 5 ppm)
Includes items and quantities below »
1 x Z09210=A=0250 » Sample level sensor for 921X
1 x Z09210=C=7000 » 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation
4 x Z495=020=001 » 2 liter PE canister with plain cap
4 x Z50000=C=7100 » Pre-printed stickers for reagents
1 x Z689=118=008 » Sampling solenoid valve, NPS 0,8 (0,2 - 6 bars)
1 x Z689=118=024 » "Transfer" sampling solenoid valve, attached to overflow vessel
1 x Z695=004=004 » Calibration / flush pump
1 x Z695=114=001 » Reagent pulse pump

Z09210=A=8011 9211 PHOSPHAMAT Instrument Tech Spare Part Kit, pk/1
for 9211 PHOSPHAMAT High range (0 ... 50 ppm)
Includes items and quantities below »
1 x Z09210=A=0250 » Sample level sensor for 921X
1 x Z09210=C=7001 » 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation
2 x Z495=020=001 » 2 liter PE canister with plain cap
2 x Z50000=C=7101 » Pre-printed stickers for reagents
1 x Z689=118=008 » Sampling solenoid valve, NPS 0,8 (0,2 - 6 bars)
1 x Z689=118=024 » "Transfer" sampling solenoid valve, attached to overflow vessel
1 x Z695=004=004 » Calibration / flush pump
1 x Z695=114=001 » Reagent pulse pump

ortho-PHOSPHATE

Series 5000 Phosphate analyser, HR & LR (DataSheet LIT1388)

The Series 5000 Low Range Phosphate Analyzer is ideally suited for monitoring drinking water, and boiler water, and can be used in other situations where trace amounts of phosphate must be carefully tracked.

Depending on the Phosphate concentration in the water sample, the S5000 Phosphate Analyzer is available in 2 versions.

The Series 5000 High Range Phosphate Analyzer provides best results when used in applications involving boiler water, cooling water, and other processes where phosphate-containing additives are used to treat industrial water.

Both instruments require minimal maintenance to achieve reliable performance.

Technical Data

Subject to change without notice

	S5000	
Designation		
Measuring method	Photometric; Molybdenum blue method	Photometric, Vanadat Molybdat Method
Measuring range	4 ... 5000 µg/l as PO_4^{3-}	0.2 ... 50.0 mg/l as PO_4^{3-}
Detection limit	< 4 µg/l as PO_4^{3-}	< 0.2 mg/l PO_4^{3-}
Accuracy	± 4 µg/l or ± 4 % of the displayed value	± 0.5 mg/l or ± 5 % of displayed value, whichever is the larger
Response time T_{90}	11 min	11 min
Calibration	factory precalibrated automatic calibration in process, on demand or user calibration	
Process connection		
Installation (Analyser)	Bypass installation; Bench or Panel mounting	
Sample Stream	Single stream analysis, grab sampling capabilty or optional multi stream using sample sequencer	
Sample Inlet	¼" OD, stainless steel compressing fitting	
Drain (outlet)	¾" NPT PVC	
Sample flow	100 ... 300 ml/min	
Pressure range	0.35 – 2.1 bar regulated overpressure	
Air purge	optional: ¼" OD, stainless steel compressing fitting, instrument quality air (30 l/min)	
Temperature		
Sample:	+5°C ... 50°C	
Ambient:	+10°C ... 50°C, 5 to 95% relative humidity, non condensing	
Outputs	I/0 output (0/4...20mA) RS232C Recorder output; selectable for 0...0.01V, 0...0.1V, 0...1V or 4-20 mA 4 SPDT Relays, programmable for sample concentration alarm, analyser system warning, analyser system shut-down alarm	
Power requirements	115/230 VAC, 50/60 Hz switch selectable, 52 VA, max. 32 W	
Enclosure rating	IP65 (NEMA4x)	
Material	ABS plastic, housing with gasketed doors (for indoor use)	
Dimensions	563 x 856 x 419 mm (W x H x D)	
Weight (approximately)	37 kg (shipping weight)	
Reagent consumption	2.9 l of each reagent in 4 weeks	
Controller compatibility	Stand alone instrument	
Warranty:	12 month, extendable to 60 month	

ortho-PHOSPHATE

Series 5000 Phosphate analyser, HR & LR (DataSheet LIT1388)

Part No.	Designation
6000X00	S5000 Ortho-Phosphate Analyzer

6	0	0	0	X	0	0

Measuring range option

High range 0.2 ... 50 mg/l PO43-	**1**
Low range 0.004 ... 5.0 mg/l PO43-	**5**

Note: The analyser is supplied with one month reagent set, an annual maintenance kit, operating instructions and a sample conditioning kit. The power cable must be ordered separately if required.

Recommended Accessories

4698133	Annual Maintenance Kit, Series 5000 Phosphate analyser, low range
4698100	Annual Maintenance Kit, Series 5000 Phosphate analyser, high range
4743900	Power cord, 240 VAC, 10A, 2.44 m (8 ft), European plug
4696400	Power cord, 120 VAC, 15A, 1.83 m (6 ft)

Optional Accessories

4765400	Installation Kit S5000 HR
4765800	Installation Kit S5000 LR
4598300	Sample conditioning kit made of stainless steel The stainless steel sample conditioning kit replaces the plastic kit which comes with this analyzer. It will handle up to 3425 kPa (500 psi) and 50°C.
4868502	S5000 Sample heater, 240 VAC with digital temperature display, 20-50°C and flow range 50 to 300 ml/min adjustable
LZX521	Compressor with connection kit, 2xFitting 1/4-inch OD + 5m tubing
4699100	Sample Pressure Conditioning Kit

Reagents & Consumables for 1 month operation

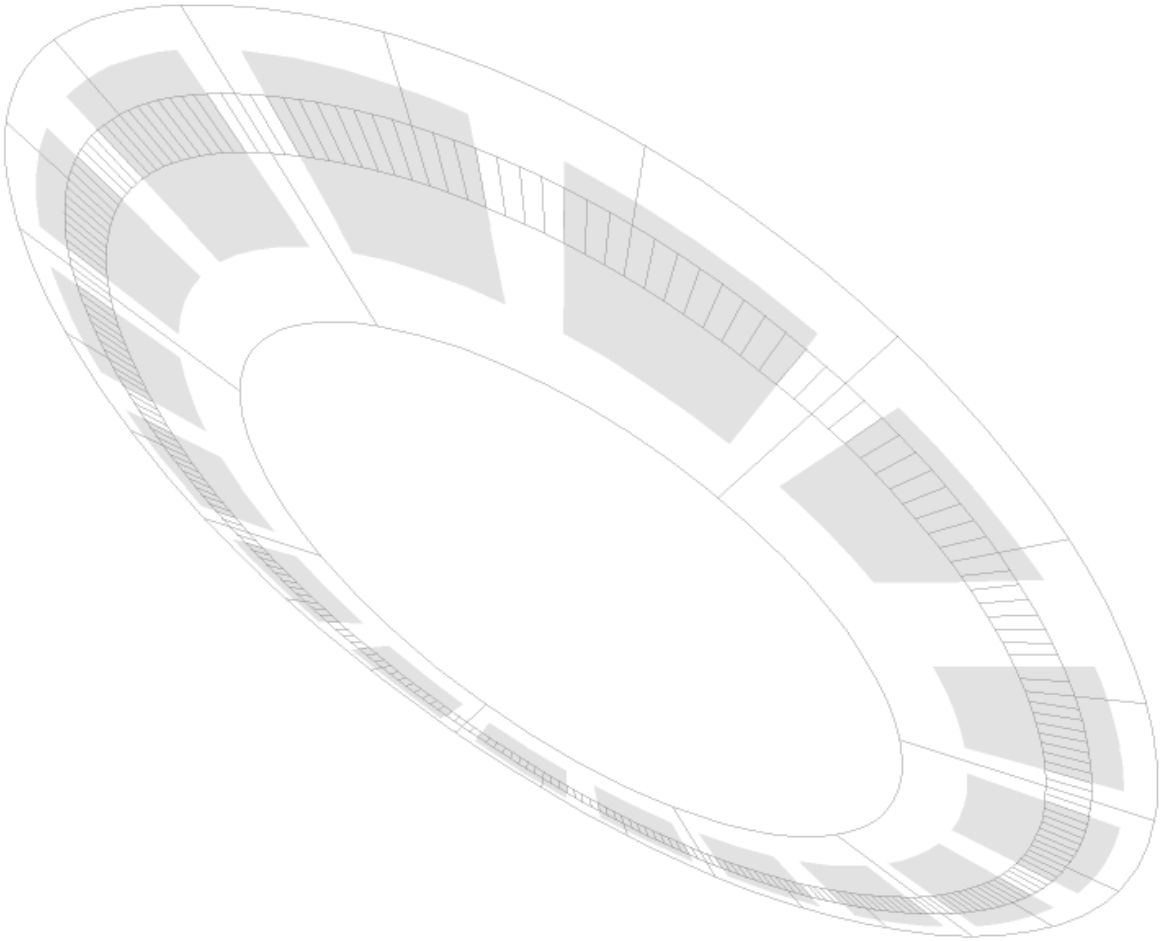
	Phosphate LR Reagent Set, S5000 (suitable for 1 month operation) consisting of
2375503	Anionic Surfactant Solution, 2.9 l
2600303	Acsorbic Acid Reagent package
2599803	Molybdate Reagent Solution for LR, 2.9 l
2059703	Phosphate Standard Solution, 3 mg/l, 2.9 l
2600103	Phosphate Zero Standard Solution, 2.9 l
	Phosphate HR Reagent Set, S5000 (suitable for 1 month operation) consisting of
1420703	Molybdovanadate Reagent, 2.9 l
244903	Sulfuric Acid Standard Solution, 2.9 l
1436703	Phosphate Standard Solution, 30 mg/l, 2.9 l
2375503	Anionic Surfactant Solution, 2.9 l

Spare Parts

4698200	Replacement Tubing Kit, for S5000 Phosphate HR
4698233	Replacement Tubing Kit, for S5000 Phosphate LR
1033814	Seal, ring, for customer connection box conduit hole (4)
4493600	Stir Bar, for sample cell
1320100	Tubing, Tygon, 6 feet, for drain

Totalising Parameters

Product overview



Total-Phosphorous & Ortho-Phosphate

PHOSPHAX Σ sigma (DataSheet DOC053.52.03087)

Process analyzer for continous measurement of total phosphorus and orthophosphate, respectively total phosphorus concentration in wastewater (WWTP outlet) and cooling water, including solids of particle size up to 0.5 mm.

Analysis is based on the DIN-equivalent molybdenum blue method.
The chemo-thermic reaction principle ensures complete breakdown within a few minutes.

Technical Data

Subject to change without notice

	PHOSPHAX Σ sigma **Total phosphorous & ortho-phosphate**	**PHOSPHAX Σ sigma** **Total phosphorous**
Measuring principle	Photometric, Indophenol blue method, according DIN 38406 E5	
Measuring range	0.01 ... 5.0 mg/l total – P 0.01 ... 5.0 mg/l o-PO4-P	0.01 ... 5.0 mg/l total – P
Measuring interval T_{100}	approx. 10 min, o-PO4 and Total PO4-P alternately adjustable	approx. 10 min
Calibration	automatic, intervals user selectable	
Reagent capacity	3 months for Reagents; 6...12 months for Standard solution	
Display	Graphics monitor with datalogger and curves display	
Process connection		
Installation (Analyser)	Bypass; homogenisated water sample - wall mounting dry installtion, protected against direct sun light	
Sample Inlet	3.2 mm OD	
Drain (outlet)	Atmospheric, 4/6 mm connection for waste, 8/11 mm for overflow tray	
Sample flow	approx. 100 ml/h	
Temperature		
Sample	+5°C ... +40°C	
Ambient	+5°C ... +40°C	
Outputs	2x analog: 0/4–20 mA, max. 500Ohm 2 floating limit value contacts 24V, 1A ProfiBus or ModBus (optional) Service interface RS 232	
Enclosure	IP54	
Power supply	230VAC, 50 Hz / 310 VA including refrigerating unit	
Dimensions	550 x 1190 x 390 mm (W x H x D), including refrigerating unit	
Weight	approx. 43 kg (without reagents)	
Inspection interval	3 months	
Maintenance	2 h / month typical	
Special Notes:	Integrated refridgerator for reagent storage	
Controller compatibility	Stand alone instrument	
Warranty	24 month, fulfilling the requested inspection intervals	

Total-Phosphorous & Ortho-Phosphate

PHOSPHAX Σ sigma (DataSheet DOC053.52.03087)

Part No. **Designation**

LPV341.XX.X00X0 **Phosphax Σ sigma**, Process Analyzer

L	P	V	3	4	1	.	X	X	.	X	0	0	X	0	

Language / Country Code Selection *please refer to Appendix E for further info*

GB language / EU power cord **5 2**

Measuring range

Total Phosphorus + ortho Phosphate **1**
Total Phosphorus **2**
Total Phosphorus + ortho Phosphate for Cooling Water Applications **3**

Interface Option

No Bus connection (Standard configuration) **0**
ModBus ..... YAA857 ..... **1**
ProfiBus DP ..... LZV148 ..... **2**

Standard accessories (supplied with the instrument)

1 set of wearing parts for one year operation
1 set of reagents (suitable for 3 month operation)
1 Standard solution
1 set of operating instructions
1 maintenance calendar
1 Factory Test Certificate

The SIGMATAX2[3] is essential for sampling and homogenisation when measuring total-Phosphate and must be ordered separately.

Note:

For further spare parts and consumables please refer to the chapter Appendix A
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
[3] Please refer to Chapter "Sample Preparation"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Reagents and consumables

Annual requirements for PHOSPHAX Σ	Total Phosphorus	Total Phosphorus & ortho-Phosphate
Reagents	4 x LCW823	4 x LCW823
Standard Solution	2 x LCW824	2 x LCW824
Wearing parts		
1 channel analyzer	1 x LZP959	1 x LZP959
Total Annual operation costs (Reagents & Wearing parts)	Total Phosphorus	Total Phosphorus & ortho-Phosphate

Additional consumables

LZP856 Cuvette (replacement interval 18 months)
LZP864 Piston motor (replacement interval 18 months)
LZP845 Lower cuvette support (replacement interval 24 months)

Further accessories

LPV361 MODBUS node, bus node for connection to MODBUS
HDF172 User Guide PHOSPHAX Σ sigma (GB)
LZX408 VIEWTAX - program for data analysis

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03113 Instrument Manual, PHOSPHAX Σ sigma (GB)

Organic Matter, dissolved (SAC254)

UVAS plus sc (DataSheet DOC053.52.03256)

Precise self-cleaning process probe for continous measurement of dissolved organic substances (SAC = Spectral Absorption Coefficient) in water, wastewater, surface water, process water and solids-free landfill leachate.

Reagent-free and sampling-free process for measuring directly in the medium.

In water analysis, the purely physical method of
UV absorbance measurement is the fastest, most economical and ecologically sum parameter of evaluating the content of dissolved organic substances.
Operation and analysis of probe signals in conjunction with the sc Digital Controllers.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	UVAS sc
Measuring technique	reagent-free UV absorption measurement (254/550 nm) according DIN 38404 C3
Measuring method	Patented 2-beam method
Measuring gap	1, 2, 5 and 50 mm
Measuring range	
50 mm gap	0.01 ... 60 m-1
5 mm gap	0.1 ... 600 m-1
2 mm gap	0 ... 1500 m-1
1 mm gap	2 ... 3000 m-1
	can be calibrated to COD, BOD, DOC depending on the application
Sludge compensation	Yes
Response time T_{100}	1 min
Measuring interval	≥ 1 min
Process connection	
Installation	Immersed directly into the media or Bypass
p_{max} for probe	0.5 bar
Sample Inlet	4/6 mm (ID/OD) (for bypass installation)
Drain (outlet)	Atmospheric (for bypass installation)
Sample flow	0.5 - 10 l/h (for bypass installation)
Temperature	
Sample	+2°C ... +40°C
Ambient	+2°C ... +40°C
Sensor Body Material	SS 316 (double sealed body)
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables
Dimensions (L x Ø)	333 mm x 70 mm
Weight (approximately)	3.6 kg
Maintenance requirement	1 h/month typical
Servicing interval	6 month
Controller compatibility	sc100 and sc1000
Warranty	2 years, fullfilling required maintenance intervals, extendable to 60 month

Organic Matter, dissolved (SAC254)

UVAS plus sc (DataSheet DOC053.52.03256)

Part No.	Designation
LXV418.99.X0001	**UVAS plus sc**, with 10m cable, w/o sc controller

L X V 4 1 8 . 9 9 . X 0 0 0 1

Language / Country Code Selection *please refer to Appendix E for further info*

Measuring range

2 ... 3000 m^{-1}	(1 mm gap)	**1**
0 ... 1500 m^{-1}	(2 mm gap)	**2**
0.1 ... 600 m^{-1}	(5 mm gap)	**5**
0.01 ... 60 m^{-1}	(50 mm gap)	**9**

Standard accessories (supplied with the instrument)

1 set of wiper blades (5 pieces)
1 set of wearing parts
1 Test beaker
1 Instrument manual
1 Factory Test Certificate

Immersion Mounting assembly LZX414.00.10000 or suitable Bypass installation assembly is essential for installation and must be ordered separately.

Note:

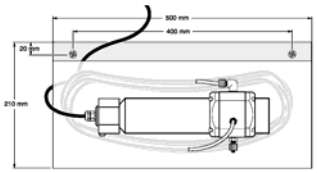
sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
For further extension cables, please consult the chapter sc controller/display units accessories
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Mounting assembly for Immersion application

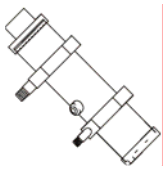
LZX414.00.10000 Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 90° adapater
for fixing a NITRATAX, UVAS or SOLITAX to a tank or channel

Mounting assembly for Bypass application

LZX869 Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (2 mm version)
LZX867 Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (5 mm version)
LZX868 Mounting Assembly Kit "Flow-Through", for UVAS plus sc (50 mm version)



Nitratax plus / UVAS plus sc version
Technical Data see Manual



Sedimenter
(DataSheet DOC043.52.04060)

LZX450 Sedimenter, Flow-through Mounting Assembly unit for extremely turbid water
including. Monuting hardware; for use with NITRATAX plus / UVAS plus variants only!

LZX412 Mounting flange for Sedimenter LZX450

Spare parts

LZX148 Set of wiper blades for NITRATAX/UVAS, 1 mm, pk/5
LZX012 Set of wiper blades for NITRATAX/UVAS, 2 mm, pk/5
LZX117 Set of wiper blades for NITRATAX/UVAS, 5 mm, pk/5
LZX119 Set of wiper blades for NITRATAX/UVAS, 50 mm, pk/10

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.??.03066 Instrument manual, UVAS plus SC, GB

TOC/DOC (Total/Dissolved Organic Carbon)

TOCTAX (DataSheet DOC053.52.03090)

Process analyzer for continous measurement of **T**otal **O**rganic **C**arbon content up to 100 mg/l C using the expulsion method in municipal wastewater outlet and cooling water, including solids of particle size up to 0.5 mm.

While using the Filtrax Filtration Unit instead of Sigmatax, the analyzer is suitable for DOC (**D**issolved **O**rganic **C**arbon) measurement too.

The reaction is based on a new chemical method (patent pending). An infrared sensor is carrying out the measurement in the NIR range.

Technical Data

Subject to change without notice

	TOCtax
Measuring technique	Expulsion method; Digestion method: UV-Persulfate-Oxidisation; Analysis using infrared detector, equivalent to DIN EN 1484
Measuring range	1.00 - 100 mg/l TOC automatic change over from 1.0-25/50/100 mg/l C
Uncertainty:	± 4 % + 0.1 mg/l (1.0 - 24.9 - 50 mg/l C) ± 5 % + 0.1 mg/l (1-100 mg/l C)
Response time T_{100}	16 - 18 min
Calibration	automatic, user selectable interval selection (t_{cal} ~ 36 min)
Cleaning	automatic, user selectable interval selection (t_{clean} ~ 10 min)
Reagent capacity	2 months for Reagents (3-6 months for Standard solution)
Display	Graphics monitor with datalogger and curves display
Special Notes:	Integrated refridgerator for reagent storage
	The chloride concentration (Cl^-) in the sample must not exceed 4000 mg/l!
Process connection	
Installation (Analyser)	Bypass; homogenisated water sample - wall mounting dry installtion, protected against direct sun light
Inlet	3.2 mm OD
Drain	Atmospheric, 4/6 mm connection for waste, 8/11 mm for overflow tray (ID/OD)
Sample flow	approx. 100 ml/h
Temperature	
Sample	+5°C ... +40°C
Ambient	+5°C ... +40°C
Outputs	2 x 0/4–20 mA, max. 500Ohm
	2 floating limit value contacts 24V, 1A
	ProfiBus, ModBus optional
	Service interface RS 232
Enclosure rating	IP54
Power supply	230 VAC, 50 Hz / 310 VA incl. cooling unit
Dimensions	550 mm x 1,190 mm x 390 mm (incl. cooling unit) (W x H x D)
Maintenance requirement	1 h/month typical
Servicing interval	3 month
Weight (approximately)	43 kg (without reagents)
Controller compatibility	Stand alone instrument
Warranty	2 years (fullfilling required maintenance intervals)

TOC/DOC (Total/Dissolved Organic Carbon)

TOCTAX (DataSheet DOC053.52.03090)

Part No.	Designation
LPV375.XX.0000X	**TOCTAX,** TOC Process Analyzer

L	P	V	3	7	5	.	X	X	.	0	0	0	X	0	

Language / Country Code Selection *please refer to Appendix E for further info*

GB language / EU power cord **5 2**

Interface Options

No Bus connection	(Standard configuration)		**0**
ModBus	.....	YAA857	**1**
ProfiBus DP	.....	LZV148	**2**

Standard accessories (supplied with the instrument)

1 set of reagents, Standard & Absorption solution, suitable for 2 month operations
1 set of wearing parts for one year operation
1 set of operating instructions
1 maintenance calendar
1 Factory Test Certificate

For low maintenance sampling and homogenisation from final clarification, we recommend our SIGMATAX 2[3] sampling device.

Note:

For further spare parts and consumables please refer to the chapter Appendix A
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
[3] Please refer to Chapter "Sample Preparation"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Reagents and consumables

Annual requirements for TOCtax	
Reagents	6 x LCW840
Absorption solution	6 x LCW841
Standard Solution	6 x LCW842
Wearing parts	
1 channel analyzer	1 x LZV313
Total Annual operation costs (Reagents & Wearing parts)	

Additional consumables

LZV202	Cuvette (change interval 18 months)
LZP864	Piston motor (change interval 18 months)
LZP845	Lower cuvette holder (change interval 24 months)

Further accessories

LPV361	MODBUS node, bus node for connection to MODBUS
LZX408	VIEWTAX program for data analysis

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03105	Instrument Manual, TOCTAX (GB)

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC UV & UV Turbo (DataSheet DOC053.52.03097 & DOC053.52.03098)

Process analyzer for the continuous determination of the total organic carbon (TOC) or total carbon (TC) in accordance with DIN 38409 for drinking water, waste water and industrial water, with automatic cleaning and calibration.

The UV Turbo model has been specifically designed for monitoring chemical/ petro-chemical and power generation condensate water, semiconductor recycle/reclaim water and pharmaceutical USP/EP water for injection and purified water.
The UV model can be used for industrial wastewater application and drinking water applications.

The Grab sample menu allows the operator to analyze a specific sample other than the online stream. During Grab sample analysis the analyzer will automatically go offline, analyze the sample connected to the calibration port, then purge with stream sample, and go back online.

Technical Data
Subject to change without notice

	ASTRO TOC UV & ASTRO TOC UV turbo
Measuring principal	Expulsion method; Digestion method: UV-Persulfate-Oxidisation; Analysis of CO2 using NDIR detector, equivalent to DIN 38409
Measuring range	0.05 ... 2 ... 20,000 mg/l TOC (depending on model)
Response time T_{90}	≥ 5 min, depending on measuring range
Accuracy	± 2 % of full range, non diluted @ 25°C ± 4 % of full range, for Analyzers with Dilution unit @ 25°C
Repeatability	± 2 % of reading, non diluted @ 25°C ± 4 % of reading, diluted ranges (Analyzers with Dilution unit) @ 25°C
Method detection limit	≤ 0.015 mg/l @ 0 ... 5 mg/l range
Signal drift (60 days)	≤ 2% full scale with auto clean and auto calibration
Calibration	multi-point calibration (up to 10 calibration points)
Carrier gas requirements	Clean CO2-free air or Nitrogen @ 2.8 - 6.2 bar (40 - 90 psig)
Special Notes:	The chloride concentration (Cl-) in the sample must not exceed 2000 mg/l! If so, please select a model with Dilution Unit. The Suspended solids concentration is limited to 200 mg/l max.
Process connection	
Installation (Analyser)	Bypass; - wall mounting dry installtion, protected against direct sun light
Sample Inlet	¼" OD tube, compression fitting Single stream fast loop optional: dual stream pressure: 0.15 ... 6 bar (2 - 87 psig)
Flow rate	25 ... 200 ml/min
Suspended solids	≤ 2000 mg/l, ≤ 500 µm (100µm recommended)
Drain (outlet)	1½" OD Standard Drain pipe□pressure: Ambient
Carrier gas	⅛" OD tube connection
Temperature	
Sample	+2°C ... +70°C (36 ... 158°F) or up to 100°C using passive Cooler
Ambient	+5°C ... +40°C @ 50% relative humidity; 31°C @ 80% relative humidity
Outputs	2 x 0/4 ...20 mA 5 SPDT relays 3A @ 250 VAC / 0.5A @ 30VDC 1 x RS232C serial port (optional)
Material & Enclosure rating	
CRS	Cold rolled steel (epoxy powder coated), IP65 (NEMA4)
SS	optional: Stainless steel IP65 (NEMA4X)
Power supply	115 VAC or 230 VAC ± 10%, 50/60Hz, 300 VA (Switch selectable)
Dimensions (W x H x D)	610 mm x 981 mm x 220 mm (26.6" x 38.6" x 8.7")
Weight (approximately)	54 kg (without reagents)
Controller compatibility	Stand alone instrument
Warranty	2 years (fullfilling required maintenance intervals)

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC UV Turbo

Part No. **Designation**

Z4195-X0XX **ASTRO UV-Turbo** Process TOC Analyzer

Z	4	1	9	5	-	X	0	X	X

UV lamps & Cabinet material

2 x UV lamp, housing made of CRS	(IP65, NEMA4)	**1**
2 x UV lamp, housing made of SS	(IP65, NEMA4X)	**3**

Measuring range

0 ... 2000 µg/l	**0 2**
0 ... 5000 µg/l	**0 5**
0 ... 10 mg/l	**0 6**
0 ... 25 mg/l	**0 7**
0 ... 50 mg/l	**0 8**

Note: To order a complete system, please select the analyzer and an appropriate preference package.
Both items must be selected in your order, e.g. Z4195-1005 + Z4P95-2000-00.
Additionally the PS200 and AAS300 and Reagents must be considered.
The Astro UV Turbo TOC Analyser comes with manual, factory test certificate and start-up kit.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Z4P95-XXXX-00 ASTRO TOC Preference Package (Factory installed options)

Z	4	P	9	5	-	X	X	X	X	-	0	0

Power supply

115 VAC version	**1**
230 VAC version	**2**

Housing (Material & Options)

Housing made of CRS	**0**
Housing made of CRS with view window	**1**
Housing made of SS with view window	**3**

Options

no additional options	**0 0**
Level Detection Kit	**0 1**
Additional UV Lamp	**1 0**
Level Detection Kit & Additional UV Lamp	**1 1**

Reagents for Astro TOC-UV

BCF889	Sodium persulfate, p.A., 1 kg
BCF890	Phosphoric Acid (85%), p.A., 1 l
BCF891	Potassium-Hydrogenphthalat, p.A., 50 gr.

Reagent consumption for ASTRO TOC UV Turbo

	Consumption for 4-5 weeks operation			Annual reagent costs considering 11 reagent sets	
Astro UV-turbo model	BCF889	BCF890	BCF891		
Z4195-X002	2	3	1		
Z4195-X005	2	3	1		

Accessories/Spare parts/consumables

Z200122	ASTRO TOC UV, START-UP Kit
Z200123	ASTRO TOC UV, 1 year spare parts kit
Z200124	ASTRO TOC UV, 2 year spare parts kit
Z200132	ASTRO TOC UV, FITTINGS and O-ring kit
Z200136	ASTRO TOC UV, 2 channel kit
1757700	Sample Cooler Kit for TOC analyzers, made of SS (for temperatures up to 100°C)
Z200146	Conversion kit, TOC to TC

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC UV

Part No.	Designation

Z4195-X0XX **ASTRO TOC UV Analyzer, 1 UV lamp**

Z	4	1	9	5	-	X	0	X	X

UV lamp & Cabinet material option

1 x UV lamp, housing made of CRS	(IP65, NEMA4)	1
1 x UV lamp, housing made of SS	(IP65, NEMA4X)	3

Measuring range		Dilutor	
0 ...	5 mg/l	-	1 0
0 ...	10 mg/l	-	2 0
0 ...	25 mg/l	-	3 0
0 ...	50 mg/l	-	4 0
0 ...	100 mg/l	+	5 0
0 ...	200 mg/l	+	6 0
0 ...	500 mg/l	+	7 0

Z4195-X0XX **ASTRO TOC UV Analyzer, 2 UV lamp**

Z	4	1	9	5	-	X	0	X	X

UV lamps & Cabinet material

2 x UV lamp, housing made of CRS1	(IP65, NEMA4)	2
2 x UV lamp, housing made of SS1	(IP65, NEMA4X)	4

Measuring range		Dilutor	
0 ...	100 mg/l	-	0 0
0 ...	200 mg/l	-	1 0
0 ...	500 mg/l	-	2 0
0 ...	1,000 mg/l	-	3 0
0 ...	1,000 mg/l	+	4 0
0 ...	2,000 mg/l	+	5 0
0 ...	5,000 mg/l	+	6 0
0 ...	10,000 mg/l	+	7 0
0 ...	20,000 mg/l	+	8 0

Note:

To order a complete system, please select the analyzer and an appropriate preference package.
Both items must be selected in your order, e.g. Z4195-1005 + Z4P95-2000-00.
Additionally the PS200 and AAS300 must be considered.
The Astro UV Turbo TOC Analyser comes with manual, factory test certificate and start-up kit.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Z4P95-2000-00 ASTRO TOC Preference Package (Factory installed options)

Z	4	P	9	5	-	X	X	X	X	-	0	0

Power supply

115 VAC version	1
230 VAC version	2

Housing (Material & Options)

Housing made of CRS	0
Housing made of CRS with view window	1
Housing made of SS with view window	3

Options

no additional options	0 0
Level Detection Kit	0 1
Additional UV Lamp	1 0
Level Detection Kit & Additional UV Lamp	1 1

Part No. **Designation**

Reagents for Astro TOC-UV

BCF889	Sodium persulfate, p.A., 1 kg
BCF890	Phosphoric Acid (85%), p.A., 1 l
BCF891	Potassium-Hydrogenphthalat, p.A., 50 gr.

Reagent consumption for ASTRO TOC UV Turbo

	Consumption for 4-5 weeks operation			Annual reagent costs considering 11 reagent sets	
ASTRO 1 UV model	BCF889	BCF890	BCF891		
Z4195-X010	1	2	1		
Z4195-X020	2	2	1		
Z4195-X030	3	2	1		
Z4195-X040	3	1	1		
Z4195-X050	2	1	1		
Z4195-X060	3	1	1		
Z4195-X070	3	1	1		

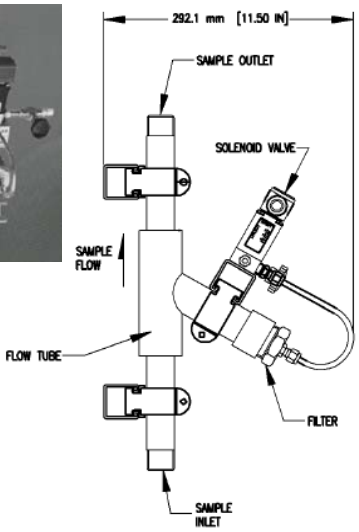
ASTRO 2 UV model	BCF889	BCF890	BCF891		
Z4195-X000	4	2	1		
Z4195-X010	7	2	1		
Z4195-X020	8	1	1		
Z4195-X030	5	1	1		
Z4195-X040	5	1	1		
Z4195-X050	8	1	1		
Z4195-X060	6	1	1		
Z4195-X070	5	1	1		
Z4195-X080	6	1	1		

Accessories/Spare parts/consumables

Z200122	ASTRO TOC UV, START-UP Kit
Z200123	ASTRO TOC UV, 1 year spare parts kit
Z200124	ASTRO TOC UV, 2 year spare parts kit
Z200132	ASTRO TOC UV, FITTINGS and O-ring kit
Z200136	ASTRO TOC UV, 2 channel kit
1757700	Sample Cooler Kit for TOC analyzers, made of SS (for temperatures up to 100°C)
Z200146	Conversion kit, TOC to TC

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC Sampling system PS200 (DataSheet DOC053.52.03110)



The PS 200 Blow Back Filter is a self–cleaning sampling unit which protects on–line analyzers by filtering floating particles from the sample solution.

The blow back sequence can be operated manually or is controlled by the analyzers. The programmable control periodically shuts off the sample flow to the analyzer and applies compressed air in the opposite direction (blow back) to flush debris from the filter.

The PS200 is not suitable for water samples containing long fibres!

Furthermore the Filtrax might be considered as an alternative, but requires the acceptance of DOC measurement and prior approval by HACH LANGE!

Technical Data

Subject to change without notice

	PS200 Blow-back filter
Designation	self-cleaning sampling system for Astro TOC Analyzers
Filter mesh	100 µm Standard or 25, 50 and 300 µm optional
Process connection	inline or bypass
Inlet/Outlet (sample)	Inlet: 1" MNPT pipe (Standard), Outlet: 1" union fitting NPT or 1" flange (optional)
Inlet (instrument air)	¼" O.D.
Outlet (sample to analyzer)	⅛" O.D.
Inline installations	
pressure	0.7 ... 6.0 bar (10 ... 87 psig)
flow rate	8 ... 113 l/min (2 ... 30 gpm)
Bypass installation	
pressure	0.2 bar
flow rate	50 ... 300 ml/min (0.02 ... 0.08 gpm)
Ambient temperature	+5°C ... 50°C (41 ... 122°F), no direct sunlight
Required services	
Air pressure	up to 6.9 bar (100 psig), 15% above sample pressure dry instrument air preferred
Material	Filter body & elements, valves and connections: SS316 Mounts and clambs: Plated Carbon Steel
Enclosure rating	IP65, NEMA 4
Power requirements	24 VDC, 8W supplied by Astro TOC anaylzer or external timer/power supply device
Dimensions	221 x 433 x 292 mm (W x H x D)
Weight (approximately)	5.3 kg (11.6 lbs)

Part No.	**Designation**
Z4200-100X	**PS200 Blowback filter**

Z	4	2	0	0	-	1	0	0	X	

Filter mesh size option

25 µm		**4**
50 µm		**2**
100 µm	Standard	**1**
300 µm		**3**
500 µm		**5**

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC accessories - Purge gas purifier

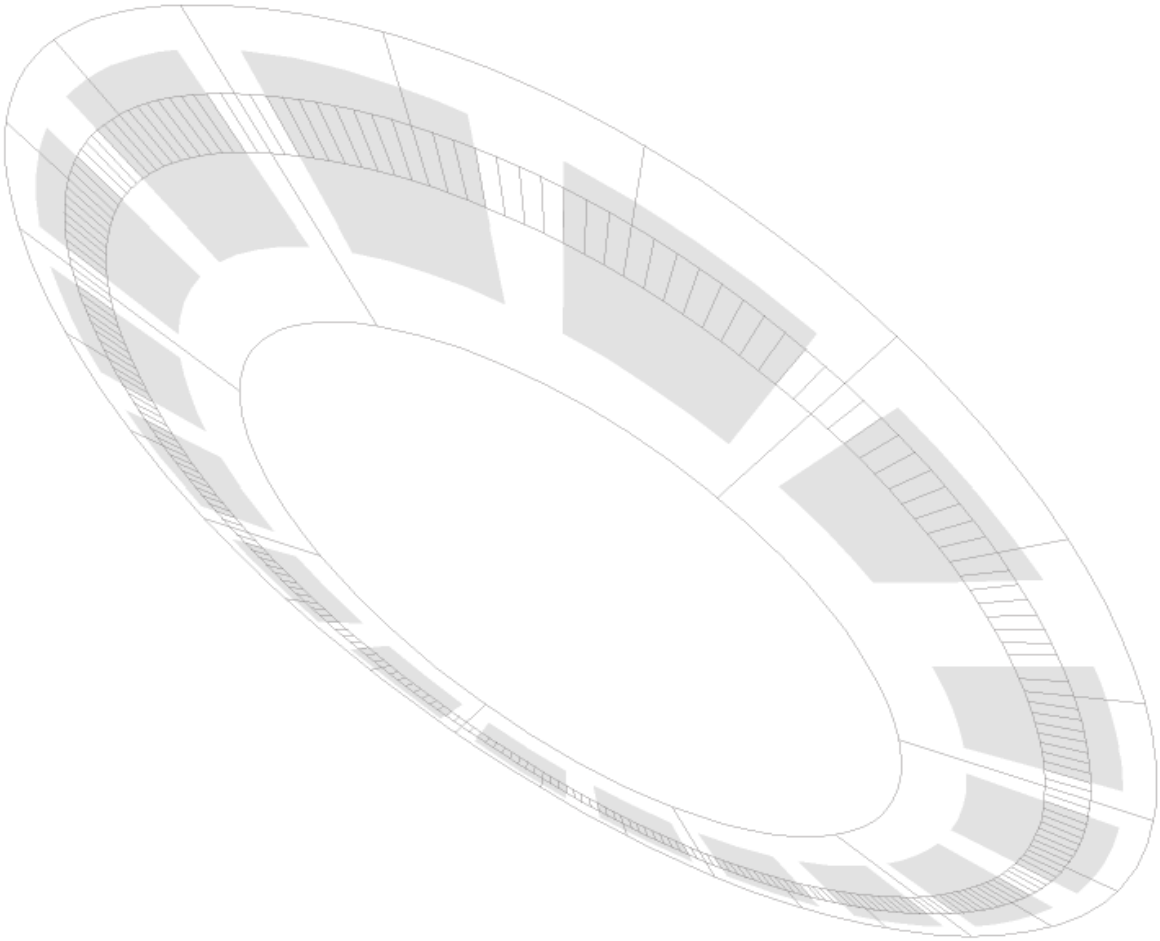
Technical Data
Subject to change without notice

	Purge gas purifier for TOC Analyzers
Designation	Purge gas purifier for TOC Analyzers using air supplied by compressor Produces ultra-dry, CO2-free air to less than 1 ppm CO2 purity Eliminates the trouble, safety risk and ongoing cost of gas cylinders
Purification performance	
Capacity	8 m³/h relative to 1 bar abs. and 20°C at 7 bar operating pressure and feed temperature of 35°C
CO2	< 1 ppm CO2
Non-methan HC´s	< 0.003 ppm
Drying agent capacity	0.9 kg per vessel
Process requirements	requieres compressor; not supplied with the instrument
pressure min.	5 bar
pressure max.	16 bar
Environmental	
Temperature operation	1°C ≥ T operation ≤ 50°C
humidity	100% r.h.
Protection class	IP54
Dimensions	210 x 390 x 312 mm (W x H x D)
Weight (approximately)	9 kg

Part No.	**Designation**	
LZY584	Air purifier / CO2-Adsorber, 115 VAC	
LZY585	Air purifier / CO2-Adsorber, 230 VAC	
	Installation Kit for Air Purifier / CO2 Absorber	
LZY552	Pressure valve, G1/4", 0,5-12bar,	Fittings, hose for CO2-adsorber
	consisting of	
LZY503	Fitting and hose, 5 m	Accessory CO2-Adsorber
LZY504	Pressure Control Valve 0,5-12bar	Accessory CO2-Adsorber
	Spare Parts / Replacements	
LZY593	Servicekit 18 months	for CO2-Adsorber Astro TOC
LZY594	Servicekit 36 months	for CO2-Adsorber Astro TOC
LZY595	Drying agent 36 months	for CO2-Adsorber Astro TOC

Turbidity, Suspended Solids & Particle Counter

Product overview



Instrument	Application Bypass	Immersion	Insertion
Solitax sc	n.a.	t -line* ts-line* hs-line*	inline* highline*
Ultraturb sc	X		
1720 sc	X		
Filtertrak sc	X		
SS6 Surface Scatter	X		
WPC-21, WPC-22	X		

Note: * All modells are also applicable for colored and white sludges

TURBIDITY & SUSPENDED SOLIDS

TSS portable (DataSheet DOC063.52.30017)

Technical Data

Subject to change without notice

	TSS portable
Designation	Portable Turbidity, Suspended Solid and Sludge level Measing system
Measuring technique	Infrared scattered light photometer, combined multiple beam alternating light method system and beam focusing; wavelength 860 nm
Measuring method	
Turbidity	90° scattered light (dual channel)in accordance with DIN ISO EN 27027
Suspended Solids	TSS measurement equivalent to DIN 38414 Modified absorbance measurement: Six-channel multiple angle measurement
Measuring range	
Turbidity	0.001 ... 4000 FNU
Suspended Solids	0.001 … 400 g/l depending on media
Resolution	
Turbidity	0.001 at 0–0.999 FNU; 0.01 at 1–9.99 FNU; 0.1 at 10–99.9 FNU; 1 at >100 FNU
Suspended Solids	0.001 at 0–0.999 g/l; 0.01 at 1–9.99 g/l; 0.1 at 10–99.9 g/l; 1 at >100 g/l
Measurement accuracy	
Turbidity	typical <3 % of measured value at 1–1,000 FNU
Suspended Solids	typical <4 % of measured value at 0.5–20 g/l
Reproducability	
Turbidity	typical <4 % of measured value
Suspended Solids	typical <5 % of measured value
Calibration	
Turbidity	factory calibrated with Formazine; ready to use
Suspended Solids	up to 4 calibration curves for different media / SS characteristics; 2-point user calibration
Process limitations	handheld instrument; not designated for permanent installations
Operation	Single, interval and continuous measurement (selectable)
p max for probe	10 bar max.
Temperature	
Sample	0–60 °C, up to 80 °C for short periods
Controller/Display Unit	Liquid Crystal Display, alphanumeric, 4 lines with 16 characters each
	6 touch-sensitive keys, menu with fast access to key functions
	Datalogger for up to 290 measuring values
	Air bubble compensation via internal software
	Selectable Units: FNU, NTU, EBC, ppm, mg/L, g/L, %
Physical and Environmental	
Power requirements	7.2 VDC, supplied by 6 batteries or reachargable NiMH-batteries 1.2VDC type AA, 1800 mAH
Power consumption	Approx. 60 mA
Sensor Material	Stainless steel, sensor window: sapphire
Cable length	10 m (32.8 ft) fixed cable, made of PUR, ø 8.3 mm (0.33 in.); S-2000 connector, 6-pin marked at every single meter for Sludge Level measurement
Dimensions	
Probe	Probe: Ø 40 mm (1.57 in.), length = 29 cm (11.42 in.)
Display Unit	Meter: 110 x 230 x 40 mm (4.33x9.06x1.57 in.)
Weight (approximately)	
Probe	1600 g (56.44 oz, 3.53 lbs)
Display Unit	560 g (19.75 oz, 1.23 lbs)
Declaration of conformity	CE, TÜV GS
Controller compatibility	TSS portable Controller
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years

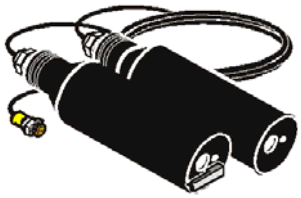
TURBIDITY & SUSPENDED SOLIDS

TSS portable according DIN EN ISO 7027 (DataSheet DOC063.52.30017)

Part No.	Designation
LXV322.99.00001	**TSS Portable** Turbidity and Suspended solids Measuring system Instrument comes with: TSS probe with 10 m cable, marked at every meter, display unit 1 set of rechargable NiMH batteries, type AA, 1800 mAH, pk/6, with Charger with EU/US/UK/Australia/China adapter plug, instructions, in sturdy carrying case
	Spare parts
LZY604	Rechargable Batteries, type AA, 1.2 VDC, 1800 mAH, pk/6
LZY606	Battery holder, for TSS portable Display units (replacement)
LZY607	Power supply with adapter plugs for EU/US/UK/Australia & China
LZY605	hard-sided instrument case with handle, Empty, for TSS protable, pk/1
LXV320.99.00001	TSS portable Display Unit, replacement, pk/1
LXV321.99.00001	TSS probe, with 10 m cable and plug, pk/1

TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc series for Immersion Application (DataSheet DOC063.52.00353)



Solitax t-line

Process probe for continuous monitoring and control of turbidity in water (e.g. in the sewage plant outfall, surface water or drinking water).

Probes comes in a rugged plastic body and are available without or optional automatic self-cleaning Wiper system.

Analysis by means of the sc Digital Controller Platform.

Solitax ts-line & hs-line

Process probes with a combined absorption/scattered light process for measuring lowest turbidity levels in accordance with DIN ISO EN 27027 as precisely, reliably and, of course, independently of coloration as high sludge levels.

Probe Housing available in SS316 (V4A) or Plastic material for various application - available without or optional automatic self-cleaning Wiper system. Analysis by means of the sc Digital Controller Platform.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	SOLITAX sc t-line	SOLITAX sc ts-line & hs-line
Measuring technique	Infrared scattered light photometer	Infrared duo scattered light photometer for measurement independent of colour
Measuring method	turbidity measurement in accordance with DIN ISO EN 27027	turbidity measurement in accordance with DIN EN 27027; TSS measurement equivalent to DIN 38414
Measuring range		
Turbidity	0.001 ... 4000 FNU	0.001 ... 4000 FNU
Suspended Solids	-	ts-line: 0.001 ... 50.0 g/l TSS
		hs-line: 0.001 ... 150.0 g/l TSS
Measurement accuracy	Turbidity: 1.0 % with calibration, 5.0 % without calibration	
Calibration	Turbidity: factory pre-calibrated (individual calibration up to 5 calibration points) TSS: gradient once for Dry matter	
Process variation coeff.	1 % according DIN 38402	
Response time T_{90}	1 s < T90 < 5 min (adjustable)	
Measurement interval	0.3 sec	
Process connection		
Installation	Immersed directly into the media	
p max for probe	≤ 6 bar (or ≤ 60m)	
Sample flow	max. 3 m/s (the presence of air bubbles affects the measurement)	
Temperature		
Sample	+2 °C to +40 °C	
Ambient	+2 °C to +40 °C	
Sensor Material	Plastic (PVC)	SS, Mat. 1.4571 (V4A) or Plastic (PVC)
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables	
Dimensions	200 x 60 mm (L x Ø)	
Weight (approximately)	0.6 kg	1.8 kg
Maintenance requirement	0.5 h/month, typical	
Servicing interval	12 months	
Declaration of conformity	CE, TÜV GS, UL/CSA	
Controller compatibility	sc100 and sc1000	
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years	

TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc series for Immersion Application (DataSheet DOC063.52.00353)

Part No.	Designation

LXV423.99.12000 **Solitax sc**, with 10m cable, without sc controller

L	X	V	4	2	3	.	9	9	.	X	X	X	0	0	

Language / Country Code Selection *please refer to Appendix E for further info*

Housing material option

Stainless steel	(SS316)	not available for t-line	**0**
PVC housing			**1**

Cleaning option

with automatic wiper cleaning	(wiper made of Silicon)	**0**
without cleaning option		**2**

Model option

t-line	Turbidity	(0.001 ... 4000 FNU) in PVC available only	**0**
ts-line	Turbidity & SS	(0.001 ... 4000 FNU; 0.001 ... 50 g/l SS)	**1**
hs-line	Turbidity & SS	(0.001 ... 4000 FNU; 0.001 ... 150 g/l SS)	**2**

Standard accessories (supplied with the instrument)

1 Instrument manual
1 Factory Test Certificate
1 set of wiper blades, pk/5
depending on availabilty of the cleaning system

Immersion Mounting assembly LZX414.00.X0000 is essential for installation and must be ordered separately.

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the above mentioned will void the warranty.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Mounting assembly for Immersion application

LZX414.00.10000	Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 90° adapater
LZX414.00.30000	Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 360° adapater
	for fixing a NITRATAX, UVAS or SOLITAX to a tank or channel

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Spare parts

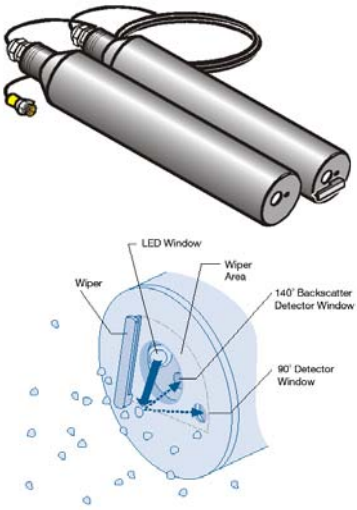
LZX050	Set of wiper blades for Solitax probes, made of silicone for standard applications, pk/5
LZX578	Set of wiper blades for Solitax probes, made of Viton for e.g. media containing oil, pk/5

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03232	Instrument manual, SOLITAX sc, GB

TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc - for measurement in pipes (DataSheet DOC063.52.00353)



Process probes designed with a dual infrared absorption/scattered light technique for measuring lowest turbidity levels in accordance with DIN ISO EN 27027 just as precisely, reliably and continuously as high sludge content.

The patended optical system allows to measure independently of coloration.

Probe Housing made of SS316 (V4A) - available with optional automatic self-cleaning Wiper system or without.

Analysis by means of the sc Digital Controler Platform.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	SOLITAX sc inline	SOLITAX sc high-line
Designation		
Measuring technique	Infrared dual scattered light photometer for measurement independent of colour	
Measuring method	Turbidity measurement in accordance with DIN EN 27027; TSS measurement equivalent to DIN 38414	
Measuring range		
Turbidity	0.001 ... 4000 FNU	0.001 ... 4000 FNU
Suspended Solids	0.001 - 50.0 g/l TSS	0.001 - 150.0 g/l TSS
Measurement accuracy	Turbidity: 1.0 % with calibration, 5.0 % without calibration	
Calibration	Turbidity: factory pre-calibrated (individual calibration up to 5 calibration points) TSS: gradient once for TS content	
Process variation coeff.	1 % according DIN 38402	
Response time T_{90}	1 s < T90 < 5 min (adjustable)	
Measurement interval	0.3 sec	
Process connection		
Installation style	insertion installation, retractable by using suitable mounting assembly	
Sample flow	max. 3 m/s (the presence of air bubbles affects the measurement)	
Pipe diameter	≥ DN80 for SS, ≥ DN100 for drinking water and clean water applications	
Pressure p max	≤ 6 bar (or ≤ 60m)	
Temperature		
Sample	+2 °C to +40 °C	
Ambient	+2 °C to +40 °C	
Sensor Material	Stainless Steel, Mat. 1.4571 (V4A)	
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables	
Dimensions	315 x 60 mm (L x Ø)	
Weight (approximately)	2.4 kg	
Maintenance requirement	0.5 h/month, typical	
Servicing interval	12 months	
Declaration of conformity	CE, TÜV GS, UL/CSA	
Controller compatibility	sc100 and sc1000	
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years	

TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc - for measurement in pipes (DataSheet DOC063.52.00353)

Part No. **Designation**

LXV424.99.02100 **Solitax sc**, Insertion probe, with 10m cable, without sc controller

L	X	V	4	2	4	.	9	9	.	0	X	X	0	0	

Language / Country Code Selection *please refer to Appendix E for further info*

Housing material

Stainless steel (SS316) **0**

Cleaning option

with automatic wiper cleaning (wiper made of Silicon) **0**
without cleaning option **2**

Model

in-line Turbidity & SS (0.001 ... 4000 FNU; 0.001 ... 50 g/l TSS) **1**
high-line Turbidity & SS (0.001 ... 4000 FNU; 0.001 ...150 g/l TSS) **2**

Standard accessories (supplied with the instrument)

1 Instrument manual
1 Factory Test Certificate
1 set of wiper blades, pk/5
depending on availabilty of the cleaning system

Immersion Mounting assembly LZX414.00.X0000 is essential for installation and must be ordered separately.

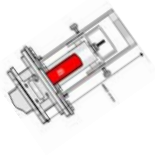
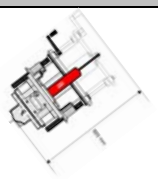
Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the above mentioned will void the warranty.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

For further extension cables, please consult the chapter sc controller/display units accessories

Mounting assembly for Insertion application

LZX660 Welding Neck flange made of stainless steel; essential for connection of the inline fitting
LZX661 Welding Neck flange made of C steel; essential for connection of the inline fitting

Technical data:	DataSheet: DOC053.98.03414		
Mounting assembly, insertion retractable			
Part number	LZX461	LZX936	LZX337
Designation	for pipes drained and pressureless	for filled pipes but pressureless	for filled & pressurized pipes
Pressure (absolute)	≤ 1 bar	≤ 1 bar	≤ 5 bar
Pipe connection	flange DN 65; PN 16; DIN 2633	flange DN 65; PN 16; DIN 2633	flange DN 65; PN 16; DIN 2633
Length when installed	210 mm	310 mm	310 mm
Length when removed	360 mm	550 mm	550 mm
Weight (without probe)	approx. 2.7 kg	approx. 16 kg	approx. 18 kg

Spare parts

LZX050 Set of wiper blades for Solitax probes, made of silicone for standard applications, pk/5
LZX578 Set of wiper blades for Solitax probes, made of Viton for e.g. media containing oil, pk/5

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03232 Instrument manual, SOLITAX sc, GB

TURBIDITY in Bypass (Ultra-Low to Mid range)

ULTRATURB sc models according DIN EN ISO 7027 (DataSheet DOC053.52.03217)

Precision turbidity sensor for the measurement of the turbidity in ultraclear to medium turbidity media in bypass. Ideal for safeguarding the quality of drinking water and for filtration management in water conditioning plants and wells.

Extremely low background noise with permanent calibration, with microprocessor-controlled self-diagnostics and optional self-cleaning measuring feature.

Physical and mathematical elimination of air bubbles.
Instruments using sc digital controller for one, two or more turbidity sensors or in combination with any other digital probe/sensor or analyser

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	Ultraturb plus sc	Ultraturb sc
Designation	Process Bypass Turbidimeter for low range to mid range applications	
Instrument design	Dual-beam Process Nephelometer with automatic wiper cleaning system (time controlled or manually)	Dual-beam Process Nephelometer
Measuring principle	90° infrared pulsed, scattered light measuring technique	
Measuring method	according DIN EN ISO 7027	
Measuring range	0.0001 - 1000 FNU (Dimension TE/F, FTU, NTU selectable) 0.0001 to 250 EBC 0.0001 to 2500 ppm SiO2	
Measuring resolution	0.0001 to 0.9999 1.00 to 9.99 10.0 to 99.9 100 to 1000	
Measuring uncertainty	±0.008 or 1% of actual value in the range 0-10 FNU	
Measuring reproducabilty	±0.003 or 0.5% of actual value in the range 0-2 FNU	
Response time T_{90}	1 ... 60 sec (user selectable)	
Air bubble compensation	physical - mathematical	
Calibration	Permanently precalibrated by the manufacturer Calibration/Verification using Formazine, StablCal or CVM dry standards	
Outputs	I/0, MODBUS, ProfiBUS DP, LONBUS, Relais via sc Controller series	
Cable length	up to 100 m using digital connection cables	
Process connection		
Installation style	Bypass installation	
Pressure	6 bar max @ 20°C	
Sample inlet	13 mm ID hose or fixed connection using G+F system parts	
Drain (outlet)	13 mm ID hose or fixed connection using G+F system parts	
Sample flow	200 - 1000 ml/min	
Temperature		
Sample	+2°C to 40°C	
Ambient	+2°C to 40°C	
Enclosure rating	IP65	
Material	Housing: ASA Measuring chamber: NORYL GFN2 Wiper axe: SS1.4571 Measuring window: Quartz glass Wiper profile: Silicon	
Dimensions	250 x 240 x 210 mm (H x W x D)	
Weight (approximately)	approx. 1.9 kg	
Maintenance requirement	0.5h/month (model with wiper) 2h/month (model without wiper), typical	
Controller compatibility	sc100 and sc1000	
Warranty	24 month; extendable to 60 month	

TURBIDITY in Bypass (Ultra-Low to Mid range)

ULTRATURB sc models according DIN EN ISO 7027 (DataSheet DOC053.52.03217)

Part No.	Designation
LPV415.99.01001	**ULTRATURB sc,** without sc controller and without connection cable

L	P	V	4	1	5	.	9	9	.	X	X	0	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Cable length option

without connection cable	**0**
with 0.35 m connection cable	**1**
with 5 m connection cable	**2**
with 10 m connection cable	**3**
with 15 m connection cable	**4**
with 20 m connection cable	**5**
with 30 m connection cable	**6**
with 50 m connection cable	**7**

Cleaning option

with automatic wiper cleaning	**0**
without automatic cleaning	**1**

Standard accessories (supplied with the instrument)

1 set of wiper blades (for 4 changes) only for models with cleaning option
1 accessory set (LZP816)
1 set of operating instructions
1 Factory Test Certificate

Connection cable is essential for operation and must be ordered with the instrument, resp. individually.

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the above mentioned will void the warranty.
For further extension cables, please consult the chapter sc controller/display units accessories
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Calibration Tools

LCW813	Turbidity standard, formazine, 4000 FNU, 100ml
LZV325	Set of filters for zero calibration (0.2 µm diaphragm filter incl. connecting material)
LZV451	Turbidity- Syringe- Calibration- Set for "Wet Calibration" using Formazine Standard

CVM calibration module, Dry standard, for instrument verification

LZV414.00.00000	0.6 NTU
LZV414.00.10000	1.5 NTU
LZV414.00.20000	6 NTU
LZV414.00.30000	15 NTU
LZV414.00.40000	25 NTU

Spare parts

LZV275	Set of wiper blades for 4 changes

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03231	Instrument manual, ULTRATURB plus sc, GB

TURBIDITY in Bypass (low range & ultra low range)

1720 E sc & FilterTrak 660 sc (DataSheet DOC053.52.03715 & DOC063.52.00433)

The 1720 E sc measures turbidity by directing an incandescent light from the sensor head assembly down into the sample in the turbidimeter body. Light scattered at 90° by suspended particles in the sample is detected by the sensor's submerged photocell. The amount of light scattered is proportional to the amount of turbidity in the sample.
The instrument meets and exceeds USEPA Method 180.1 (using Tungsten lamp) for drinking water compliance.

The FilterTrak 660 sc Laser Nephelometer is designed specifically to detect changes in turbidity as low as 0.0005 NTU.
Using advanced laser optics and signal processing, the instrument detects increased concentrations of submicron-sized particles that are a precursor to larger particles. This allows for early filter deterioration detection that meets or exceeds that of particle counters-all with the
day-to-day convenience, simplicity, and reliability of a Hach turbidimeter. Operators can detect impending filter breakthrough,

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	1720 E sc	**FilterTrak 660sc**
Designation	Process Bypass Turbidimeter for (ultra-) low range to mid range applications	
Measuring principle	Nephelometric acc. USEPA 180.1	Nephelometric acc. USEPA 10133
Light source	Tungsten lamp	Class 1 Laser 10 mW, 660 nm
Measuring range	0.0001 ... 100 NTU, freely programmable	0.001 ... 5000 mNTU (milli NTU)
Measuring resolution	0.0001 from 0 to 9.9999 NTU	0.001 mNTU in lowest range; 0.1 mNTU in highest range
Measuring uncertainty	±2% or ± 0.015 NTU from 0 - 10 NTU; whichever is greater ±5 % of reading from 10 - 40 NTU; ±10% of reading from 40 - 100 NTU	± 3% of reading or ± 5 mNTU whichever is greater (based on StablCal® Stabilized Formazin Standards)
Response time T_{90}	6, 30, 60, 90 sec (programmable) 75 sec for a full scale step change	0 - 90 s (user selectable) 75 s for a full scale step change
Air bubble compensation	physical; bulit-in bubble removal system	User selectable: On (default) or Off
Calibration	precalibrated by the manufacturer (Calibration/Verification with Formazine, StablCal, or ICE PIC solid standard)	precalibrated by the manufacturer Single point @ 800 mNTU ± 50 mNTU
Outputs	I/0, MODBUS, ProfiBUS DP, LONBUS, Relais via sc controller series	
Cable length	2 m (6.6 ft) (10 m / 32.8 ft. max.)	2 m (6.6 ft) (100 m / 328 ft. max.)
Process connection		
Installation style	Bypass installation with ambient pressure outlet (wall and floor mounting)	
Sample inlet	¼" NPT female thread, ¼" pipe compressing fitting (supplied)	
Drain (outlet)	½" NPT female, ½" hose barb (supplied)	
Sample flow	250 ... 750 ml/min	100 ... 750 ml/min
Temperature		
Sample	0 - 50°C (32 - 121°F)	
Ambient	+2°C ... 50°C for single sensor system +2°C ... 40°C for double sensor system	0°C ... 40°C (32 – 100°F)
Humidity (operation)	5 to 95 % non condensing	
Enclosure rating	IP66 (NEMA4X)	
Material	Polystyrene (corosion resitant)	
Dimensions	40.6 x 30.5 x 25.4 cm (H x W x D)	
Weight (approximately)	4.6 kg	7.7 kg
Maintenance requirement	2 h / month (typical)	
Controller compatibility	sc100 and sc1000	
Warranty	24 month; extendable to 60 month	

TURBIDITY in Bypass (low range & ultra low range)

1720 E sc & FilterTrak 660 sc (DataSheet DOC053.52.03715 & DOC063.52.00433)

Part No.	Designation
LPV417.99.00002	**1720E sc,** Turbidity sensor, without sc controller, with 2m connection cable

L P V 4 1 7 . 9 9 . 0 0 0 0 2 [ ]

Language / Country Code Selection *please refer to Appendix E for further info* [ ]

LPV421.99.00002	**FilterTrak 660 sc,** without sc controller, with 2 m connection cable

L P V 4 2 1 . 9 9 . 0 0 0 0 2 [ ]

Language / Country Code Selection *please refer to Appendix E for further info* [ ]

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
Due to power requirements for Tungsten lamp:
the maximum of 1720E sc sensors which can be connected to sc 100 controller is limited to 2 devices!
the maximum of 1720E sc sensors which can be connected to sc 1000 controller is limited to 3 devices!
The maximum cable length between the 1720 E sc sensor and the sc controllers is limited to 10 m in total.
If multiple 1720 E sc sensors are connected to a sc controller, the max. ambient operating temperature will be limited to 40°C.
All restrictions mentioned before do not apply to FilterTrak sc probes, exceptional the cable length of max. 100 m.
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Calibration tool 5236400 is essenstial for operation/calibration; 1720 calibration cylinders are not suitable!!!!

Extension cables

LZX848	Digital Extension Cable, 5 m
5796000	Digital Extension Cable, 7.7 m (for 1720 E sc and SS7sc models only!)
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Mounting assembly

5743200	Floor Stand for 1720 E sc, Filtertrak sc

TURBIDITY in Bypass (low range & ultra low range)

1720 E sc & FilterTrak 660 sc (DataSheet DOC053.52.03715 & DOC063.52.00433)

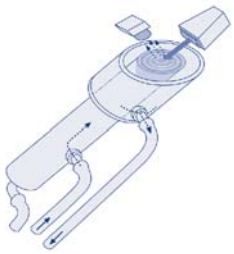
Part No.	Designation
	Calibration Tools for 1720 Turbidimeter series
4415600	1720 calibration kit, complete, pk/1 including a 1 L calibration cylinder, TenSette pipette and 500 ml bottle 4000 FNU Formazine primary standard solution)
246149	Formazine Primary standard, 4000 FNU/NTU, 500ml bottle
2659600	StablCal calibration kit, < 0.1 and 20 FNU/NTU, 4 L each
2723353	StablCal standard, 0.1 FNU/NTU, 1L
2659853	StablCal standard, 1.0 FNU/NTU, 1L
2660153	StablCal standard, 20 FNU/NTU, 1L
2746353	StablCal standard, 40 FNU/NTU, 1L
5222500	ICE-PIC 0.5 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
5221500	ICE-PIC 1 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
5225000	ICE-PIC 20 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
	Calibration Tools for FilterTrak 660 sc
5236400	FilterTrak Calibration kit, complete, pk/1 including 500 ml 800 mNTU StablCal Standard, calibration cylinder and funnel
2723353	StablCal® Verification Standard, certified, 100 mNTU, 1 L
2697953	StablCal® Verification Standard, certified, 300 mNTU, 1 L
2698053	StablCal® Verification Standard, certified, 500 mNTU, 1 L
2788449	StablCal® Calibration Standard, certified, 800 mNTU, 500 ml
2877553	StablCal® Verification Standard, certified, 5000 mNTU, 1 L

Note: For further calibration/verification tools, please refer to the Appendix A "Reagents & consumables"
Calibration tool 5236400 is essenstial for operation/calibration; 1720 calibration cylinders are not suitable!!!!

	Spare Parts for 1720 E sc
1895000	Lamp assembly for 1720 D/E series, pk/1 (Tungsten lamp), (Replacement)
4411600	Drain plug for 1720 series and FilterTrak, pk/1

TURBIDITY in Bypass (High range & harsh conditions)

SS7sc and SS7sc/HST (DataSheet DOC063.52.00486)



Ideally suited for industrial applications, e.g.

➔ Pulp & Paper (e.g. white & black liquor)
➔ Petrochemical
➔ Food (e.g. samples containing starch, fat or oil)
➔ Boiler & Cooling

The Surface Scatter 7 sc High Range Turbidimeter (SS7) is uniquely designed so that the light source and the photocell never come in contact with the sample. In fluids with high loads of suspended solids this makes sample cell cleaning and replacement unnecessary.
All wetted parts are made with corrosion-resistant materials for extended life. The photo detector and light source assemblies are protected from the effects of corrosive vapors and heated samples.
The SS7 sc HST, is intended for high-temperature samples (up to 70 °C).

The nephelometer comes with a calibration cylinder, 4000 NTU Formazin, installation accessories, and instruction manual. Analysis by means of the sc Digital Controller Platform.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	SS7 sc	SS7 sc HST
Designation	Process Bypass Turbidimeter for high range and/or harsh environmental applications	
Measuring principle	90° scattered light (Nephelometric)	
Light source	Tungsten lamp acc. USEPA180.1, ASTM D 6698; Standard Methods 2130B	
Measuring range	0 - 9999.9 turbidity units NTU, with automatic decimal point adjustment	
Measuring resolution	0.01 NTU < 100 NTU 0.1 NTU < 100...9999.9 NTU	
Accuracy	± 5% of reading or ± 0.1 NTU (whichever is greater) from 0.01 to 2000 NTU; ± 10% of reading from 2000 to 9999 NTU	
Repeatability	1.0% or ± 0.04 NTU, whichever is greater	
Response time T_{90}	Initial response in 45 seconds	
Signal averaging	No averaging, 6, 30, 60 and 90 seconds, user selectable. Default is 30 seconds.	
Calibration	precalibrated by the manufacturer (Calibration with Formazine and StablCal)	
Outputs	several analogue or digital (please refer to the respective sc controller specs)	
Process connection		
Installation style	Bypass installation with ambient pressure outlet (wall or bench stand mounting)	
Sample inlet	¾" NPT female	
Drain (outlet)	¾" NPT female	
Overflow drain	1" NPT female	
Sample flow	1 ... 2 l/min (15 to 30 gal/hr)	
Air purge fitting		¾" compression fitting; 0-1.4 m³/h air flow of clean instrument air[1]
Temperature		
Sample	0 ... 50°C	0 ... 70°C intermittent 70 ... 80°C (158 ... 176°F)
Storage	-20 ... 80 °C (-4 ... 140 °F); 95% relative humidity, non-condensing	
Ambient	0 to 50°C	
Humidity	5 ... 95% humidity, non-condensing	
Enclosure rating	IP52 (NEMA 12) sample unit and IP65 (NEMA4X) for control unit	
Material	corrsosion-proof plastic (instrument enclosure)	
Dimensions	64.2 x 67.5 x 19.0 cm (25.3 x 26.6 x 7.5 in.)	
Weight (approximately)	15.8 kg	18 kg
Power requirements	12 VDC ± 5%, 20 watts maximum (provided by sc100/sc1000)	
Cable length	2 m; extendable to 10 m max.	
Impemented Languages	English (default), German, French, Spanish, Italian, Swedish, Polish, Korean, Chinese, Japanese	
Maintenance requirement	1.5 h / month (typical)	
Controller compatibility	sc100 and sc1000	
Warranty	24 month; extendable to 60 month	

[1] instrument air must be customer provided

TURBIDITY in Bypass (High range & harsh conditions)

SS7sc and SS7sc/HST (DataSheet DOC063.52.00486)

Part No.	Designation
LPV43X.99.00002	**Surface Scatter SS7 sc**, HR Bypass Turbidimeter, 2 m sc connection cable

L	P	V	4	3	X	.	9	9	.	0	0	0	0	2	

Instrument Variants

SS7 sc **1**
SS7 sc HST **2**
for hot and/or corrosive samples

Language / Country Code Selection *please refer to Appendix E for further info*

Note:

All SS7 sc models comes with a calibration cup, 4000 NTU Formazine Calibration standard (500ml), installation accessories and instruction manual.
sc100 or sc1000 Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the SS7 sc sensor and the sc controllers is limited to 10 m in total.
Due to varying power requirements of the instruments, it is important to obtain manufacturers specifications:
1 SS7 sc sensor could be connected to sc 100 controller (ambient temperature up to 50°C)
2 SS7 sc sensor could be connected to sc 1000 controller (ambient temperature up to 50°C), respectively
1 SS7 sc sensor could be connected to sc 1000 controller (ambient temperature > 50°C and <55°C)
Please refer to the SS7sc instrument manual for details
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Accessories

5796000	Digital Extension Cable, 7.7 m (for 1720 E sc and SS7sc models only!)
2351300	Standardization Plate Kit, uncalibrated (1 x ~ 100 NTU and 1 x ~ 1000NTU)
4028400	Flow Meter (100...1600 ml/min)
4500043	Upgrade Kit, Converting Standard SS7 sc to a SS7 sc-HST (High Sample Temperature)

Optional Sample Conditioning Accessories (for HST-models)

4855100 Heat Exchanger Unit (Sample cooler)

The heat exchanger is intended for use with the SS7 sc-HST
if the sample temperatures exceed the temperature requirements of the instrument.
It can reduce sample temperatures of up to 100°C but is not suitable for
steam or super-heated water.
A source of cooling water is required.
The heat exchanger is made of 316 SS and has ¾" MNPT pipe connection
The large plumbing connections help eliminate clogging.
Pressure rating is 150 psi (10.5 bar).

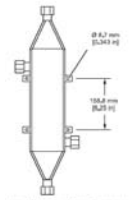


Figure 10 Heat exchanger dimensions

4669212	Auto Flush Kit, 120VAC
4669222	Auto Flush Kit, 230VAC

The optional Auto Flush Kit includes two electrically activated 3-way PVC ball valves (Stainless Steel construction also available), two needle valves for flow control, reducing bushing, and instruction sheet.
All other tee fittings, adaptors, piping, and electrical wiring are to be provided by the customer.

4668000 Bubble Trap/Head Regulator

A Bubble Trap/Head Regulator is recommended if the sample cannot be delivered bubble-free to the analyzer. The device may also be used as to dampen fluctuations in flow due to pulses from a pump and/or sample pressure.

TURBIDITY in Bypass (High range & harsh conditions)

SS7sc and SS7sc/HST (DataSheet DOC063.52.00486)

Part No.	Designation
246149	Formazin Primary Standard, Stock Solution, 4000 NTU, 500 ml
4503400	Lamp Assembly, Surface Scatter 7 sc
4669100	Tubing Replacement Kit
DOC026.52.00769	Manual, SS7 sc, English

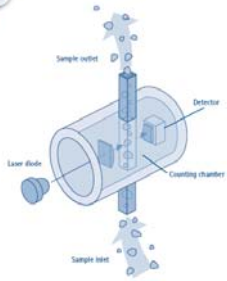
Surface Scatter®7 sc Installation Kit (supplied with the instrument):

The following items are provided with the SS7sc for installation.
All items are available separately as replacement.

4043900	Adapter, barb fitting, ¾" NPT to ¾" ID hose barb (2x)
4037200	Adapter, barb fitting, 1" NPT to 1" ID hose
68700	Brush, cylinder, size 2
4502100	Calibration cup, SS7 sc
4507300	Drain Valve
246149	Formazin Stock Solution, 4000 NTU, 500 mL
4507600	Light Source Alignment plate
3155100	Nipple, ¾" NPT
4417300	Washer, ¼ ID x 1.00 OD (4x)
4424700	Wall Mounting kit
4529900	Light Source Shield Assemblies (2x)
7122100	Detector Assembly
4499300	Latch, replacement, SS6

Particle Counter

WPC21 & WPC22 2-Channel Particle Counter (DataSheet DOC063.52.00464)



The WPC-21 and -22 were designed to provide a useful and cost effective means of evaluating water quality. The units mount directly to the wall, where they can continually monitor waterborne particulate, either as an individual unit or as units networked together through AQUARIUS software. In typical situations, the WPC-22 provides 2 channel tracking (selectable from 8 sizes), in cumulative mode, for particles as small as 2 µm .
When sensitivity is critical, the WPC-21 provides 2 channel tracking (selectable from 8 sizes), for particles as small as 1 µm.

Applications

Developed for continuous particle monitoring in water filtration
Drinking water
Water in food/beverage industry
Filtration of beverages
Washing machines for clean room textiles
Cleaning baths for optical and machine parts
Pre-stage of DI-water production
Water for immersion painting

Technical Data

Subject to change without notice

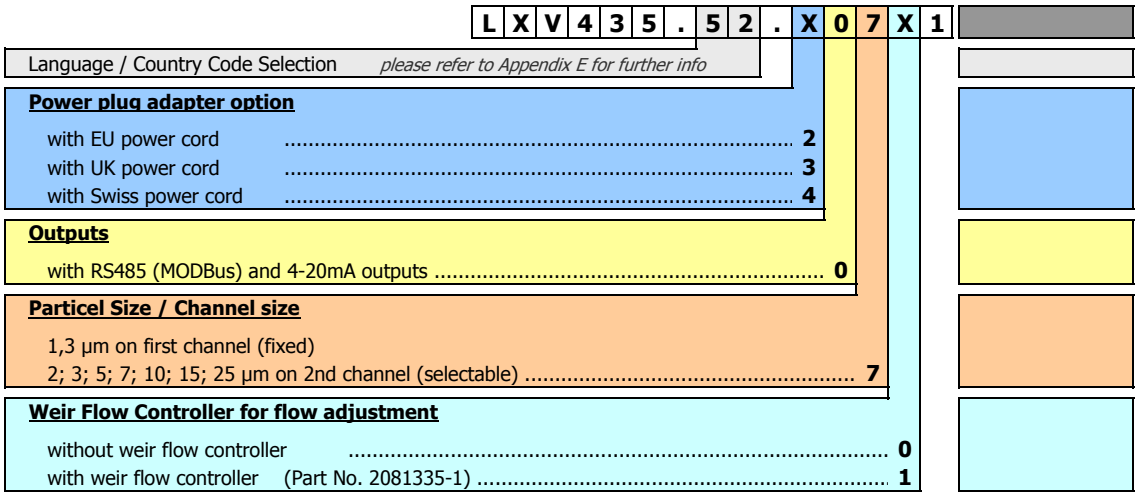
	WPC-21	WPC-22
Designation		
Measurement principle	Light blocking	
Light source	Laser diode 780 nm (average life of laser appr. 30,000 hours)	
Detector	Photodiode	
Instrument Design	2 channel instrument 1.3 / 2µm + one user-configurable on the second channel,selectable out of 7 sizes	
Particle sizes	1.3 µm on first channel fixed 2; 3; 5; 7; 10; 15; 25 µm on 2nd channel	2 µm on first channel fixed 5; 7; 10; 15; 25; 50; 100 µm on 2nd channel
Units	Number of particles/ml	
Coincidence fields	10 % loss at 25,000 particles/ml	10% loss at 15,000 particles/ml
Counting efficiency	20 to 80% @ 1 µm; 70 to 130% with 2 µm particles @ 1 µm	30 to 70 % @ 2 µm; 80 to 120% with 5 µm particles @ 2 µm
Resolution	≤ 10 % of 10 µm per ASTM-F658-87	
Flow cell dimensions	600 x 600 µm	800 x 800 µm
Zero count deviation	≤ 1 particle per minute	
Calibration	Calibrated with Polystyrene latex spheres in water at a sample flow of 50 ml/min.	Calibrated with Polystyrene latex spheres in water at a sample flow of 100 ml/min
Display	4 lines x 16 characters LCD, LEDs for instrument function, power supply, alarm status	
Interfaces, outputs	2 x analog inputs/ outputs (4-20 mA, 0-10 V) RS232 RS485 MODBUS	
Data storage	Internal memory for 100 measured sample values	
Process connection		
Installation style	Bypass installation with ambient pressure outlet (wall mounting)	
Inlet	¼" pipe compressing fitting (supplied)	
Outlet	¼" pipe compressing fitting (supplied)	
Sample flow	45 to 55 ml/min	90 to 110 ml/min
Pressure pmax	8.3 bar	
Temperature		
Ambient	0 to 40 °C	0 to 45 °C
Sample	0 to 50 °C	0 to 50 °C
Humidity (operation)	5 to 90 % relative humidity, non-condensing	
Enclosure rating	IP 66 (Modified NEMA 4X)	
Wetted materials	Fused silica, Viton (fluorocarbon), & Kynar (PVDF)	
Power requirements	90-264 VAC, 47-63 Hz	
Dimensions	114 x 248 x 302 mm (4.50 × 9.75 × 11.88 in) W x H x D	
Weight	2.25 kg	
Standards	CE	
Controller compatibility	Stand alone instrument	
Warranty	24 month; extendable to 60 month	

Particle Counter

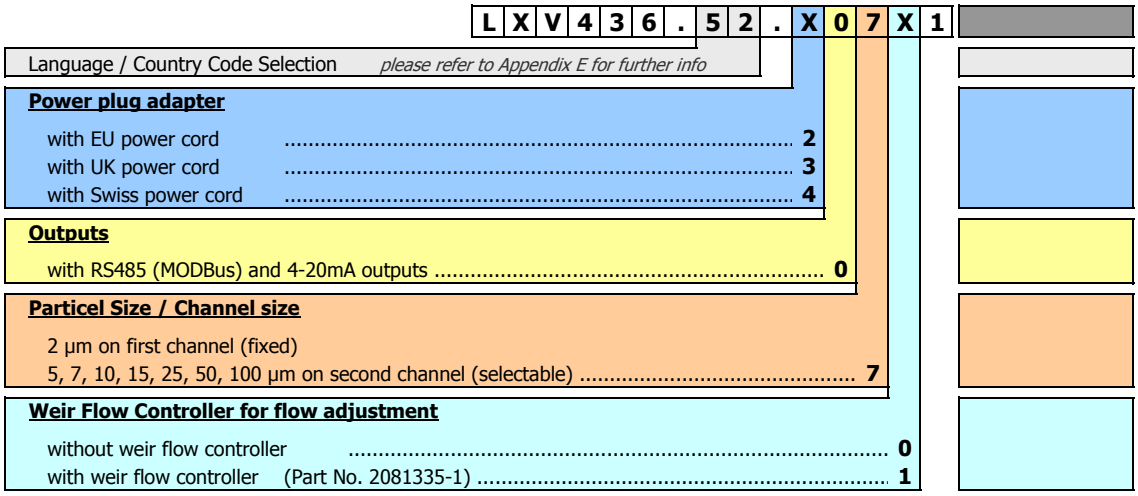
WPC21 & WPC22 2-Channel Particle Counter (DataSheet DOC063.52.00464)

Part No.	Designation

LXV435.52.20701 **WPC21**, Particle Counter



LXV436.99.20701 **WPC22**, Particle Counter



Optional accessories

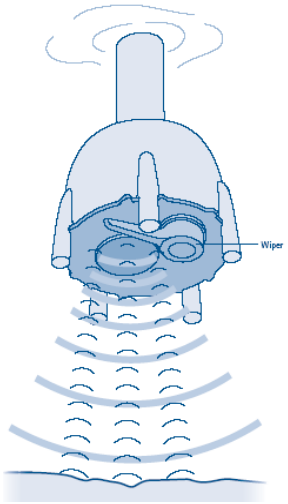
CS200011-01	AQUARIUS software	
2081335-1	Water Weir Flow Controller	(as individual item)
2082393-2	RS 485 / RS 232 Converter	

Factory recalibration
Sensor replacement including recalibration

Note: Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

SLUDGE LEVEL & SLUDGE HEIGHT

SONATAX sc (DataSheet DOC053.52.00155)



Self-cleaning ultrasonic sensor with adjustable sensitivity for the continuous determination of the sludge level or the sludge height in settling tanks, vessels and reactors, expressed as depth from the surface or height from the tank floor.
The sludge level is calculated without contact between the probe and the sludge, on the basis of the propagation time of the ultrasonic echo.
User-friendly menu guidance by membrane keypad and illuminated large graphics display with curve generation by using the sc1000 controller.

Controller compatibility

sc100

sc1000

Technical Data
Subject to change without notice

	Sonatax sc
Designation	Ultrasonic sensor for measurement of slugde level and sludge height in sedimentation basins
Measuring technique	Ultrasonic measurement, temperature compensated
Measuring range	0.2 ... 12.0 m sludge level or sludge height
Measuring resolution	0.03 m sludge level
Measuring precision	< 0.1 m
Calibration	Factory pre-clibrated automatic (once during installation)
Response time T_{90}	10 ... 600 sec (adjustable)
Special notes	Automatic, magnetic coupled wiper cleaning, temperature compensation
Process connection	
Installation	Immersed directly into the media
Pressure pmax	≤ 0.3 bar respectively ≤ 3 m
Temperature	
Sample	+2 °C to +40 °C (probe)
Ambient	-10°C to +40°C (controller)
Dimensions Probe	130 x 185 mm (L x Ø)
Sensor Material	SS1.4581
Weight (approximately)	3.5 kg
cable length	10 m integrated cable; extendable up to 50 m by sc cables
Power Supply	supplied by sc controller series
Power Consumption	12 V, 2.4 W (200 mA)
Enclosure rating	IP68 (≤ 1 bar)
Maintenance requirement	1 h / month, typical
Servicing interval	12 months
Declaration of conformity	CE, TÜV GS, UL/CSA
Controller compatibility	sc100 and sc1000
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years

SLUDGE LEVEL & SLUDGE HEIGHT

SONATAX sc (DataSheet DOC053.52.00155)

Part No.	Designation
LXV431.99.00001	**Sonatax sc**, with 10 m cable, without sc controller

L X V 4 3 1 . 9 9 . 0 0 0 0 1 [ ]

Language / Country Code Selection *please refer to Appendix E for further info* [ ]

Standard accessories (supplied with the instrument)

1 set of wiper blades (for 5 changes)
1 set of operating instructions
1 factory test certificate

Mounting assemblies for Tank rim fixing (LZX997 for sc100) or LZX 957 (for sc1000) and LZX414.00.7X000 are essential for installation and must be ordered separately.

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 50m in total.
Using different cables instead of the above mentioned will void the warranty.
For further extension cables, please consult the chapter sc controller/display units accessories
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Mounting assembly for Immersion application

Complete Mounting Kit, made of Stainless steel, consisting of:
Probe pipe stand, Mounting pipe (2m), Controller Pipe bracket, Mouting brackets (2x),
Small Accessories Installation Kit for probes

LZX414.00.70000	SONATAX sc - Tank rim fixing, made of SS	
LZX414.00.71000	SONATAX sc - Pivot Mounting, 1m pipe	
LZX414.00.72000	SONATAX sc - Pivot Mounting, 0.35m pipe	
LZX414.00.73000	SONATAX sc - Rail mounting assembly, made of SS	see note 2
LZX414.00.74000	SONATAX sc - Scraper bridge mounting assembly	see note 2

Note:

[2] Requires LZX414.00.70000, LZX414.00.71000 or LZX414.00.72000 in addition

Please refer to the chapter "Mounting assemblies" for further details or availability of extension pipes.

Spare parts

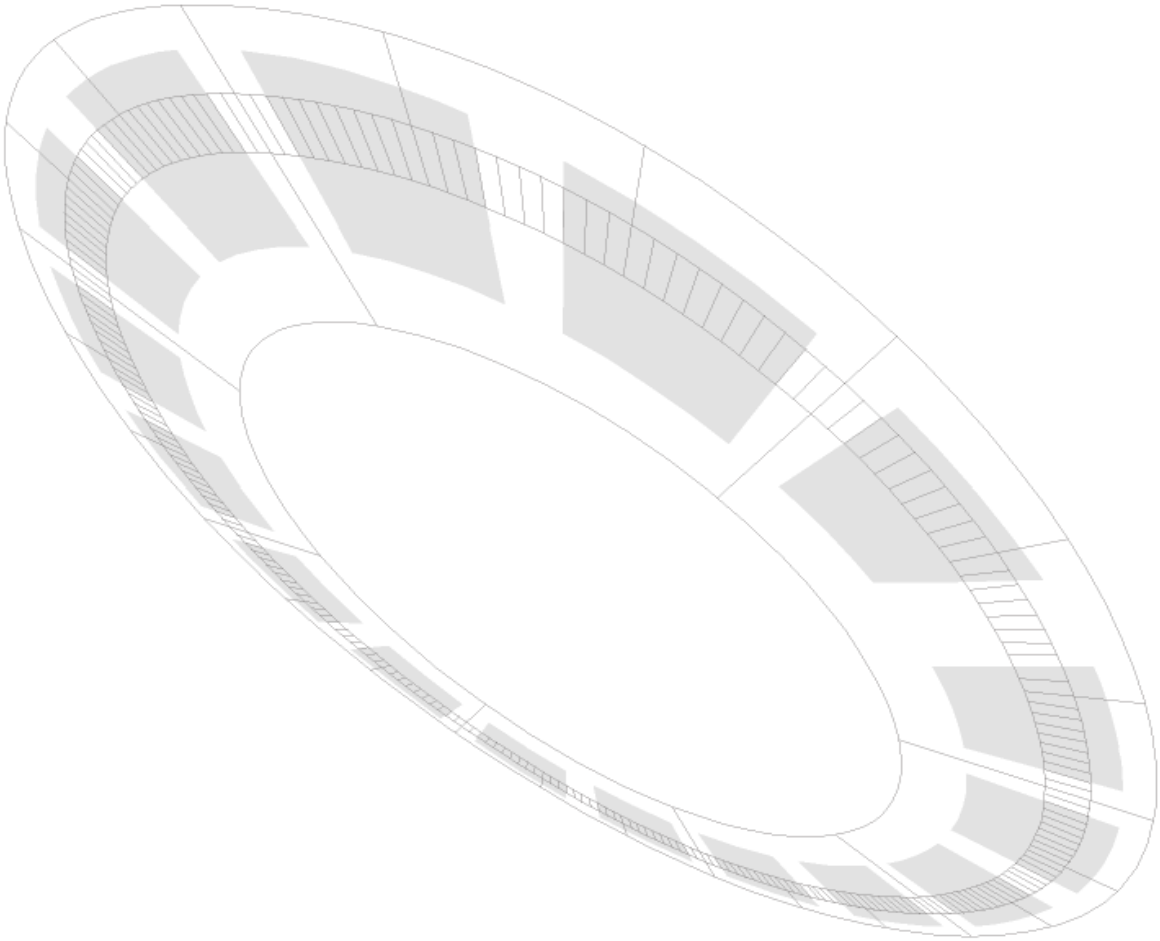
LZX328	Set of wiper blades, for Sonatax series, pk/5
LZY344	wiper arm, magnetic driven
LZY345	Adjusting screw for wiper arm

Documentation

DOC023.52.00117	Instrument Manual SONATAX sc, GB

Process Analyzers for Disinfection control & monitoring

Product overview



CHLORINE, free or total

CL17 Photometric Process Analyzer using DPD method (DataSheet LIT4369)

The Chlorine analyser CL17 is a cost effective, low maintenance, microprocessor-controlled process analyzer with no moving parts.

The instrument is intended for the continuous monitoring of free and total chlorine in water with a measuring range from 0.035 ... 5 mg/L. The device provides a continuous output signal that is proportional to the chlorine concentration in the sample.

The instrument performs a complete analysis every 2.5 minutes. The instrument design allows a 30 days operation without maintenance before it is necessary to add reagents.

The specific design based on the reference method using DPD, in combination with its short cycle and response time make this analyzer so reliable and unique, providing the user always full safety and confidence of reliable and accurate results for final treated water before distribution to the network system.

Technical Data

Subject to change without notice

	Cl17
Designation	Photometric Analyzer for free or total residual Chlorine determination
Measuring principle	photometric, DPD (N,N-Diethyl-p-pheylenediamine) method according DIN 38408
Light source	LED 520nm (life time approximately 50,000 h)
Measuring range	0.035 ... 5 mg/l free residual or total residual Chlorine
Measuring resolution	0.01 mg/l
Measuring uncertainty	± 5% or 0.035 mg/l Cl2, whichever is greater
Response time T_{90}	2.5 min
Cycle time	2.5 min (fixed)
Calibration	factory calibrated (user calibration possible)
Outputs	1 x 0/4-20 mA, programmable span over any portion in the 0 – 5 mg/l range AquaTrend® Network interface (optional)
Alarms	2 alarm contacts, programmable, equipped with SPDT relays with contacts rated for 5A resistive load @ 230VAC
Process connection	
Installation style	Bypass installation (wall mounting)
Sample inlet	¼" OD, quick connect fitting, 0.07 – 5.2 bar
Overflow drain	½" ID barbed hose fitting
Drain (outlet)	½" ID flexible tubing
Sample flow	200 ... 500 ml/min
Air purge fitting	¼" OD tube (oil-free instrument air; optional)
Temperature	
Sample	+5 ... +40°C
Ambient	+5 ... +40°C
Storage	-40 ... +60°C
Humidity	90% non condensing @ 40°C
Material	ABS plastic with 2 clear polycarbonate windows
Enclosure rating	IP62
Dimensions	32 x 42 x 18 cm (WxHxD)
Weight, Shipping	appr. 11.3 kg
Power requirements	115/220 VAC, 50/60 Hz can be switched; 95 VA, 2.5 A fuse
Reagent consumption	1 reagent set Cl_{free} or Cl_{total} per month
Maintenance requirement	1 h/month, typical
Controller compatibility	Stand alone instrument
Warranty	24 month; extendable to 60 month

CHLORINE, free or total

CL17 Photometric Process Analyzer using DPD method (DataSheet LIT4369)

Part No.	Designation
544000X	Cl17 Free Residual Chlorine Analyzer

5	4	4	0	0	0	X

AQUATREND Network Option

Cl17, Free Chlorine Analyzer w/o AquaTrend **1**
Cl17, Free Chlorine Analyzer with AquaTrend Network **3**

544000X	Cl17 Total Residual Chlorine Analyzer

5	4	4	0	0	0	X

AQUATREND Network Option

Cl17, Total Chlorine Analyzer w/o AquaTrend **2**
Cl17, Total Chlorine Analyzer with AquaTrend Network **4**

Note:

Each analyser is supplied with 1 month reagent set, spare pump tubing, wall mounting kit and instruction manual; without power cord
For further spare parts please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Lab-Instruments for calibration/verification purposes, please refer to the HACH LANGE Lab Pricelist.

Accessories

5516400	Installation Kit, for Cl17/SP510
5444300	Maintenance kit (for 1 year) Contains reagent tubing, reagents caps and fittings to be replaced annually. Pump module tubing to be replaced at three to six month intervals.
5444301	Maintenance kit (for 1 year), same as 5444300 but with pre-assembled tubing
5448900	Power cord, 240 VAC, with European plug, 1.83m
5448800	Power cord, 120 VAC, with European plug, 1.83m
5449000	CL17 Calibration/Verification kit
4643600	Flow meter with ¼" OD tubing

Reagents (for 1 month operation)

2556900	Cl17 Reagent Set, Chlorine free, consisting of 2297255, 2314011, 2314111 (1 each)
2557000	Cl17 Reagent Set, Chlorine total, consisting of 2297255, 2263411, 2263511 (1 each)

Note:

Individual Reagents are available seperately; please refer to chapter Appendix A "Reagents & Consumables"

AquaTrend accessories

Cable

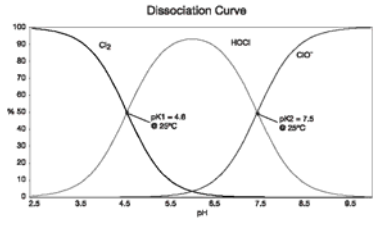
5215710	2 wire cable, communication only	30 m
5215810	4 wire cable, communication and power	30 m

Cables are also available on request in the lengths 75m, 150m and 300m.

CHLORINE

9184 sc - Amperometric Chlorine Analyzer (DataSheet DOC063.52.00441)

The 9184 sc Amperometric Chlorine sensor is available to measure Free Chlorine (HOCl) only, or as a Total Free Chlorine (HOCl + OCl^-) version which is combined with a pH electrode for accurate compensation of pH fluctuations. The system comes pre-assembled on a panel for easy installation.



Available options include:
Acidification Unit - Used when sample pH is greater than 7.5. Forces sample pH to between 5.5 and 6.5. It can be used intermittently or continuously for cleaning and is fully programmable.
Intermittent Flow Unit - This fully programmable unit comes equipped with relays to allow variable measurement while minimizing the wasted sample stream.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	9184sc, 9184sc TFC, 9184sc Acidification
Application	Disinfectant control and monitoring in clean water applications
Measuring principle	Amperometric/Membrane (Clark Cell)
Measuring range	0–20 ppm (mg/L) HOCl
Detection limit	5 ppb (0.005 mg/L) HOCl
Measuring uncertainty	2 % or ±10 ppb HOCl whichever is greater
Repeatability	±10 ppb (0.01 mg/L) or ±5 %, whichever is greater @ pH < 7.5
Response time T_{90}	< 90 seconds
Interferences	no interferences from Chloramines Chlorine Dioxide and Ozone will be determined in addition
Calibration	Electrical zero or chemical zero with dechlorinated water; calibration of the slope by comparison with a laboratory instrument using DPD; pH calibration: Single or Two Point calibration or lab method
Calibration interval	2 months (typical)
Process connection	
Installation	Bypass with atmospheric outlet; Mounting to flat vertical wall, panel, etc.
Sample inlet	¼" OD, quick connect fitting
Drain (outlet)	½" ID, quick connect fitting
Sample flow	200 ... 250 ml/min (minimum); auto-regulated by flow thru cell
Pressure range	0.1–2 bar (1.4–28 psi) inlet; flow cell pressure will be the atmospheric pressure
pH requirements	4 to 8 (acidification unit available for > 8 pH)
Temperature	
Sample	+2°C ... +45 °C (35.6–113 °F); no suspended solids
Ambient	0 to 45 °C (32 to 113 °F), 0 to 90% r.H. non-condensing
Outputs	several; please refer to sc controller
Cable length	0,4 m; extandable to 100 m max. using sc extension cables
Enclosure rating	IP66 (NEMA 4X)
Material	Electrode: gold cathode/silver anode Measuring cell: Acrylic Probe body: PVC
Dimensions	299 x 250 mm x 155 mm (11.77" x 9.84" x 6,10") (W x H x D)
Weight (approximately)	6.5 kg (14.3 lb)
Maintenance requirements	Measurement Cell: 6 months for membrane and electrolyte, typical pH Cell: 1 to 1.5 years, typical
Remarks:	Electrodes are supplied with consumables for 2 years operation (typical use)
Controller compatibility	sc100 and sc1000
Warranty	24 month; extendable to 60 month

CHLORINE

9184 sc - Amperometric Chlorine Analyzer (DataSheet DOC063.52.00441)

Part No.	Designation
LXV43X.99.00001	**918X** sc Amperometric Disinfectant Analyzer

L X V 4 3 X . 9 9 . 0 0 0 0 1

918Xsc Amperometric Analyzer model option

9184 sc Free Chlorine (HOCl) Analyzer **0**
9184 sc Total Free Chlorine Analyzer (HOCl + OCl) **2**

Language / Country Code Selection *please refer to Appendix E for further info*

918Xsc Amperometric Disinfectant Analyzer series comes panel mounted, including amperometric sensor, flow regulator, 0.4 m connection cable; without sc controller

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 100m.
[2] Please refer to Appendix E to get more information about manuals and user interface in different languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Consumables/Replacements (for 2 years operation, typical)

Z09184=A=3500	Membranes for 9184 sensors, pre-mounted, set of 4
Z09184=A=3600	Electrolyte filling solution for 9184/9184sc, 100 ml

Optional Accessories

Acidification Accessories (for 9184sc TFC sensor)

LZY051	9180 sc Acidification Unit, to adjust pH sample in the range 5.5 ... 6.5 Can be even used for continous or intermittent cleaning of the flow cell
LZY052	9180 sc Intermittent Flow Unit Used to eliminate contstant measurement while minimizing the wasted sample stream

Further Accessories

LZY060	sc 100 Mounting panel
5743200	Floor mounting assembly, free-standing, made of Stainless Steel
DOC023.52.00051	Instrument Manual "9184sc Chlorine, 9185sc Ozone and 9187sc Chlorine Dioxide Analyzer", GB

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, with molded plug and coupling, 5 m
LZX849	Digital Extension Cable, with molded plug and coupling, 10 m
LZX850	Digital Extension Cable, with molded plug and coupling, 15 m
LZX851	Digital Extension Cable, with molded plug and coupling, 20 m
LZX852	Digital Extension Cable, with molded plug and coupling, 30 m
LZX853	Digital Extension Cable, with molded plug and coupling, 50 m

Reference Laboratory system for calibration/verification purpose

5870000	Pocket Colorimeter II - Chlorine Free & Total, with DPD Reagent Set, 50 tests each
5870023	Pocket Colorimeter II - Chlorine Free, with SwifTest Dispenser + 250 tests Chlorine free DPD Reagent

CHLORINEDIOXIDE & OZONE

9185 sc & 9187 sc - Amperometric Analyzer (DataSheet DOC063.52.00441)

The 9187sc/9185sc Amperometric sensors comes pre-assembled on a panel and are desined to measure Chlorinedioxide or Ozone accurately up to ppb levels of the respective disinfectant which is used.

The 1987sc Chlorinedioxide Analyzer uses an amperometric method which determines the chlorine dioxide molecules after diffusion through a membrane.
It is interference-free to Chlorine.

The 9185sc Ozone model uses the same technology but it is selective to Ozone.
The analyzer design allows to determine Ozone interference-free from Chlorine, Chloramines, Chlorine Dioxide, Hydrogen Peroxide and pH.

Available options include:
Acidification Unit - Used when sample pH is greater than 7.5. Forces sample pH to between 5.5 and 6.5. It can be used intermittently or continuously for cleaning and is fully programmable.
Intermittent Flow Unit - This fully programmable unit saves resources while complying with ground water regulations.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	9187 sc Chlorinedioxide Analyzer	9185 sc Ozone Analyzer
Application	Disinfectant control and monitoring in clean water applications	
Measuring principle	Amperometric/Membrane (Clark Cell)	
Measuring range	0–2 ppm (mg/L) ClO2	0–2 ppm (mg/L) O3
Detection limit	10 ppb (0.005 mg/L) ClO2	5 ppb (0.005 mg/L) O3
Measuring uncertainty	5 % or ±10 ppb ClO2 whichever is greater	2 % or ±10 ppb O3 whichever is greater
Repeatability	±10 ppb (0.01 mg/L) or ±5 %, whichever is greater @ pH < 7.5	
Response time T_{90}	< 90 seconds	
Interferences	Ozone no interferences by Chlorine, Bromine	No interferences from Chlorine, Chlorine dioxide, Bromine or Hydrogen peroxide
Calibration	Electrical zero or chemical zero with de-chlorinated water; calibration of the slope by comparison with a laboratory instrument using DPD; pH calibration: 1 or 2 Point calibration or lab method	
Calibration interval	2 months (typical)	
Process connection		
Installation style	Bypass with atmospheric outlet; Mounting to flat vertical wall, panel, etc.	
Sample inlet	¼" OD, quick connect fitting	
Drain (outlet)	½" ID, quick connect fitting	
Sample flow	200 ... 250 ml/min (minimum); auto-regulated by flow thru cell	
Pressure range	0.1–2 bar (1.4–28 psi) inlet; flow cell pressure will be the atmospheric pressure	
pH requirements	4 to 8 (acidification unit available for >8 pH)	
Temperature		
Sample	+2°C ... +45 °C (35.6–113 °F); no suspended solids	
Ambient	0 to 45 °C (32 to 113 °F), 0 to 90% r.H. non-condensing (please refer to sc controller)	
Outputs	several; please refer to sc controller	
Cable length	0,4 m; extendable to 100 m max. using sc extension cables	
Enclosure rating	IP66 (NEMA 4X)	
Material	Electrode: gold cathode/silver anode Measuring cell: Acrylic Probe body: PVC	
Dimensions	299 x 250 mm x 155 mm (11.77" x 9.84" x 6.10") (W x H x D)	
Weight (approximately)	6.5 kg (14.3 lb)	
Maintenance requirements	Measurement Cell: 6 months for membrane and electrolyte, typical pH Cell: 1 to 1.5 years, typical	
Remarks:	Electrodes are supplied with consumables for 2 years operation (typical use)	
Controller compatibilty	sc100 or sc1000	
Warranty	24 month; extendable to 60 month	

CHLORINEDIOXIDE & OZONE

9185 sc & 9187 sc - Amperometric Analyzer (DataSheet DOC063.52.00441)

Part No.	Designation
LXV43X.99.00001	**918X** sc Amperometric Disinfectant Analyzer

L X V 4 3 X . 9 9 . 0 0 0 0 1

918Xsc Amperometric Analyzer model option

9187 sc Chlorinedioxide Analyzer system **4**
9185 sc Ozone analyzer system **3**

Language / Country Code Selection *please refer to Appendix E for further info*

918Xsc Amperometric Disinfectant Analyzer series comes panel mounted, including amperometric sensor, flow regulator, 0.4 m connection cable; without sc controller

Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 100m.
[2] Please refer to Appendix E to get more information about manuals and user interface in different languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Consumables/Replacements (for 2 years operation, typical)

Z09185=A=3500	Membranes for 9185 sensors, pre-mounted, set of 4
Z09185=A=3600	Electrolyte filling solution, 100 ml
Z09187=A=3500	Membranes for 9187 sensors, pre-mounted, set of 4
Z09187=A=3600	Electrolyte filling solution, 100 ml

Optional Accessories

Acidification Accessories (for 9184sc TFC sensor)

LZY051	9180 sc Acidification Unit, to adjust pH sample in the range 5.5 ... 6.5 Can be even used for continous or intermittent cleaning of the flow cell
LZY052	9180 sc Intermittent Flow Unit Used to eliminate contstant measurement while minimizing the wasted sample stream

Further Accessories

LZY060	sc 100 Mounting panel
5743200	Floor mounting assembly, free-standing, made of Stainless Steel
DOC023.52.00051	Instrument Manual "9184sc Chlorine, 9185sc Ozone and 9187sc Chlorine Dioxide Analyzer", GB

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, with molded plug and coupling, 5 m
LZX849	Digital Extension Cable, with molded plug and coupling, 10 m
LZX850	Digital Extension Cable, with molded plug and coupling, 15 m
LZX851	Digital Extension Cable, with molded plug and coupling, 20 m
LZX852	Digital Extension Cable, with molded plug and coupling, 30 m
LZX853	Digital Extension Cable, with molded plug and coupling, 50 m

Reference Laboratory system for calibration/verification purpose

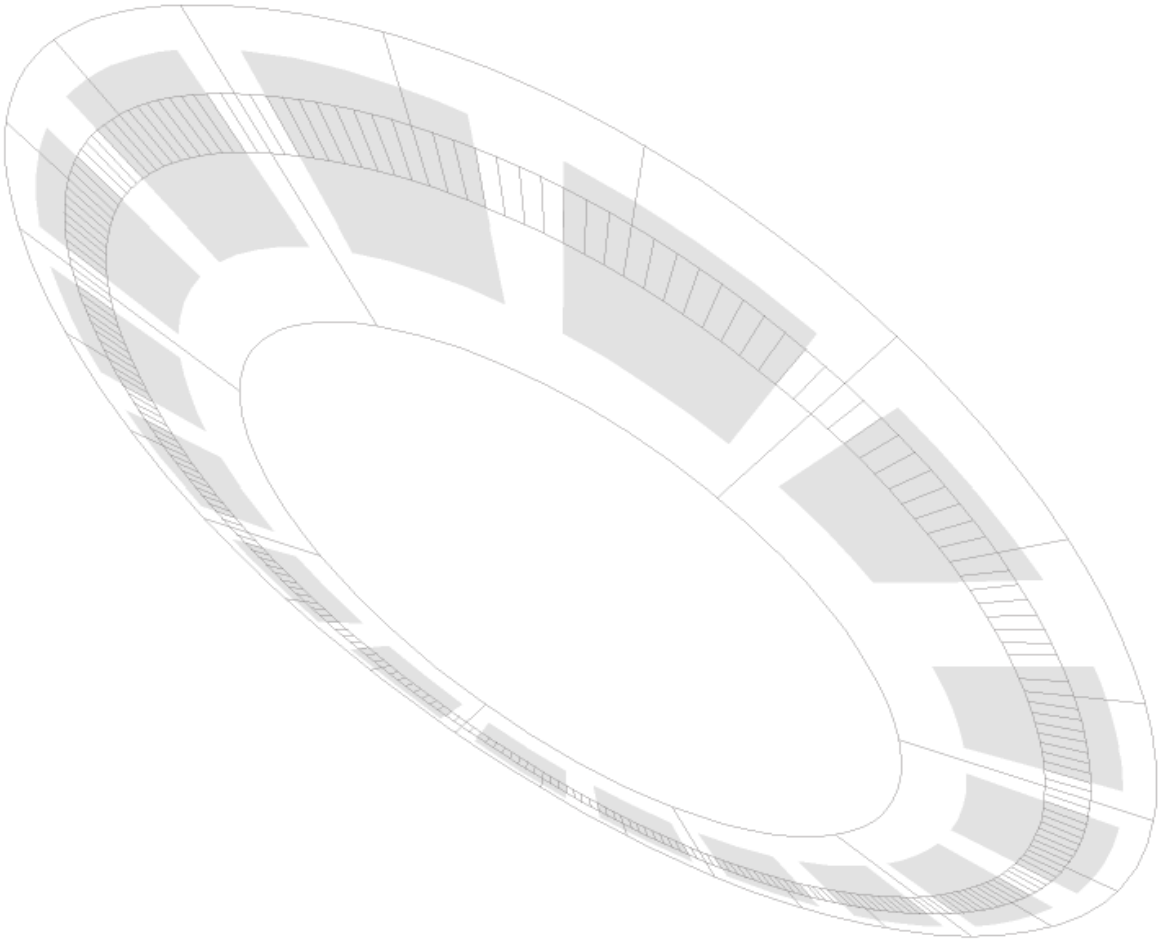
5870051	Pocket Colorimeter II - Chlorinedioxide, with Reagent Set DPD Chlorine/Glycine 100 tests For more sensitive ClO2 method, please contact HACH LANGE and ask for Amaranth method.
5870004	Pocket Colorimeter II - Ozone, with reagent set, 0.01...0.25 and 0.01...0.75 mg/l (25 tests each)

Note:

Further single and multi-parameter instruments on request; please contact HACH LANGE
For spare parts please refer to the chapter Appendix A

Process analyzers for cationic and anionic parameters

Product overview



ALKALINITY

APA 6000 (DataSheet LIT1503)

Alkalinity, a measure of a sample's acid-neutralizing capacity, is an important parameter in a wide variety of applications, from drinking water and beverages to boiler/cooling water and wastewater treatment, as well as many types of manufacturing and chemical production.

The APA 6000™ Alkalinity Process analyzer is a microprocessor-controlled process analyzer designed to continuously monitor a sample water stream for alkalinity. The analyzer displays total-, phenolphthalein-, hydroxide-, carbonate-, and bicarbonate-alkalinity in the water sample.

The analyzer combines volumetric and colorimetric method to determine the concentration in the range from 10 to 1000 mg/l total alkalinity and 5 to 1000 mg/l phenolphthalein alkalinity.
The analyser provides exact, reliable results with low costs and low maintenance effort.

Technical Data

Subject to change without notice

	APA6000 - Alkalinity
Application	all "Clean" Water applications
Measuring principle	colorimetric measurement of alkalinity at a wavelength of 600 nm using m-cresol purple and bromcresol green for end-point determination
Measuring range	1 to 500 mg/l as CaCO3 Total Alkalinity 2 to 250 mg/l as CaCO3 Phenolphthalein Alkalinity
Detection limit	less than or equal to 0.10 mg/L
Measuring uncertainty	< ± 5 % of reading or ± 1.0 mg/L, whichever is greater
Repeatability	< 3 % of reading or ± 0.6 mg/L, whichever is greater
Response time T_{90}	< 10 min for 90% response to step change at sample inlet
Cycle time	appr. 8 min
Calibration	automatic or manual
Calibration interval	user selectable
Process connection	
Installation style	Bypass with atmospheric outlet; wall, bench and control panel mount
Sample inlet	¾" NPT male or female
Drain (outlet)	¾" NPT barbed hose fitting
Sample flow	100 ... 1000 ml/min
Sample stream	single stream Grab sampling capability (100ml minimum, 22 µm filtered) multiple sample stream (up to 3, with optional hardware)
Pressure range	0.03 ... 2.04 bar (0.5 to 30 psig)
Temperature	
Sample	5°C ... 50°C; clean water (particle size < 22 µm Ø)
Ambient	5°C ... 50°C; 5 ... 95% relative Humidity, non condensing
Outputs	2 x I/0 outputs suitable for recorders or PID control. Output span programmable over any portion of the 1 to 1000 mg/L range 2 SPDT relays with contacts designed for 5 A Ohmic load @ 230 VAC. Other relays available by means of connection of a SOM (signal output module). LONWORKS (AquaTrend Network) optional
Communication	max. node-to-node distance: 400 m max. total length of the wiring: 500 m; distances > 500m require repeater
Enclosure rating	IP66 (NEMA-4X), (indoor) with provision for air purge.
Dimensions	627 x 522 x 527 mm (WxHxD)
Weight (approximately)	25.5 kg (56 lbs.)
Power requirements	95 - 240 VAC, 50/60 Hz ± 2 Hz
Maintenance requirements	2 h/month, typical
Reagent capacity	1 month operation
Controller compatibility	Stand alone instrument
Warranty	24 month, extendable to 60 months

ALKALINITY

APA 6000 (DataSheet LIT1503)

Part No.	Designation	
5100010	**APA6000 Alkalinity Analyser** with integrated Aqua Trend interface	
	Instrument is supplied with installation kit, a maintenance kit, basic sample conditioning kit, a 1 month's reagent set, operating instructions and quick reference card. Power cords must be ordered separately.	
	To measure 2-3 sample streams, an additional Basic Sample Conditioning Kits will be required. Sample streams with particles larger than 22 µm require additional sample conditioning.	
	Reagents/consumables	
	Add the following for 30 days of continuous operation APA Alkalinity Reagent Set for 30 days operation consisting of: APA Alkalinity Reagent 1 (2826153) is an acid titrant that reacts with the alkalinity in the sample. APA Alkalinity Reagent 2 (2696653) is an indicator used to determine the endpoints of the titration. APA Alkalinity Cleaning Solution (2697053), cleans the system during the Prime and Instrument Clean functions. APA Alkalinity Standards 1 and 2 (6001100) are used together to perform a multiple point calibration. Initially, a different cleaning solution (Cat. No. 2697453) may be used to make sure all parts are wetted	
6001000	Alkalinity Reagent Set, for 30 days operation includes a 1 l bottle of each	
2826153	APA Alkalinity Reagent 1, Acid Titrant, 0.08 Mol H_2SO_4	1 L bottle
2696653	APA Alkalinity Reagent 2, Mixed Indicator, pH 4.5 & pH 8.3	1 L bottle
2697053	APA Alkalinity Acidic Cleaning Solution	1 L bottle
6001100	Alkalinity Standard Set, for 30 days operation	
	Optional:	
2697053	Alkalinity Wash Solution	1 L bottle
2697453	APA6000 Cleaning Solution Detergent solution for the elimination of air bubbles. This solution is sometimes used instead of the cleaning solution for the analyser.	1 L bottle
	Accessories	
5104000	APA6000 Installation Kit	
5129100	APA6000 Toolkit	
4630800	Power cord kit, 240 VAC	
	Sample Conditioning	
5104500	Basic Sample Conditioning Kit with 22 µm filter (replacement)	
5104200	Filter, 0.2 µm membrane suitable for 1 to 2 month operation in typical application	
5133901	APA 6000 Micro Filter System, model 9700, 230 VAC	
	The MicroFilter comes with all necessary items for installation, except a power cord. The only part that should have to be replaced is the membrane filter (5104200). This should be replaced every 1-2 months typical as necessary. The actual replacement time is process dependant, and could be as short as every two weeks.	
	Aqua Trend accessories	
	Cable	
5215710	2 wire cable, communication only	30 m
5215810	4 wire cable, communication and power	30 m
	Cables are also available on request in the lengths 75m, 150m and 300m.	

Note: For further reagents & consumables please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

HARDNESS

SP510 Treshold Monitor (DataSheet LIT1457)

The SP510™ Hardness Monitor is designed to monitor water softener effluents continuously to detect hardness breakthrough due to softener exhaustion. It enables commercial and industrial water softener operators to establish automatic control of their systems by initiating regeneration sequences with the instrument's alarm circuit. The Hardness Monitor is also suited for other applications requiring the monitoring of hardness.

By selecting the appropriate hardness indicator and buffer reagents, the monitor will alarm at 1, 2, 5, 10, 20, 50, or 100 mg/L hardness measured as $CaCO_3$. When the preselected alarm point is exceeded, the alarm relay responds, closing the normally open contacts and opening the normally closed contacts. These dry contacts can be used to actuate annunciators and/or initiate softener regeneration.
Control panel indicators provide "hard" or "soft" sample status.

Technical Data

Subject to change without notice

	SP510 Hardness Monitor
Application	all "Clean" Water applications
Measuring principle	colorimetric; hard or soft indicating with two alarm status LED indicators
Light source	LED 610 nm (life time approximately 50,000 h)
Alarm Trip Points	0.3, 1.0, 2.0, 5.0, 10.0, 20.0, 50.0 and 100 mg/l total hardness as CaCO3
Measuring uncertainty	± 25% of trip point
Repeatability	± 10 % of set point value in the range 0.3 - 2 mg/l, ± 4 % of set point value of the remaining measuring ranges
Cycle time	2.0 min @ 60Hz respectively 2.3 min @ 50Hz, selectable
Process connection	
Installation style	Bypass Installation; wall mounting
Sample inlet	¼" OD, quick connect fitting
Pressure range	0.7 to 8.3 bar
Drain (outlet)	½" ID barbed hose fitting; atmospheric outlet
Sample flow	50 ... 500 ml/min
Sample conditioning	Strainer Assembly for sample line, Cat. No. 1850600 recommended
Temperature	
Sample	+5 ... +40°C
Ambient	+5 ... +40°C, 5...95% relative humidity, non-condensing
Storage	-20 ... +60°C
Outputs	1 x SPDT relay, actuated when hard water indicator is on contact ratings: 5 A Ohmic load at 100-240 VAC
Alarms	LED indicators, HARD or SOFT
Enclosure rating	IP62
Material	ABS plastic; window made of acrylic
Dimensions (WxHxD)	32 x 42 x 18 cm (12.5 x 16.5 x 7")
Weight (Shipping)	appr. 11.3 kg
Maintenance requirements	calibration and reagent replacement every 2 months replace pump tubes: T<27°C, every 6 months, T>27°C, every 3 months
Power requirements	115/230 VAC, 50/60 Hz can be switched; 70 VA, 1.25 A fuse
Reagent consumption	1 reagent set / 2 months
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

HARDNESS

SP510 Treshold Monitor (DataSheet LIT1457)

Part No.	Designation
54100XX	**SP510 Hardness Monitor** — **5 4 1 0 0 X X**

Alarm Trip Point Option

0.3 mg/l CaCO3	**0 3**
1.0 mg/l CaCO3	**0 1**
2.0 mg/l CaCO3	**0 2**
5.0 mg/l CaCO3	**0 5**
10 mg/l CaCO3	**1 0**
20 mg/l CaCO3	**2 0**
50 mg/l CaCO3	**5 0**
100 mg/l CaCO3	**9 9**

Each SP510 Hardness Monitor liested above is shipped with an installation kit, maintenance kit (stirring bar, strainer, spare tube assemblies, a shut-off valve) and a two-month supply of reagents.

Note: Select the model with the alarm trip point 40 - 50 % higher than your normal effluent hardness.

Recommended accessories for sample conditioning

1850600	Strainer Assembly for sample line, made of PVC

Accessories

5516400	Installation Kit, for Cl17/SP510
5516500	Maintenance Kit, 1 year
5448800	Power Cord Kit with Strain Relief, 120 VAC
5448900	Power Cord Kit with Strain Relief, 240 VAC

Reagent supply for 2 month operations

Please select 1 Buffer and 1 Indicator solution for the appropriate Trip point from the table below. The reagents will last for 60 days operations.

Trip Point	Buffer solution Part No.	500 ml bottle	Indicator solution Part No.	500 ml bottle
0.3 mg/l	2768549		2769249	
1 mg/l	2768549		2769249	
2 mg/l	2768549		2769249	
5 mg/l	2768549		2769249	
10 mg/l	2768649		2769249	
20 mg/l	2768749		2769249	
50 mg/l	2768849		2769249	
100 mg/l	2768949		2769249	

Calibration solution

102133	EDTA standard solution 0.2N (0.1 M), 29 ml DB
102233	Magnesium standard solution, c= 10,000 ± 1,000 mg/L as CaCO3, 29 ml DB

Note: For further reagents & consumables please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

HARDNESS

APA 6000 Low & High Range Analyzer (DataSheet LIT1504, LIT1584)

The APA 6000™ Hardness analyzer is a microprocessor-controlled process analyzer designed to continuously monitor a sample water stream for hardness in clean water. Typical samples include softener effluents and boiler water.

The analyzer uses a colorimetric method to determine the available hardness concentration.

The reagent containers are sized to provide reagents for 30 days of continuous operation. All reagent containers are factory-filled to 1000 mL and meet Hach's quality standards.

The instrument case meets NEMA 4X (indoor) and IP66 industrial enclosure requirements.

Technical Data

Subject to change without notice

	APA6000 Low Range Hardness	APA6000 High Range Hardness
Application	all "Clean" Water applications	
Measuring principle	colorimetric	
Light source	LED 520 nm	LED 600 nm
Measuring range	0.05 to 10 mg/l Ca^{2+} + Mg^{2+} as CaCO3	10 to 1000 mg/l Ca^{2+} + Mg^{2+} as CaCO3
Measuring uncertainty	< ± 5 % of the measured value or ± 50 µg/l, whichever is the larger	
Repeatability	< ± 5 % of the measured value or ± 50 µg/l, whichever is the larger	
Response time T_{90}	< 5 min	< 17 min
Cycle time	4 min	8.2 min
Process connection		
Installation style	Bypass Installation; wall, bench or control panel mounting	
Sample inlet	¾" NPT, quick connect fitting	
Pressure range	0.035 to 2.04 bar	
Drain (outlet)	¾" NPT barbed hose fitting; atmospheric outlet	
Sample flow	20 to 1000 mL/min. maximum at Basic Water Conditioning Filter; 6 mL/min. maximum; filtered to 22 microns or less at sample inlet block.	
Sample stream	single stream Grab sampling capability (100ml minimum, 22 µm filtered)	
Sample conditioning	clean water (particle size < 22 µm Ø)	
Temperature		
Sample	5°C ... 50°C	
Ambient	5°C ... 50°C; 5 ... 95% relative Humidity, non condensing	
Outputs	2 x I/0 outputs suitable for recorders or PID control. Output span programmable over any portion of the 1 to 1000 mg/L range 2 SPDT relays with contacts designed for 5 A Ohmic load @ 230 VAC. Other relays available by means of connection of a SOM (signal output module). LONWORKS (AquaTrend Network) optional	
Communication	max. node-to-node distance: 400 m max. total length of the wiring: 500 m; distances > 500m require repeater	
Enclosure rating	IP66 (NEMA-4X), (indoor) with provision for air purge	
Dimensions	627 x 522 x 527 mm (WxHxD)	
Weight	25.5 kg (56 lbs.)	
Maintenance requirements	2 h/month typical	
Power requirements	95 - 240 VAC, 50/60 Hz ± 2 Hz, 150 VA	
Reagent consumption	1 month operation	
Controller compatibility	Stand alone instrument	
Warranty	24 Month; extentable to 60 months	

HARDNESS

APA 6000 Low & High Range Analyzer (DataSheet LIT1504, LIT1584)

Part No.	Designation	
5100210	APA 6000 Low Range Hardness Analyser, 0.050 mg/l to 10.0 mg/l $CaCO_3$ with integrated AquaTrend interface and Reagent kit for 1 month operation	
6200010	APA 6000 High Range Hardness analyser, 10 mg/l to 1,000 mg/l $CaCO_3$ with integrated AquaTrend interface and Reagent kit for 1 month operation	
	Instrument is supplied with installation kit, a maintenance kit, basic sample conditioning kit, a 1 month's reagent set, operating instructions and quick reference card. Power cords must be ordered separately.	
	Reagents/consumables	
	Reagents for APA6000 Low Range Analyser	
6001900	Reagent Set, APA 6000 LR Hardness Analyzer (suitable for 1 month operation)	
6002000	Standard Set, APA 6000 LR Hardness Analyzer (suitable for 1 month operation)	
2697453	APA6000 Cleaning Solution Detergent solution for the elimination of air bubbles. This solution is sometimes used instead of the cleaning solution for the analyser.	1 L bottle
	Reagents for APA6000 High Range Analyser	
	Reagent Set, APA 6000 HR Hardness Analyzer (suitable for 1 month operation)	
	Standard Set, APA 6000 HR Hardness Analyzer (suitable for 1 month operation)	
2697453	APA6000 Cleaning Solution Detergent solution for the elimination of air bubbles. This solution is sometimes used instead of the cleaning solution for the analyser.	1 L bottle
	Accessories	
5104000	APA6000, Installation Kit	
5129100	APA6000, Tool-Kit	
4630800	Power cord kit, 240 VAC	
6200900	Sample Sequencing Kit The APA 6000 Sample Sequencing Kit includes a sample inlet block, ceramic filter, appropriate tubing and fittings, and instruction sheet to add a second sample stream.	
	Sample Conditioning	
5104500	Basic Sample Conditioning Kit with 22 µm filter (replacement)	
5104200	Membrane filter set, 0.2 µm Teflon membrane (Replacement) suitable for 1 to 2 month operation in typical application	
5133901	APA 6000 Micro Filter System, model 9700, 230 VAC The MicroFilter comes with all necessary items for installation, except a power cord. The only part that should have to be replaced is the membrane filter (5104200). This should be replaced every 1-2 months typical as necessary. The actual replacement time is process dependant, and could be as short as every two weeks.	
	Aqua Trend accessories	
	Cable	
5215710	2 wire cable, communication only	30 m
5215810	4 wire cable, communication and power	30 m
	Cables are also available on request in the lengths 75m, 150m and 300m.	

Note: For further reagents & consumables please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

HYDRAZINE, Oxygen Scavanger

Hydrastat 9186 (DataSheet TE9186revF)

The 9186 Process Analyzer provides a high sensitivity measurement of oxygen scavengers, dissolved hydrazine, and carbohydrazide in water. The measuring principle is based on the electrochemical method of 3-electrode amperometry, which offers excellent zero stability. The combination of working electrode, counter electrode, and reference electrode provides steady, clean readings, with insignificant signal drift.

Response time (T90) is within 60 seconds, and system repeatability is outstanding at < ± 2% of reading or < ± 1 µg/L N_2H_4. This allows the timing and dosing of chemical additions in feedwater to be optimized and helps reduce costs.

The analyzer has been designed with no moving parts or pumps for long performance and minimal care. Maintenance is performed at service intervals of four to five weeks, and commonly requires less than 15 minutes for completion.

Technical Data

Subject to change without notice

	Hydrastat 9186
Application	Industrial and boiler waters
Measuring principle	Amperometric, 3 electrode principle
Measuring range	0...500 ppb dissolved N2H4 or 0...100 ppb Carbohydrazide
Detection limit	< 1 ppb
Measuring uncertainty	2% of measured value or ± 1 ppb, whichever is greater
Response time T_{90}	< 60 sec
Interferences	
Calibration	2 point calibration Zero: electrically with hydrazine-free water Slope: using Laboratory Reference values
Calibration interval	1x/month typically
Temperature compensation	automatic
Process connection	
Installation style	Bypass, single stream, with atmospheric outlet
Sample inlet	Swageloc 4 x 6 mm Stainless Steel tubing, free of solids
Drain (outlet)	Nippel for 6 x 8 mm PE hose
Sample flow	10 ... 15 l/h; 12 l/h recommended
Pressure range	0.5 ... 6 bar
Temperature	
Sample	+5°C ... 45°C
Ambient	+5°C ... 45°C, 10 ... 90% relative humidity, non condensing
Outputs	2x 0/4...20mA, electrical isolated from signal input (800 Ohm max) 4 NO/NC Relays (high/low limit, timer/sequencer, system alarm) RS485 MODBUS or ProfiBus DP 1.0 optional
Enclosure rating	IP65 (NEMA4), optional NEMA4X
Material	Working electrode: Platinum Counter electrode: Stainless Steel Reference: Ag/AgCl/KCl, 0.1 mol Measuring cell: Acrylic Transmitter: Aluminum + polyester coating
Power requirements	100 ... 240 VAC, 50/60 Hz, 25VA
Dimensions	300 x 817 x 224 mm (W x H x D)
Weight (approximately)	4.1 kg
Maintenance requirements	Monthly replenish reagent, calibration
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

HYDRAZINE, Oxygen Scavanger

Hydrastat 9186 (DataSheet TE9186revD)

Part No.	Designation
Z09186=A=X0XX	**Hydrastat 9186**, Hydrazine Analyzer with automatic calibration feature

Z	0	9	1	8	6	=	A	=	X	0	X	X

Sample Inlet connection option

Swageloc 4 x 6 mm tubing, Stainless Steel	0
1/4" O.D. connectors	3

Enclosure Option

19" Panel version (Standard)	0

Power Supply & Output Options

110...240 VAC + 2 x I/0 Output	0 0
110...240 VAC + 2 x I/0 Output + RS485 MODBUS	1 1
110...240 VAC + 2 x I/0 Output + ProfiBus DP	1 2
Low Voltage Version + 2 x I/0 Output	2 0
Low Voltage Version + 2 x I/0 Output + RS485 MODBUS	3 1
Low Voltage Version + 2 x I/0 Output + ProfiBus DP	3 2

Note: The analyzer is shipped pre-mounted on a panel with controller, probe, cable, flow cell, installation hardware and operating instructions.

Reagents for 30 days operation

Diisopropylamine, 99%, 1l
Diisopropylamine is a Dual use reagent and requires special licence by non-EU purchasers.
Monoethylamine, Diethylamine or Ammonia can be also used; please refer to the instrument manual.

Spare parts

Z09186=A=8000	Hydrastat 9186, 2 years Spare-parts kit
Z09186=A=0300	9186 Working electrode with integrated T-sensor (NTC), w/o top connector cable
Z09186=A=0400	Flow controller for 9186 complete (replacement)

Optional accessories

Z09186=A=0600	Chemical zero cartridge
Z09186=A=0650	Pack of resin for 9186 zero cartridge refilling
Z09186=C=0360	Orion Monoethylamine bottle cap adapter

Documentation

Z621=191=086	9186 Operating instructions, GB

Recommended Reference Laboratory measuring system

using 4-Dimethyl-amino-benzaldehyde method analogous DIN38413-P1

LCW025	Hydrazine Pipette test, Measuring range 0.01 ... 2 mg/l
179032	Hydrazine, Reagent solution, Measuring range 4 ... 600 µg/l
2524025	Hydrazine, AccuVac method, Measuring range 4 ... 600 µg/l

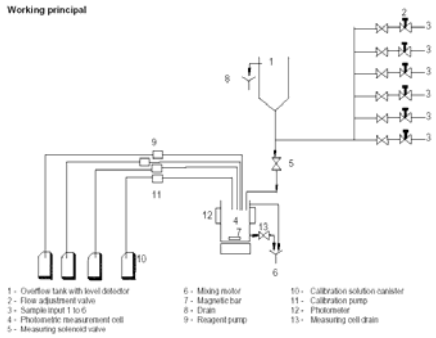
Note: Suitable HACH LANGE Photometer: DR2800, DR5000
For details, please refer to the HACH LANGE Laboratory Pricelist or contact HACH LANGE directly.

For further reagents & consumables please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

SILICA

Silkostat 9210 (DataSheet DOC063.52.30030)

To reduce demineralisation water plant costs, to avoid costly plant shutdowns and repairs, the POLYMETRON 9210 provides continuous monitoring for trace amounts of silica in high purity water applications.
Key features includes low 0.5 ppb detection limit detects, the innovative POLYMETRON "absolute zero" determination to maintain the reproducibility of 0.5 ppb, integrated grab sample ensures on the spot checking, reagents can be made locally, canisters replenishment every 84 days, built-in sequencer (1 to 6 channels) optimizes plant investment.



Technical Data

Subject to change without notice

	Silkostat 9210
Application	Boiler feedwater, Steam, Demineralisation, Semiconductor
Measuring principle	photometric; using Molybdenum blue method
Measuring range	0.5 … 1000 ppb respectively 2 ... 5000 ppb dissolved SiO2, depending on model
Repeatability	± 0.5 ppb or ± 2% (whichever is greater) ± 2 ppb or ± 2 % (whichever is greater)
Response time T_{90}	< 10 min
Measuring interval	10 minutes or 15 min selectable
Calibration	2 point calibration: chemical zero and slope, Programmable frequency, Automatic optical Zero before each measurement
Calibration interval	user selectable
Process connection	
Installation style	Bypass installation, particle free sample
Sample Stream	1 ... 6, programmable in-built sequencer (model depending)
Sample inlet	4/6 mm ID/OD PE/PTFE tubing (¼" on request)
Drain (outlet)	12 mm ID (½") barbed hose with atmospheric outlet
Sample flow	max. 30 l/h; recommended 10 ... 20 l/h
Pressure range	0.2 ... 6 bar
Temperature	
Sample	+5°C ... +50°C
Ambient	+5°C ... +45°C
Outputs	2 x 0/4...20mA (up to 6 for 6 channel analyser), electrically isolated, can be programmed as required (650 ohms load max) 8 relay outputs (more details see DataSheet) remote control RS485 MODBUS or ProfiBus DP 1.0 optional
Power requirements	100 - 240 VAC, 50/60 Hz, automatical switching, 80VA
Enclosure rating	IP65 (NEMA4X) Protection transmitter box IP54 Cabinet
Material	Panel version: Polystyrene-polybutadiene copolymer Cabinet version: Stove enamelled steel IP54
Dimensions	Panel: 482 x 814 [1095]) x 460 mm (W x H x D) [with reagent rack] Cabinet: 600 x 892 x 460 mm (W x H x D)
Weight	Panel: 10 kg Cabinet: 50 kg
Maintenance requirement	55 / 84 days (@ 10 / 15 min interval) "Refill of reagents and calibration solution"
Remarks:	Altitude: < 2000 m; 10 ... 80% relative Humidity
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

SILICA

Silkostat 9210 (DataSheet DOC063.52.30030)

Part No.	Designation
Z09210=A=X001	**Silkostat 9210,** Panel version, 1 channel (basic model)

Z	0	9	2	1	0	=	A	=	X	X	X	X

Measuring range option

0 ... 1000 ppb	1
0 ... 5000 ppb ..... typically low pressure boilers	5

Enclosure option

19" Panel version (Standard)	0
Cabinet version (Wall mounted)	1

Output options

I/0 Interface (Standard)	0
I/0 Interface + RS485 MODBUS	1
I/0 Interface + ProfiBus DP V1.0	2

Multi-Stream Sequencer option (inbuilt)

1 channel version	1
2 channel version	2
3 channel version	3
4 channel version	4
5 channel version	5
6 channel version	6

Note: The analyzer comes in appropriate configuration depending on selected model option, including 1 set of dry reagents, consiting of Sodium dehydrate molybdate, Oxalic acid dehydrate, Ammonium ferrous (II) sulphate hexahydrate suitable for up to 84 days(@ 15 min cycle) operation time. Concentrated Sulfuric Acid is mandatory for reagent preparation and must be purchased separately.

Optional accessories

Z09210=A=8072	Set of 5 canisters with caps and stickers
Z09210=A=0800	Wall-mount enclosure for 921X analysers (Silkostat, Phosphamat) in stove enamelled steel (as Upgrade kit)

Reagents & Consumables

Z09210=C=7010	Set of dry chemicals for 50 days operation	(suitable for all Silkostats, series 9210)
97949	Sulfuric Acid is essential for operation and must be purchased locally in the market. 25 ml will be required for preparation of 2 l Reagent 1. Alternatively consider: Sulfuric acid, concentrated, ACS grade, 500 ml	

Spare parts

Z09210=A=8000	2-years-spare part kit	(suitable for all Silkostats, series 9210)
Z09210=A=8012	9210 Instrument Tech spare part kit	(for models with S/N > than XXX)

Documentation

Z221=192=010	Operating manual, POLYMETRON 9210 Silica, GB

Replacements

Z09210=A=0100	0.5 - 6 bars adaptation kit for 6 solenoid sample valves
Z09125=A=1485	Profibus DP kit with board for 91xx / 92xx and Operator Manual

Note: For further reagents & consumables please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

SILICA

Silica analyser series 5000 (DataSheet LIT4545)

The Hach Series 5000 Silica is a reliable process analyzer for the detection of reactive silica (SiO_2) in ultrapure water.

For applications from semiconductor manufacturing to pharmaceutical processing, high-pressure boiler operation, and power generation, this instrument can provide an early warning that filter breakthrough is imminent – allowing you to intervene promptly.

The Analyser relies on the silicomolybdate/heteropoly blue, also called molybdenum blue method of colorimetric detection @ 810 nm –
a method that is reliable and consistently accurate.

The patented, pressurized reagent-delivery system eliminates the need for a peristaltic pump – and all the maintenance that a pump typically requires.

Additionally to the continous process measurement the analyser provide the possibilty to analysis grab samples without stopping the process.

Technical Data

Subject to change without notice

	S5000 Silica Analyzer
Application	Pure and Ultra-pure water applications
Measuring principle	photometric; using Molybdenum blue method
Measuring range	0.5 - 5000 µg/l SiO2
Measuring uncertainty	0.00 - 500 µg/l: ± 1.0 µg/l or ± 5 % of reading, whichever is greater 500 - 5000 µg/l: ± 7 % of reading
Repeatability	± 0.5 µg/l or ± 1 % of the measured value, whichever is the larger
Measuring interval	8.8 min @ 40°C ... 50°C (sample heater recommended) 15 min @ 5°C ... 40°C sample temperature
Calibration	factory precalibrated automatic calibration in process, on demand or user calibration
Process connection	
Installation style	Bypass installation; Bench or Panel mounting
Sample Stream	Single stream analysis, grab sampling capabilty or optional multi stream using sample sequencer
Sample inlet	¼" OD, stainless steel compressing fitting
Drain (outlet)	¾" NPT PVC
Sample flow	100 ... 300 ml/min
Pressure range	0.35 – 2.1 bar regulated overpressure
Air purge	optional: ¼" OD, stainless steel compressing fitting, instrument quality air (30l/min)
Temperature	
Sample	5°C ... 50°C
Ambient	10°C ... 45°C; 5 - 95 % relative humidity, non condensing
Outputs	I/0 output (0/4...20mA) RS232C Recorder output; selectable for 0...0.01V, 0...0.1V, 0...1V or 4-20 mA Relays: 4 SPDT relays programmable for sample concentration alarm, analyser system warning, analyser system shut-down alarm
Power requirements	115/230 VAC, 50/60 Hz switch selectable, 52 VA, max. 32 W
Enclosure rating	IP65 (NEMA4x)
Material	ABS plastic, housing with gasketed doors (for indoor use)
Dimensions	56.3 x 85.6 x 41.9 (WxHxD)
Weight	36.7 kg (shipping weight)
Reagent consumption	2.9 l of each reagent in 4 weeks with 8.8 minute cycle 2.9 l of each reagent in 7 weeks with 15 minute cycle
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

SILICA

Silica analyser series 5000 (DataSheet LIT4545)

Part No.	Designation
6000000	**HACH S5000 Silica Analyser**, without power cord

6	0	0	0	0	0	X

Model options

Series 5000 Silica Analyzer	**0**
Series 5000 Silica Analyzer with 120 VAC sample heater	**1**
Series 5000 Silica Analyzer with 240 VAC sample heater	**2**

The Hach Series 5000 Silica Analyzer is shipped including a 4 to 7 weeks supply of reagents, an annual maintenance kit, a sample conditioning kit (plastic) and an instructional manual. Power cord needs to be ordered separately if so requested.

Reagents

Silica Reagent Set, S5000 (suitable for 1 month operation)
consisting of

199503	Molybdate 3 reagent, 2.9 l
2347003	Citric Acid Surfactant, 2.9 l
2353103	Amino Acid F Reagent, 2.9 l
2100803	Silica Standard Solution, 0.50 mg/L, 2.9 l (suitable for 10 calibrations)

Accessories

4698100	Annual Maintanance Kit Maintenance Kits include reagent tubing, colorimetric lamp assembly, a stir bar, reagent caps, and fittings to be replaced annually.
4743900	Power cord with European plug, 250 VAC, 10A, 1.83 m
4696400	Power cord with European plug, 125 VAC, 10A, 1.83 m
4598300	Sample pressure conditioning kit, made of stainless steel
4868502	Sample heating, 240 VAC, with digital temperature display, 30 - 50 °C adjustable
LZX521	Compressor with connection kit, 2 x Fitting ¼" OD + 5 m tubing

Note: For further reagents & consumables please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

SODIUM

9240 / 9245 Sodium Analyzer (DataSheet ……)

The Polymetron 924X has been designed as mono-channel or multi-channel Sodium Process Analyzer, providing low-level sodium measurement in high purity water applications. The measurement is based on a direct potentiometric technique using a highly sensitive sodium glass electrode. With a detection limit of 0.01ppb and a range of 0-10,000 ppb this analyzer is ideally suited for monitoring sodium in demineralized water, boiler feed, condensate and all parts of the steam/water cycle.

The instrument has a grab sample feature for manual calibration and measurement of one-off process samples after which the unit automatically returns to on-line monitoring. It is specially designed for low total cost of ownership.

-Measures sodium levels from 0-10,000ppb with a detection limit of 0.01ppb
-Automatic reactivation ensures optimum electrode operation and response time
-Unique temperature compensated constant pH buffering is provided

Technical Data

Subject to change without notice

	9245 Sodimat		9240 Sodimat
Designation	Mono-channel Sodium Process Analyzer		Multi-channel Sodium Process Analyzer
Application	Demineralisation, Boiler feedwater, Steam condensate, Semiconductor On-line monitoring of low level Sodium in ultrapure water and steam condensate		
Measuring principle	Sodium sensitive glass electrode after sample conditioning > pH 10		
Measuring range	0 to 10,000 ppb freely programmable 0 to 200 ppm with K-Kit option		
Conditioning agent	DIPA (recommend) [C6H15N]	Ammonia [NH3]	Ethanolamine [H2N(CH2)2OH]
Detection limit	0.01 ppb	2 ppb	5 ppb
Accuracy			
non cationic application	± 0.1 ppb or ± 5% of reading, whichever is greater	± 1 ppb or ± 5% of reading, whichever is greater	± 2 ppb or ± 7% of reading, whichever is greater
cationic application	± 2 ppb or ± 5% reading, whichever is greater	± 2 ppb or ± 5% of reading, whichever is greater	± 2 ppb or ± 7% of reading, whichever is greater
Repeatability within a 10° variation	< 0.02 ppb or 1.5% reading, whichever is greater	< 0.1 ppb or 1.5% reading, whichever is greater	< 0.2 ppb or 1.5% reading, whichever is greater
Concumption of 1 l	~ 13 weeks	~ 3 weeks	~ 7 weeks
Response time T_{90}	≤ 3 min (0.1 to 10 ppb)		1 cycle, minimum 10 min
Interferences:			
Phosphate (10 ppm)	Measurement variation less 0.1 ppb.		
Sample temperature	< 0.5% / °C		
Calibration	manual, 1 or 2 point		
Autocal	optional		Standard (automatic known addition 3 point)
Options	K-kit, automatic calibration, filtration system, wall enclosure		K-kit, static heat exchanger, filtration system, wall enclosure
Process requirements			
Number of channels	1 channel		1 to 4 channels
Installation style	Bypass installation in Power station / indoor / demineralized water plant or instrumentation room		
Sample Inlet	6 mm O.D. tubing or ¼" O.D. in PE-low density. ¼" OD in PHED-PTFE-SS as option		
Sample Outlet	Barbed stem for 12 mm (½" I.D.) hose, atmospheric outlet		
Sample Flow	5 L/h during sampling phase		
Pressure	0.2 to 6 bar (3 - 87 psi)		
Sample specifications	< 2 NTU, < 10 ppm Suspended Solids, no oil, no grease		
Acidity	less than 250 ppm (equivalent CaCO3) using K-kit; less than 50 ppm without K-kit		
pH range	6 to 10 pH; Cationic application (using K-kit): 2 to 10 pH		
Temperature			
sample	5 to 45°C		
ambient	5 to 50°C		
storage	-20 to 60°C		
Relative humidity	10 to 80%		
to be continued			

Technical Data
Subject to change without notice

	9245 Sodimat	9240 Sodimat
Designation	Mono-channel Sodium Process Analyzer	Multi-channel Sodium Process Analyzer
Outputs	4 x 0/4 - 20 (650 ohms) Linear, Dual / Smart	6 x 0/4 - 20 (800 ohms) Linear, Dual, logarithmic / Smart
Relays	2 x Relay (conc), 1 x Warning, 1 x System	4 x Relay (conc), 1 x Warning, 1 x System
Optional	MODBUS RS485, ProfiBus DP V1.0	
Inputs (logic)	Active / Inactive channels / Remote AutoCal	
Display	75x75mm graphic LED backlighting showing concentration, trend curves, diagnostics, alarm status, calibration constants, historical data	
	Menu driven operation with clear messages, User Interface in 5 languages	
Power requirements	90 - 240 VAC ± 10%, 50/60 Hz, automatical switching, 80VA	
Enclosure rating		
Transmitter	IP65 (NEMA 4)	
Panel	IP50 (Dust protection) IP54 (Splash water proof) optional	
	Instrument is designed to avoid DIPA vapor inside the enclosure. All DIPA vapor is collected and sent to the instrument drain	
Material		
Panel	ABS with Stainless Steel frame	
Enclosure	ABS	
Dimensions		
Panel	850 x 450 x 252.5 mm [33.46" x 17.71" x 9.94"] (H x L x D)	
Enclosure	850 x 450 x 331.5 mm [33.46" x 17.71" x 13.05"] (H x L x D)	
Weight		
Panel	18 kg (20 kg with full canisters)	
Enclosure	23 kg (25 kg with full canisters)	
Maintenance requirement	every 100 days "Refill of electrolyte, reagents and calibration solution", typical (using DIPA)	
Remarks:	Altitude: < 2000 m; 10 ... 80% relative Humidity	
Standardisation		
European standards	EN 61326 (1997) and EN61326 A1 (1998) and EN61326 A2 (2001) Class A for EMC EN601010-1 (2001) for low voltage safety	
International standards	FCC UL & CSA agreement E226594	
Controller compatibility	Stand alone instrument	
Warranty	24 Month; extendable to 60 months	

K-Kit (cationic)

For a high acidity water (> 50 ppm CaCO3) such as that from a cation exchanger outlet, the regular gaseous conditioning is not sufficient to raise the pH to values superior to 10.3.
The forced-gas conditioning system (K-kit) is then needed.The K-Kit option includes a gas pump with no moving parts, a power supply board,additional hydraulics and full installation instructions.

Static Heat Exchanger System

A static heat exchanger system is available as an option. It comes complete with inlet and outlet connectors (4/6mm tubing) and mounting (2 flanges and screws). Very easy to install, and requiring no voltage supply, this compact (350 x 40mm) product absorbs changes of heat even on samples flowing at 5 L/h. Specially designed for POWER applications, it has a high resistance to corrosion and deposits, and allows incoming samples from 0 - 60°C to be released to the analyzer within its operating range of 5 - 45°C. For further information contact your local Hach Ultra representative.

SODIUM

9240 / 9245 Sodium Analyzer (DataSheet .....)

Part No. **Designation**

Z09245=A=XXXX **9245 Sodium Mono-channel Analyzer**

Z	0	9	2	4	5	=	A	=	X	X	X	X

Measuring range / Application option

0 ... 10,000 ppb	for non cationic applications	**0**
0 ... 200 ppm (with K-Kit)	for cationic applications	**1**

Enclosure option

19" Panel version	(Standard)	**0**
Cabinet version	(Wall mounted)	**1**

Output options

I/0 Interface	(Standard)	**0**
I/0 Interface + RS485 MODBUS		**1**
I/0 Interface + ProfiBus DP V1.0		**2**

AutoCal calibration option

without AutoCal	Standard	**0**
with AutoCal option		**1**

Standard product description

The 9245 Sodium Single channel Analyzer comes with automatic conditioning (automatic temperature adustment), automatic reactivation, manual calibration and grab sampling option. AutoCal option is available optionally and must be ordered separately.

Z09240=A=XXXX **9245 Sodium Multi-channel Analyzer**

Z	0	9	2	4	0	=	A	=	X	X	X	X

Measuring range / Application option

0 ... 10,000 ppb	for non cationic applications	**0**
0 ... 200 ppm (with K-Kit)	for cationic applications	**1**

Enclosure option

19" Panel version	(Standard)	**0**
Cabinet version	(Wall mounted)	**1**

Output options

I/0 Interface	(Standard)	**0**
I/0 Interface + RS485 MODBUS		**1**
I/0 Interface + ProfiBus DP V1.0		**2**

Channel option

1 channel	Standard	**1**
2 channel		**2**
3 channel		**3**
4 channel		**4**

Standard product description

The 9240 Sodium Multi channel Analyzer comes with appropriate number of channels, fully automatic conditioning and sample temperature adjustment, automatic automatic reactivation, manual and AutoCal calibration and grab sampling option.

SODIUM

9240 / 9245 Sodium Analyzer Assories

Part No.	Designation
	Accessories
Z09240=A=8000	1 year spare part kit for 9245-9240 (all ranges) Includes items and quantities below » 1 x Z09240=C=0310 Reference electrode for 9245-9240 sodium analyzer 1 x Z09240=C=0320 sodium glass electrode for 9245-9240 sodium analyzer 1 x Z363140,00500 KCl 3M electrolyte for reference electrode, 500 ml 1 x Z595=000=002 In-line filter 0.02 x Z151065,08699 PTFE Tubing ø 0.8X1.6mm (per meter) 2 x Z151399,90002 Tygon tubing ø 1.6X3.2mm (per meter) 0.25 x Z151065,08699 PTFE Tubing ø 2X6mm (per meter) 2 x Z151575,00006 PolyEthylene tubing ø 4X6mm (per meter)
Z09240=A=8010	Kit for Instrumentation Technicians on 9245 - 9240 - includes items below Includes items and quantities below » 1 x Z689=132=008 Sampling solenoid valve, 3/2way, NPS 0.8 (0.2 - 6 bars) 1 x Z09240=A=9172 IP 65 connector for 9245-940 sample electrovalve w/ molded cable 1 x Z689=132=024 Sampling electrovalve 3/2 ways (on overflow vessel) 1 x Z09240=A=9171 IP 65 connector for 9245-940 electrovalve on OFV w/ molded cable 2 x Z578=602=703 Quick fitting for ø 8mm O.D. tubing 6 x Z578=601=703 Quick fitting for ø 6mm O.D. tubing 1 x Z09200=A=5510 Internal bus communication module for 9245-9240 1 x Z09240=A=1500 Potentiometric measurement module for 9245-9240 Sodium analysers. 1 x Z09200=A=5511 Carte module CAN pour Multi-voie 1 x Z09120=A=1500 Dual conductivity measuring board 1 x Z09240=A=0320 Cable AS7 , Length 1M , Connectors mounted both ends 1 x Z695=004=004 Pump 24VDC, membrane, 0.1L/mn, for 924x-flush pump 1 x Z32965 Locking key for 924x enclosure (same as 410/510 wall-mount)
Z09240=A=8020	Kit of canisters for 9245-9240 sodium analyser Includes: 2 x Z09240=A=9701 Canister complete with cap and tubing PolyEthylene 500mL with handle 2 x Z09073=A=0105 Cap (red) for (490=001=005) canister PE 500mL 1 x Z09240=C=7004 Adhesive sticker for Reactivation tubing 1 x Z09240=C=7005 Adhesive sticker for Automatic Calibration tubing 1 x Z09073=C=0320 Adhesive sticker for DIPA bottle 1 x Z09240=S=7001 Adhesive sticker for Reactivation bottle 1 x Z09240=S=7003 Adhesive sticker for Automatic Calibration bottle 1 x Z490=001=040 Flask PolyEthylene 500mL with anti-drip nozzle (for KCl) 1 x Z09240=S=7002 Adhesive sticker for flask filled with KCl
Z09240=A=8305	Wall-mount enclosure for 9245-9240 sodium analyser made of ABS (windows in PMMA)
Z09240=A=8315	Kit for installation of option "Kkit" on 9245-9240Sodium analysers (incl pump, board,..., mounting instructions)
Z09240=A=8400	Static heat exchanger system complete (no consumables, capable 1-4channels) Includes inlet&outlet connectors (for 4/6mm tubing) and mounting (2 x flanges and screws)
Z09245=A=8310	Optional Automatic calibration, complete for installation on 9245Sodium Recommanded for sample<0.1ppb
	Documentation
Z221=192=045	Operator's manual in English for 9245 sodium analyser , A4 format
Z221=192=040	Operator's manual in English for POLYMETRON 9240 sodium (multi) analyzer , A4 format
	Communication - optional accessories
Z09125=A=1485	Profibus DP V1.0 Kit, with board for 91xx / 92xx and Operator Manual
Z09125=A=2485	RS485 JBUS/MODBUS Kit, with board + instruction manual (5 languages) for transmitters model 91XX after February 2004 (CPU-ph2) or 92XX after June 2006 (CPU-ph2):

TITRATORS

Process analyzer 8810

On-line titration analyser, ion selective electrode analyser, and colorimetric analyser for monitoring and control of industrial processes.

The Polymetron 8810 analyser belongs to the family of continuous automatic chemical analysers.
Its operation is based on volumetric analysis with reference to titrimetry, direct measurement via selective electrode or colorimetric. It is an adaptable device designed for a wide range of industrial applications.
It takes samples, adds reagents, buffers, masking agents, etc, then automatically performs the required analysis. The system is controlled by an integrated microprocessor.

It is possible to select various types of analysis: pH/redox/titration complexometry and precipitation, direct measurement with selective electrodes or colorimetry. The system is particularly reliable and recommended for on-line industrial applications.
The analyser is offered in a panel version as standard, a wall-mounting enclosure and a free standing cabinet are also available as options.

When in use, the analyser need only be accessed from the front.
The panel can be pivoted for ease of maintenance.
A self-diagnostics program warns the operator in the event of a fault, by providing data of the probable causes.

Optional automatic calibration compensates for any deviations and maintains optimum precision.
The 8810 is therefore suitable for a wide range of applications requiring frequent analysis and control.

Common features of 8810 Titrator models

- ➔ No sample filtration required for most applications
- ➔ Programmable calibration in manual, process or automatic mode
- ➔ Calibration with known solutions for titration or known addition methods for selective electrodes
- ➔ Most analytical procedures used in laboratories can be transferred to the 8810 analyzer
- ➔ Simple maintenance and programming
- ➔ 2 analog outputs 0/4–20mA
- ➔ 3 relays for high and low concentration limits and system alarm
- ➔ Option of 2-channel version

For specific technical data please refer to the appropriate Analyzer DataSheet.

TITRATORS

Process analyzer 8810

Technical Data
Subject to change without notice

	8810 Process Titrators			
Method	pH	ORP	ISE	Photometric
Sensor	pH + Reference, Pt100	ORP + Reference, Pt100	ISE + Reference, Pt100	Colorimeter
Measuring principle	automatic titration using potentiometric endpoint detection based on volumetric analysis			
Measuring range	Application specific; please refer to the application			
Measuring uncertainty	± 2 ... ± 4% (application specific)	± 2 ... ± 4% (application specific)	± 2 ... ± 4% (application specific)	± 5%
Reproducibility	< ± 2–4 % depending on the application			
Response time T_{90}				
Cycle time	application specific; programmable up to 999 min			
Calibration	automatic, manual, process, on-line (application specific)			
Process connection				
Sample Stream	single or optional multi-stream (depending on model)			
Sampling mode	fixed or loop			in series or interval
Sample inlet	12/14 mm ID hose; no filtration needed, only in coarse particle seperation			
Drain (outlet)	12 mm hose, atmospheric outlet			
Sample flow	40 ... 300 l/h			
Pressure range				
Air	4/6 mm tubing, dry, filtered and oilfree air, 4 ... 7 bar			
Rinse Water	4/6 mm PE hose, 6 bar max			
Reagent supply	Application specific			
Temperature				
Sample	+5°C ... +50°C	+5°C ... +50°C	+5°C ... +50°C	+5°C ... +45°C
Ambient				
Outputs	2 x 0/4 ... 20 mA, galvanically isolated, programmable 3 Relays (high, low values, system alarm) RS232			
Enclosure rating	max. IP65 (depending on model)			
Material	Wall mounting Cabinet made of Fibreglass Free standing cabinet made of Stainless Steel			
Power requirement	110/220/240 V (-15% ...+10%), 50-60 Hz, 100 VA			
Dimensions, Weight Enclosure rating	Panel mounted version: Wall mounted version: Free-standing cabinet:	482 x 753 x 122 mm (W x H x D) approximately 25 kg 600 x 800 x 300 mm (W x H x D) approximately 50 kg 600 x 1900 x 400 mm (W x H x D) approximately <100 kg		
Maintenance req.	Application specific; every 1 to 4 weeks			
Remarks	Level control of Sample and Reagent, Calibration solution and Chemical cleaning (depending on model)			
Options	Dilution, Conditioning, Decantation			
Warranty				

TITRATORS

Process Analyzer Overview

Part No.	Designation
Z08810=X=XXXX	8810 Process Titrator Preference Packages

Z	0	8	8	1	0	=	X	=	X	X	X	X

Parameter	Measuring range	Method	
Acidity, free- & total	0.05 ... 2 pts free	pH	FG
	0.5 ... 25 pts total		
Alkalinity (free)[1]	1...500 mg/l $CaCO_3$	pH	M
Alkalinity (free- & total)[1]	1...500 mg/l $CaCO_3$	pH	MP
Ammonium	0.01 ... 1 mg/l NH_4	ISE	NH4
	0.1 ... 100 mg/l NH_4		
Chloride[3]	0.5 ... 500 mg/l Cl^-	ISE	CL
	0.05 ... 20 g/l Cl^- [3]		
Chlorine	50 ... 3000 mg/l Cl_2	ORP	C
Cyanide	0.03 ... 5 mg/l CN^-	ISE	CN
Fluoride	0.1 ... 1000 mg/l F^-	ISE	F
Hardness total low range	1 ... 10 mg/l $CaCO_3$	ORP	C1
Hardness total high range	5 ... 500 mg/l $CaCO_3$	ORP	C2
Hydrogen Peroxide[3]	0 ...0.2 ...2 g/l H_2O_2	ORP	H2
	0 ...5 ... 20 g/l H_2O2		
Hydro-Sulfite, free	0.1 ... 10 g/l	ORP	IN
Sodium	0.1 ... 2000 mg/l Na^+	ISE	NA
Sulphide low range	0.1 ... 1 mg/l S^{2-}	ISE	S1
Sulphide high range	2 ... 150 mg/l S^{2-}	ORP	S2

Enclosure

Wall mounting cabinet	(made of Polyester)[2]	0
Freestanding Floor Cabinet	(made of SS)	1

Power Supply

220 VAC/50Hz	2 2 0
240 VAC/50Hz	2 4 0
110 VAC/50Hz	1 1 5
110 VAC/60Hz	1 1 6

Note:

[1] free Alkalinity also called p-Value; Total Alkalinity also called m-Value
[2] Reagent canister holder (Z368810,00100) is recommended
[3] with dilution unit

Before offering and selling above listed analyzers, HACH LANGE has to approve the application. Hence we kindly ask you to fill our questionnaire and to send back to us.
You will find it in the attachment of this pricelist, respectively contact

Analyzers comes without reagents - reagents must be purchased locally in the market.
Required reagents are listed in the appropriate installation procedures.

Optional accessories

Z368810,00100	Reagent canister holder if Wall Mounting Cabinet is selected (up to 4 x 10 litres canister) Dimensions: 600 x W220 x H200 mm, in PP

Part No.	Designation

Z368810,X0XXX 8810 Process Titrator

Z	3	6	8	8	1	0	,	X	X	X	X	X

Parameter / Procedure option

pH	1 0
ORP	2 0

Power Supply Option

220 VAC/50Hz	2 2 0
240 VAC/50Hz	2 4 0
110 VAC/50Hz	1 1 5
110 VAC/60Hz	1 1 6

Z08811=A=20X2 **8811 Sample Sequencer**, X-channels, complete

Z	0	8	8	1	1	=	A	=	2	0	X	X

Power supply

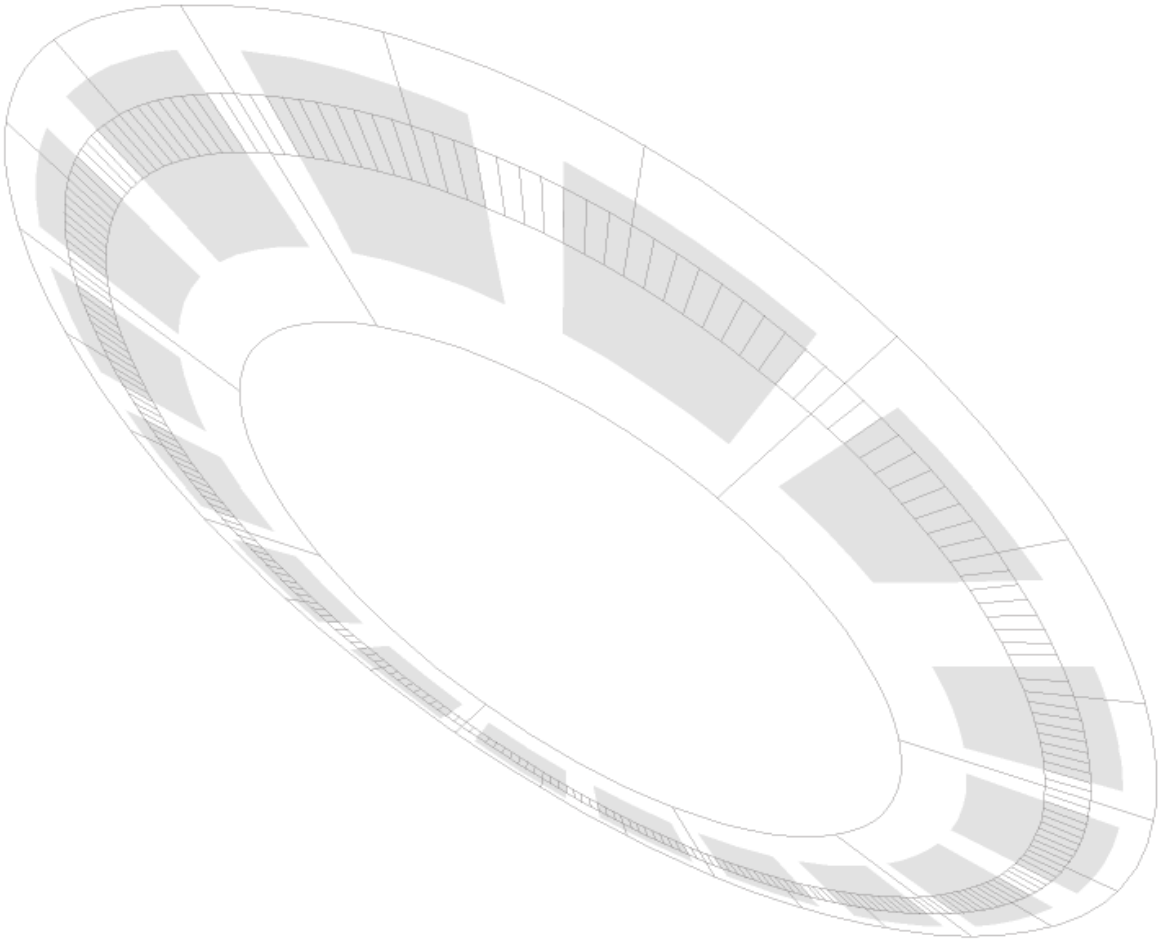
110 VAC/50Hz	0
110 VAC/60Hz	1
220 VAC/50Hz	2
240 VAC/50Hz	3

Sequencer channels

2 channel	2
3 channel	3
4 channel	4
5 channel	5
6 channel	6

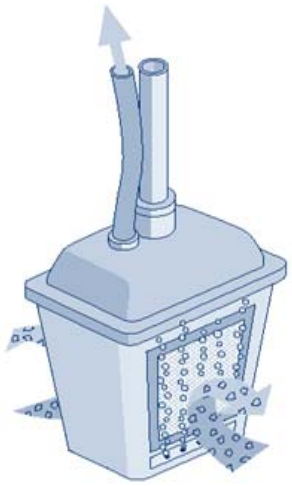
Sample Preparation

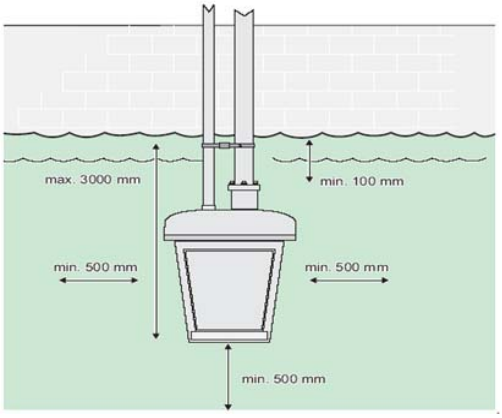
Accessories for Sampling, Homogenisation, Filtration and Dilution



ACCESSORIES - sampling and sample preparation

Filtration probe for AMTAX sc & PHOSPHAX sc (DataSheet DOC033.52.00430)





Technical Data

Subject to change without notice

	sc Filtration probe
Designation	Submersible Filtration probe for use with AMTAX/PHOSPHAX sc Process Analyzers
Application	Sample preparation for activated sludge, clarified water and surface water
Operation principle	In-situ membrane filtration system, equipped with 2 filter modules (exchangeable)
Particle retention	≥ 0.15 µm
Process connection	
Installation style	immersed directly in the media
Sample flow	max. 3 m/s, from 1 m/s: install only with protection against flow (accessory)
Pressure range	max 3 m immersion depth
Filtrate flow	≥ 5 ml/minute
pH requirements	pH 5 ... 9
Temperature	
Sample	+4°C ... + 40 °C
Ambient	+4°C ... + 40 °C
Outputs	Via analysis instrument
Hose length	5 m or 10 m heated sample line
Enclosure rating	IP68
Material	Plastic enclosure, PPE, flammability class in accordance with UL 94
Dimensions	315 x 250 x 120 mm (W x H x D)
Weight (approximately)	8 kg (without mounting assembly)
Remarks	Continuous self-cleaning with air bubbles
Maintenance requirement	0.5h/month, typically
Instrument compatibility	Amtax / Phosphax sc
Warranty	24 Month; extendable to 60 months

ACCESSORIES - sampling and sample preparation

Filtration probe for AMTAX sc & PHOSPHAX sc (DataSheet DOC033.52.00430)

Part No.	Designation
LXV429.99.0XX00	**Filtration probe sc**

L	X	V	4	2	9	.	9	9	.	0	X	X	0	0	

Language / Country Code Selection *please refer to Appendix E for further info*

Hose length option

- 5m heated hose **1**
- 10m heated hose **2**

Power Supply option for sampling probe

- 230 VAC/50Hz **0**
- 115 VAC/60Hz **1**

Standard accessories (supplied with the instrument)

2 filter modules
1 package of small parts
1 cleaning sponge
Manual

Mounting assembly for the filtration probe LZX414.00.50000 or LZX414.00.60000 are essential

Note: Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Wearing Parts

LZY469	Filter probe sc - wearing parts, (2nd year in operation), 10 min Measuring Interval including 2 Filter module for filtration probe sc	
LZY140	Filter module for filtration probe sc, pk/1	2 modules to be replaced after 1 year

Immersion Mounting assembly

LZX414.00.50000	Rim mounting for filtration probe, made of SS
LZX414.00.60000	Rail mounting for filtration probe, made of SS

List of consumables and warranty periods

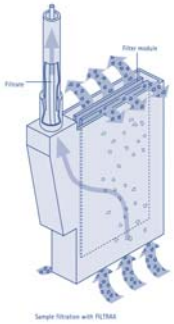
LZY130	Set of wear parts for sample pump (Pump membrane + valves) Replacement after 1 year, with 5 min. analysis interval, otherwise 2 years	1 year warranty
LZY139	Exhaust (copper) Replacement after 1 year	1 year warranty
LZY138	Exhaust (2 pcs.) for air cleaning Replacement after 1 year	1 year warranty

Note: The filtration probe sc is only allowed to be opened by qualified and authorised service personnel.
The consumables in the filtration probe sc should be changed at regular intervals by the service

ACCESSORIES - sampling and sample preparation

FILTRAX (DataSheet DOC053.52.03068)

The FILTRAX sampling system is a reliable and low maintenance device for filtration and pumping of waste water samples from the activated sludge tank or final clarification tank for supplying process instruments with samples free of solids.
The treated sample volume is sufficient to supply of up to three process instruments.



Two tube metering pumps inside the control unit draw the sample alternately from the two filter modules using a common 5 m long heated suction tube to the control unit that is installed in close proximity to the sampling point.
From there the sample is pumped 2 m, 10 m, 20 m or 30 m, depending on the sample tube connected, to the process instruments.

Technical Data

Subject to change without notice

	Filtrax
Designation	Submersible Filtration probe for use with specific HACH LANGE Process Analyzers
Application	Sample preparation for activated sludge, clarified water and surface water
Operation principle	In-situ membrane filtration system, equipped with 2 filter modules (exchangeable); pore size 0,3 µm
Particle retention	≥ 0.30 µm
Process connection	
Installation style	Module carrier directly immersed in the media bypass installation (optional) Control unit placed 5m max from the sampling point
Sample lift height	Module carrier – control unit: 3 m ; control unit – process instrument: 7 m
Sample volume	approximately 900 ml/h sufficient for up to 3 process photometers and probes (AMTAX sc/Inter2/compact, PHOSPHAX sc/Inter2/compact & bypass probes)
Sample flow	keine Angabe
Pressure range	atmospheric
pH requirements	5...9
Temperature	
Sample	+ 5°C ... +40°C
Ambient	-20°C ... +40°C
Outputs	Relais contact for signal erroring
Hose length	
Suction hose	5m heated
Sample hose	2m unheated or 10m, 20m, 30m heated
Controller Outputs	Fault signalling contact: floating contact (230 V, max. 3 A) Warning contact: floating contact (230 V, max. 3 A) Service interface: RS 232
Enclosure rating	IP68 (sampling unit); IP55 (control unit)
Material	Stainless Steel
Dimensions & Weight	
Control Unit	430 x 530 x 220 mm (W x H x D); approximately 22 kg
Module carrier	92 x 500 x 340 mm (W x H x D); approximately 9 kg (including 3m suction hose)
Sample hose	2m, 10m, 20m, 30m; approximately 5 kg per 10m
Remarks	Continuous self-cleaning with air bubbles
Power supply	230 VAC ±10%, 50-60 Hz (115 VAC optional)
Maintenance requirement	1 h/month, typically
Inspection interval	6 month
Instrument compatibility	AMTAX sc/Inter2/compact, PHOSPHAX sc/Inter2/compact & bypass probes
Warranty	24 month, fullfilling required inspection intervals, extendable to 60 month

ACCESSORIES - sampling and sample preparation

FILTRAX (DataSheet DOC053.52.03068)

Part No.	Designation
LXV294.XX.01000	**Filtrax**, Filtration system incl. 2 Filter modules

L	X	V	2	9	4	.	X	X	.	0	X	0	0	0	

Language / Country Code Selection *please refer to Appendix E for further info*

Hose length option

2m non heated	**1**
10m heated	**2**
20m heated	**3**
30m heated	**4**

Standard accessories (supplied with the instrument)

1 set of operating instructions
1 maintenance calendar
1 factory test certificate

Mounting assemblies for the module carrier LZX414.00.40000 and the controller LZX676 are essential for installation and must be ordered separately.

Further accessories

LZX414.00.40000	Mounting assembly for module carrier (incl. BRO069)
BRO069	Extension pipe 2.0m, with side opening, optional
LZX676	Brackets for Filtrax Control Unit Mounting
DOC023.52.03045	Operating manual Filtrax, GB

FILTRAX Bypass (DataSheet DOC053.52.00492)

The Filtrax Bypass sample preparation system is intended for situations where the sampling point and the analysis station are far apart (> 30m). The use of resistant plastics for all wetted parts makes the Filtrax bypass especially suitable for applications involving industrial wastewater and process water. The sample is transferred to the overflow vessel with the help of a pump or hydrostatic pressure. Membrane filter plates are integrated in the overflow vessel, so that an ultraclear filtrate is continuously delivered to the analyser.
Please select all components listed below

LZH100	PVC overflow vessel for two filter modules including 2 m unheated tube to connect the vessel to the Filtrax control unit, wall mount, and 3 ball valves for inflow, outflow and sludge removal. Pressure p max 0.5 – 6 bar, atmospheric outlet to drain
LXV294.52.00000	Filtrax control unit, w/o accessories
LZX677	Filter module, for Filtrax, pk/1 — 2 modules are required
LZX675	Pressure line (2 m non heated) optionally 10, 20, 30 m available (please refer to spare sparts listed below)
LZH034	Overflow prevention system including control unit with potential-free contact and level sensor (1" outside thread)

Spare parts for Filtrax

LZX018	Set of annual consumables Including tubing set (LZX667), set of filter mats LZX017, pump roller set LZX019, Pump cartridge LZP777 and set of small parts
LZX675	Sample hose, 2 m unheated
LZX672	Sample hose, 10 m heated
LZX674	Sample hose, 20 m heated
LZX765	Sample hose, 30 m heated
LZX670	Filter module carrier, complete, 5 m, 230 VAC
LZX024	Compressor, complete, for Filtrax 230 VAC

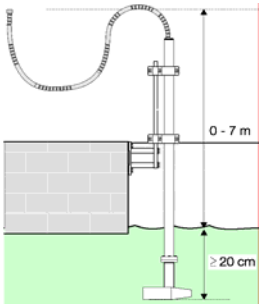
Note: Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

ACCESSORIES - sampling and sample preparation

SIGMATAX 2 for Sample Homogenisation (DataSheet DOC053.52.03409)

The Sigmatax 2 is an automatic homogenisation and sampling system for supplying the process photometers PHOSPHAX Σ Sigma (Total-Phosphorus), TOCTAX and ASTRO TOC (Total Organic Carbon) with water samples with Suspended Solids < 0.5 mm diameter.

Using the immersed sampling probe the necessary sample volume is pumped without coming into contact with pumps. The sample is delivered to a small glass vessel in the control unit and is homogenised using an ultrasonic generator.



Technical Data

Subject to change without notice

	Sigmatax 2
Designation	Submersible homogenisation/sampling probe for use with specific HL Process Analyzers
Application	Sample preparation for activated sludge, clarified water and surface water
Operation principle	Sampling controlled by pressure, homogenisation using ultrasonic
Sampling interval	12 ... 20 min
Process connection	
Installation style	Sampling unit directly immersed in the media Control unit 10, 20 or 30m from the sampling point (wall mounted)
Sample lift height	max 7 m using 10 or 20m hose max 6 m using 30m hose
Sample volume	sufficient for up to 2 process photometers (PHOSPHAX Sigma or TOCTAX)
pH requirements	5...9
Temperature	
Sample	+ 5°C ... +30°C
Ambient	-20°C ... +40°C for hose, + 5°C ... +40°C for control unit
Hose length	
Sample hose	10m, 20m or 30m heated
Controller Outputs	Fault signalling contact: floating contact (24V, max 1A) Service interface: RS 232
Enclosure rating	IP68 (sampling unit); IP54 (control unit)
Material	Stainless Steel and plastic ??????
Dimensions & Weight	
Control Unit	366 x 560 x 212 mm (W x H x D); approximately 12 kg
Sampling probe	133 x 404 mm (Ø x L)
with hose	appr. 7.5 kg (10m), 15 kg (20m), 22 kg (30m)
Power supply	230 VAC, 50 Hz, 250 ... 470VA
Maintenance requirement	0.5 h/week, typically
Inspection interval	3 month
Instrument compatibility	PHOSPHAX Σ Sigma, TOCTAX and ASTRO TOC
Warranty	24 month, fullfilling required inspection intervals, extendable to 60 month

ACCESSORIES - sampling and sample preparation

SIGMATAX 2 for Sample Homogenisation (DataSheet DOC053.52.03409)

Part No.	Designation
LXV215	SIGMATAX 2 Control unit
LXV231	SIGMATAX 2 Sampling Unit, with 10 m connecting hose, w/o control unit
LXV232	SIGMATAX 2 Sampling Unit, with 20 m connecting hose, w/o control unit
LXV282	SIGMATAX 2 Sampling Unit, with 30 m connecting hose, w/o control unit

Standard accessories supplied with SIGMATAX 2

1 set of operating instructions
1 maintenance calendar
1 Factory Test Certificate

Note: For a complete system the control unit and the sampling probe must be ordered.
Mounting assembly LZX414.00.10000 is essential for installation and must be ordered separately.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Further accessories

LZX414.00.00000	Rim mounting kit, for SIGMATAX, VOLITAX, pk/1	without adapter
LZX456	Second fastening point (recommended in case of vibrations)	
DOC023.52.03103	Instrument Manual SIGMATAX2, GB	

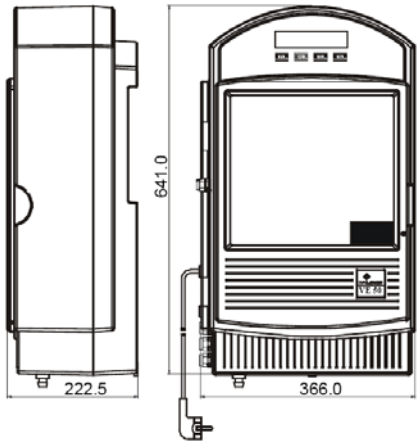
Spare parts

LZX376	Diaphragm compressor (for approx. 1½ years)
LZX306	Probe Wearing Parts (for approx. 6 months)
LZX299	Air filter without fittings (for approx. 12 months)

ACCESSORIES - sampling and sample preparation

DILUTION UNIT

The HACH LANGE dilution unit can be used wherever a sample free of solids contains an excessively high concentration of the parameter sought.
All instruments with the ability for continuous sample feed can be supplied with a diluted sample.



Technical Data

Subject to change without notice

	Dilution Unit
Designation	Automatic dilution system for clean water applications suited for process analyzers with continious sample feeding
Application	clean, pure and ultra-pure water applications
Operation principle	dilution and mixing of sample medium using hose metering pumps
Dilution factor	1:1 ... 1:50; selectable (up to 1:100 on request)
Response time T_{90}	> 2 minutes, depending on the dilution factor
Sampling interval	12 ... 20 min
Process connection	
Installation style	Bypass installation, Wall Mounting
Sample requirement	particle free
Dilution medium	particle free
Delivery volume	1.0 ... 3.2 l/h, depending on dilution factor (user selectable)
Pressure range	
Temperature	
Sample	+ 5°C ... +40°C
Ambient	+ 5°C ... +40°C
Enclosure rating	IP65
Material	Plastic
Dimensions	350 x 640 x 220 mm (W x H x D)
Weight (approximately)	10 kg
Display	large alphanumeric LCD
Power supply	230 VAC ± 10%, 50/60 Hz, 100VA
Maintenance requirement	0.5 h/week, typically
Inspection interval	3 month
Warranty	24 month, fullfilling required inspection intervals, extendable to 60 month

ACCESSORIES - sampling and sample preparation

DILUTION UNIT

Part No.	Designation
LXV210.52.00000	**Dilution Unit, 220VAC**

L	X	V	2	1	0	.	5	2	.	0	0	0	0	0	

Language / Country Code Selection *please refer to Appendix E for further info*

Standard accessories supplied with the Dilution Unit

1 set of small parts for installation, operation, and mounting
1 set of annual consumables
1 Factory Test Certificate

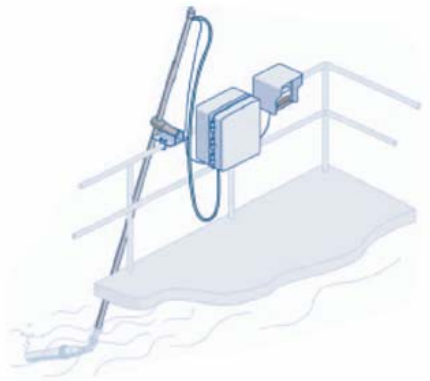
Spare parts for 1 year operation

LZX452	Set of annual wearing parts

Note: Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

ACCESSORIES - Automatic cleaning system

High Output Airblast Cleaning System



The High Output Air Blast (HOAB) cleaning system is intended for use in process applications where sensor fouling occurs.

The HOAB cleaning hardware will automatically clean the sensor surface to eliminate slime and other biogrowth.

Technical Data

Subject to change without notice

	HOAB - High Output Airblast Cleaning Sytem
Application	High Output Air Blast System for attachment to selected sensors to reduce biogrowth and other types of fouling.
Operation principle	Compressed air for automatic cleaning of LDO or NH4D sc in process
Process connection	
Installation style	for LDO or NH4D sc immersed in open channels or tanks
Temperature:	
Compressor	-20°C ... +50°C
Pressure output	
Output:	230 V model: 2.76 bar (40 psi); 115 V model: 3.10 bar (45 psi)
Air flow rate:	230 V Model: 1.77 m3/h (1.04 cfm); 115 V Model: 2.14 m3/h (1.26 cfm)
Max. pump duty	60 seconds for every 15 minutes
Controller relay fuse rating	T, 0.25 A, 250 V (all models)
Enclosure rating	NEMA 4X/IP66 Non-metallic
Pollution degree/ installation category	II II
Power requirements:	230 V model: 230 VAC, 50 Hz, 1.5 Amps
Compressor dimensions	37 x 32 x 20 cm (14.5 x 12.5 x 7.8 inches) (W x H X D)
Weight (approximately)	10.7 kg (23.5 lb)
Certifications:	Certified to UL & CSA 61010-1 safety standards by ETL (cETLus and CE marks)
Mounting Hardware	made of Stainless Steel
Warranty	2 years

ACCESSORIES - Automatic cleaning system

High Output Airblast Cleaning System

Part No.	Designation
6860X03.99.0001	**HOAB** - High Output Airblast Cleaning System

6	8	6	0	X	0	3	.	9	9	.	0	0	0	1	

Power supply option

230 VAc **1**

115 VAc **0**

Language / Country Code Selection *please refer to Appendix E for further info*

Standard accessories (supplied with the instrument)

The following items are included as standard components of the self-cleaning kit:

- Tubing, 7.6 m (25 ft)
- Tie wraps
- HOAB compressor with mounting hardware
- Relay Barrier

Wearing Parts

LZX030	Air filter for inlet air tube for dusty environment

Documentation

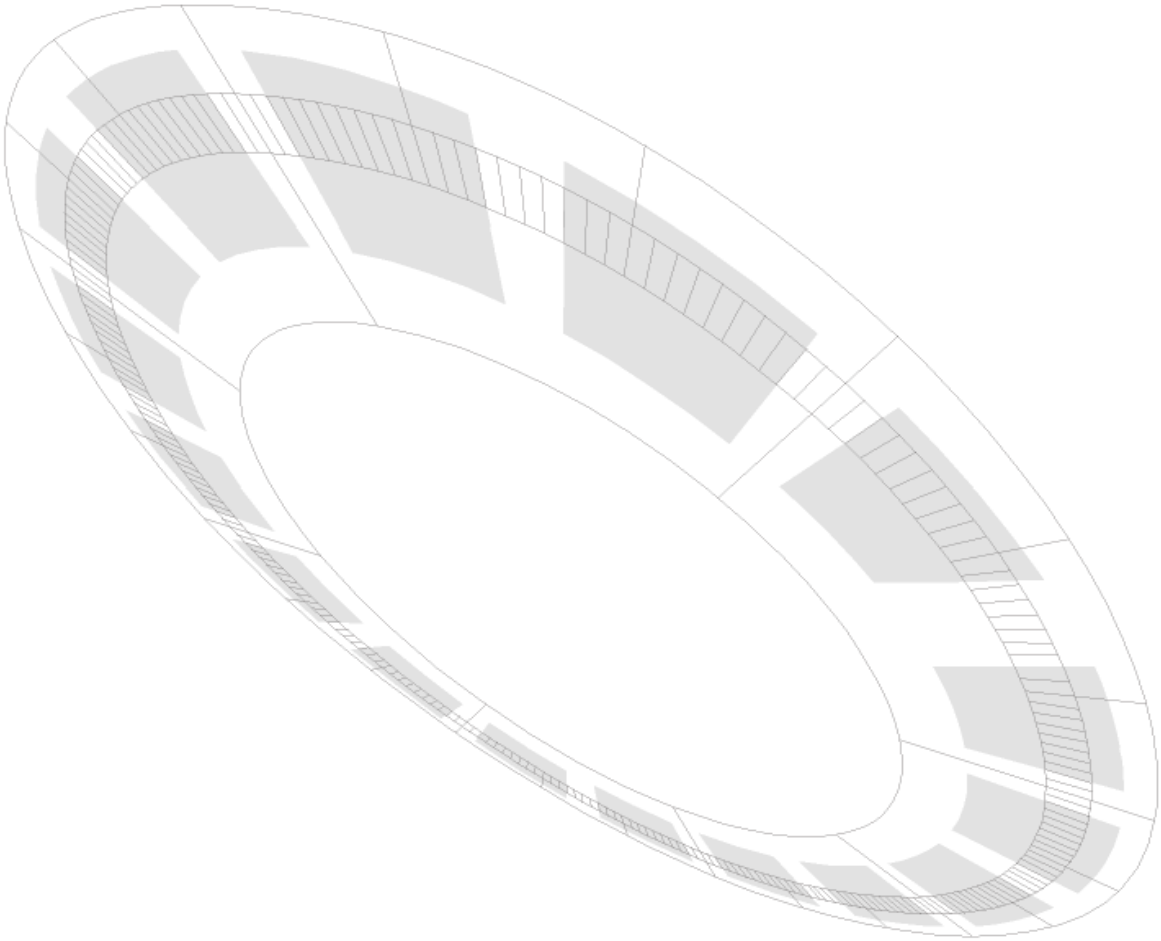
DOC023.52.00811	Operating Manual HOAB, GB

Optional sensor head assemblies

LZY331	NH4D sc - Cleaning Head kit
6190250	LDO - Cleaning head kit

Controllers, Display Units

Universal Controllers and E-Chem-Controllers



Controller

sc1000 Multi-Channel Universal Controller (DataSheet DOC033.52.00400)

One for All and All in One:
The sc1000 Multi-parameter Universal Controller is a fully modular system consisting of a Display Module and one or more Probe Modules.

Probe Module - Each sc1000 Probe Module provides power to the system and can accept up to 8 digital sensors. Probe Modules can be networked together to accommodate many more sensors attached to the same network.

Display Module - The sc1000 Display Module is a full-featured controller with a large color touch-screen display. The intuitive, easy to use interface can be used for any number of parameters. One Display Module controls either a single Probe Module or a number of Probe Modules connected by a digital network.
The Display Module is fully portable and can be disconnected and moved anywhere within the system network.

Technical Data

Subject to change without notice

	sc1000 Display Module
Designation	Display module for menu-based operation with touch screen
screen display	QVGA, 320 × 240 pixels, 256 colours
Interchangeable memory	Multimedia card (MMC)
Remarks	optional Tri-band data telephone, GSM standards: GSM 900, EGSM 900, GSM 1800 and GSM 1900
Temperature	
Operation	–20°C ... 55°C (–4°F ... 131°F); 95% relative humidity, non-condensing
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing
Power requirement/consumption	powered via probe module; 11 W with GSM option, 10 W w/o GSM option
Housing Material	Plastic housing
Enclosure rating	IP65
Weight (approximately)	1.2 kg
Dimensions	200 x 230 x 50mm (7.9 x 9 x 2inches) (W x H x D)
	sc1000 Probe Module
Designation	Probe module for the connection of sc sensors and power supply
Measuring ranges	depending on connected sensor
Installation	for wall, pipe and hand rail mounting
Inputs	- up to 8 probes/analyzers with sc digital technolgy - free combinable and configurable - additional probes/analyzers can be connected by networking
Outputs/Extensions:	
Internal	- 4 potential-free relay contacts (max 5A 115/230 VAC); programmable as limiting value, status or timer - 4 analogue outputs 0/4-20mA, programmable - 4 analogue/digital inputs; programmable - Field bus connections
External	- any number of potential-free relay contacts (max 5A 115/230 VAC); programmable as limiting value, status or timer - any number of analogue outputs 0/4-20mA, programmable - any number of analog/digital inputs, programmable - Field bus connections
Temperature	
Operation	–20°C ... 55°C (–4°F ... 131°F); 95% relative humidity, non-condensing
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing
Material	Metal housing with corrosion-resistant surface finish
Enclosure rating	IP65 (NEMA 4X)
Power requirement	100-230 VAC ±10%, 50/60Hz, max 75VA 24 VDC (max. 30 V), max. 75 W (optional)
Power consumption	Probe module ca. 2 W Internel fieldbus module ca. 3 W
Dimension	
without Display module	315 x 255 x 120 mm (12.4 x 10.1 x 4.8 inches) (W x H x D)
with Display module	315 x 255 x 150 mm (12.4 x 10.1 x 6 inches) (W x H x D)
Weight w/o Probe module	appr. 5.5 kg (depending on configuration)
Warranty	24 month, extendable to 60 month

Controller

sc1000 Multi-Channel Universal Controller (DataSheet DOC033.52.00400)

Part No.	Designation

LXV402.99.0X001 **sc1000 Display Module**

L X V 4 0 2 . 9 9 . 0 X 0 0 1

Language / Country Code Selection *please refer to Appendix E for further info*

GSM option

no GSM module	0
with GSM module	1

LXV400.99.XXXX1 **sc1000 Probe Module**

L X V 4 0 0 . 9 9 . 0 X X X 1

Language / Country Code Selection *please refer to Appendix E for further info*

Power supply option with 2 connectors for sensors to be operated with 100-240 VAC

100-240 VAC, Power connectors, without power cord	0
100-240 VAC, Power connectors, conduit, without power cord	1
100-240 VAC, Power connectors, with EU-power cord	2
100-240 VAC, Power connectors, with UK-power cord	3
100-240 VAC, Power connectors, with CH-power cord	4
100-240 VAC, Power connectors, with US-power cord	5
24 VDC	Z

Relay- / Network-module option

without Relay- and Network-Card	0
1 Relay board with 4 Relays (NC)	R
1 MODBUS RS485 Network board	A
1 Relay board with 4 Relays (NC) & 1 MODBUS RS485 Network board	B
1 Profibus-DP Network board	E
1 Relay board with 4 Relays (NC) & 1 Profibus-DP Network board	F

I / O Output and Input module option

no I/O modules	0
1 analog Output board[2]	1
2 analog Output board[2]	3
3 analog Output board[2]	8
1 analog/digital INPUT board[3]	2
2 analog/digital INPUT board[3]	4
3 analog/digital INPUT board[3]	9
1 analog Output board[2] + 1 analog/digital INPUT board[3]	5
2 analog Output board[2] + 1 analog/digital INPUT board[3]	6
1 analog Output board[2] + 2 analog/digital INPUT board[3]	7

sensor connector ption

up to 4 sc sensors	2
up to 6 sc sensors	3
up to 8 sc sensors	4

Optional Mounting assembly

LZX957	Pole Mounting Assembly Kit, for sc1000, complete, pk/1 complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation
LZX958	sc1000 weather guard for Outside Installation (also suitable for 2 x sc100 controllers)

Note:

[2] each analog Output board comes with 4 x 0/4-20 mA Outputs

[3] each analog/digital INPUT board is equipped with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT

Each Probe-Module can be equipped with 3 internal extensions. Nevertheless not all configurations listed above are possible. To avoid mis-configurations, we recommend using the sc1000 configurator @ www.hach-lange.com.

For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Controller

sc1000 Standard Configurations

Part No.	Designation

Note: Due to the big variety of possible sc1000 combinations, the most favorite models are listed below only. For further specific solutions, please refer to our online configurator at www.hach-lange.com.

Display Modules

LXV402.99.00001 LANGE sc 1000 display module
with color graphic display and Touch-screen user interface,
with connection to a sc 1000 probe module

LXV402.99.01001 LANGE sc 1000 display module with GSM option
with color graphic display and Touch-screen user interface,
with connection to a sc 1000 probe module;
with GSM for remote access and operation

4-Channel Probe Module confirgations

LXV400.99.20021 LANGE sc 1000 probe module (Basic)
with connectors for up to 4 sc-sensors,
with 100-240 VAC power supply with EU-power cord,
with 2 connectors for sensors that operate with 100-240 VAC.

LXV400.99.20121 LANGE sc 1000 probe module (Basic + 4x I/0 Output)
with connectors for up to 4 sc sensors,
with one analog output board with 4 x 0/4-20 mA OUTPUT,
with 100-240 VAC power supply with EU-power cord,
with 2 connectors for sensors that operate with 100-240 VAC.

LXV400.99.2R121 LANGE sc 1000 probe module (Basic + 4x I/0 Output + Relays)
with connectors for up to 4 sc-sensors,
with one analog output board with 4 x 0/4-20 mA OUTPUT,
with one relay board with 4 relays (NC),
with 100-240 VAC power supply with EU-power cord,
with 2 connectors for sensors that operate with 100-240 VAC.

LXV400.99.2R521 LANGE sc 1000 probe module (Basic + 4x I/0 Output + Relays + Analog Input/Output)
with connectors for up to 4 sc-sensors,
with one analog output board with 4 x 0/4-20 mA OUTPUT,
with one analog/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT,
with one relay board with 4 relays (NC),
with 100-240 VAC power supply with EU-power cord,
with 2 connectors for sensors that operate with 100-240 VAC.

LXV400.99.20621 LANGE sc 1000 probe module (Basic + 8x I/0 Output + Analog Input/Output)
with connectors for up to 4 sc-sensors,
with two analog output boards with 8 x 0/4-20 mA OUTPUT,
with one analog/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT,
with 100-240 VAC power supply with EU-power cord,
with 2 connectors for sensors that operate with 100-240 VAC.

LXV400.99.2B021 LANGE sc 1000 probe module (Basic + MODBUS + Relays)
with connectors for up to 4 sc-sensors,
with one relay board with 4 relays (NC),
with one MODBUS RS485 network board,
with 100-240 VAC power supply with EU-power cord,
with 2 connectors for sensors that operate with 100-240 VAC.

LXV400.99.2F021 LANGE sc 1000 probe module (Basic + ProfiBUS DP+ Relays)
with connectors for up to 4 sc-sensors,
with one relay board with 4 relays (NC),
with one Profibus-DP network board,
with 100-240 VAC power supply with EU-power cord,
with 2 connectors for sensors that operate with 100-240 VAC.

Controller

sc1000 Standard Configurations continued

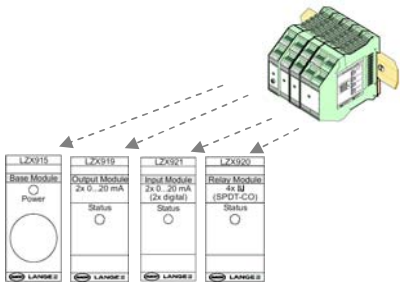
Part No.	Designation
	Note: Due to the big variety of possible sc1000 combinations, the most favorite models are listed below only. For further specific solutions, please refer to our online configurator at www.hach-lange.com.
	Display Modules
LXV402.99.00001	LANGE sc 1000 display module with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module
LXV402.99.01001	LANGE sc 1000 display module with GSM option with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module; with GSM for remote access and operation
	6 Channel Probe Module configurations
LXV400.99.20031	LANGE sc 1000 probe module (Basic) with connectors for up to 6 sc-sensors, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.20331	LANGE sc 1000 probe module (Basic + 8x I/0 Output) with connectors for up to 6 sc-sensors, with two analog output boards with 8 x 0/4-20 mA OUTPUT, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2R331	LANGE sc 1000 probe module (Basic + 8x I/0 Output + Analog Input/Output) with connectors for up to 6 sc-sensors, with two analog output boards with 8 x 0/4-20 mA OUTPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2R531	LANGE sc 1000 probe module (Basic + 4x I/0 Output + Relays + Analog Input/Output) with connectors for up to 6 sc-sensors, with one analogue output board with 4 x 0/4-20 mA OUTPUT, with one analogue/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2B031	LANGE sc 1000 probe module (Basic + MODBUS + Relays) with connectors for up to 6 sc-sensors, with one relay board with 4 relays (NC), with one MODBUS RS485 network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2F031	LANGE sc 1000 probe module (Basic + ProfiBUS DP+ Relays) with connectors for up to 6 sc-sensors, with one relay board with 4 relays (NC), with one Profibus-DP network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
	8 Channel Probe Module configurations
LXV400.99.20041	LANGE sc 1000 probe module with connectors for up to 8 sc-sensors, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.

sc1000 Universal Controller

External expansion cards for DIN-Rail-Mounting in external Switch Cabinets

Part No. **Designation**

Note: To 1 Base module can be connected up to 13 further external modules.
In case the number of total modules exceeds the maximum allowed participants, a new loop must be installed.



LZX915	**Base Module**
Designation	The base module is the first module fitted and is fitted on the left on the 35mm DIN rail in the switch cabinet (in accordance with DIN EN 50022). This module is required to be able to operate any combination of expansion modules required.
Function	- Supply of expansion modules with 24VDC and connection to the sc1000 network. - Setting terminating resistor (with DIP switch) for the sc1000 network. - Provision of connection for a display module (LXV402) for the configuration of the system.
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Power requirements	24 VDC (max. 30 VDC)
Current Consumption	2000 mA max.
Temperature	
Operation	+4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing
Dimension	23 x 100 x 115 mm (1 x 4 x 4.5 inches) (W x H x D)

LZX919	**Output Module**
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	2 analogue current outputs, (0–20mA or 4–20mA, Max. 500Ohm), Terminals max. 2.5 mm²
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	
Operation	+4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing
Dimension	23 x 100 x 115 mm (1 x 4 x 4.5 inches) (W x H x D)

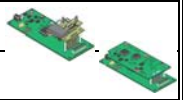
LZX921	**Input Module**
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	Analogue/ digital inputs, can be programmed as 0–20mA or 4–20mA (INPUT or digital INPUT), internal resistance 180 Ohm, Terminals max. 1.5 mm²
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	
Operation	+4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing
Dimension	23 x 100 x 115 mm (1 x 4 x 4.5 inches) (W x H x D)

LZX920	**Relais Module**
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	4 × change-over contacts, (UL, SPDT-CO, change over) Current consumption 100mA Maximum switching voltage: 250VAC, 125V DC Nominal switching current: 250VAC, 5A; 125VAC, 5A; 125VDC, 0.15A; 30V DC, 5A Can be programmed for: limit, status or for timer, statu
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	
Operation	+4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing
Dimension	45 x 100 x 115 mm (2 x 4 x 4.5inches) (W x H x D)

sc1000 Universal Controller

Internal expansion cards

Part No. **Designation**

Designation	**Internal (plug-in) expansion cards** **Plug-in expansion cards for installation in the sc1000 probe module**
Analog Outputs YAB019	4 x analog current outputs, (0...20mA or 4...20mA, max. 500Ohm), Terminals max. 1.5 mm² 
Analog/Digital Input YAB018	4 x analog/digital inputs can be programmed as 0–20mA or 4–20mA (INPUT or digital INPUT), Terminals max. 1.5 mm² 
Internal Relay YAB076	4 x NC contacts, (UL, SPST-NC, normally closed) Maximum switching voltage: 250VAC, 125V DC Nominal switching current: 250VAC, 5A; 125VAC, 5A 125V DC, 0.15A; 30V DC, 5A Terminals max. 2.5 mm², can be programmed for limit, status or for timer 
Fieldbus Interfaces	
MODBUS YAB021	
ProfiBUS DP YAB020	The transmission capacity per card is limited to 24 registers (8x3) As a rule of thumb, 1 ProfiBus Card must be considered for 8 sensors
Temperature	
Operation	–20°C ... 55°C (–4°F ... 131°F); 95% relative humidity, non-condensing
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing

sc1000 Universal Controller

General accessories

Part No.	Designation		
	Cables and connectors for sc1000 Networking		
LZX918	sc 1000-bus plug, pk/1		
LZY488	sc 1000 bus cable, 2 x 0.64 mm, AWG 22/1 (black)	suitable for outdoor use	per m
LZY489	sc 1000 bus cable, 2 x 0.64 mm stranded, AWG 24/19 (violet) recommended for drag chain applications	suitable for outdoor use	per m
LZX998	Interface cable for sc1000, EtherNet Cross over, 2 m, pk/1 for Software UpDates and Readout of Datalogger and Events		
	GSM Options		
YAB055	GSM- Module for sc1000: Data phone MC55 GSM EU, 900/1800/1900 MHz		
LZX956	Antenna for sc1000 Display module, 6 cm, pk/1 being standard of sc1000 Display module + GSM option		
LZX990	sc1000 Antenna for Outdoor Installations, 900/1800 MHz, 2 DB, 30cm length, 5 m cable, pk/1		
LZX955	Antenna Extention cable, 10 m, pk/1 (only for use with external antenna LZX990)		
EVX148	SIM-Card for SC1000		
	Mounting hardware		
LZX957	sc1000 Pole Mounting Assembly Kit complete Mounting Hardware Kit, incl. Weather guard for outdoor installation near the probe/analyzer		
LZX958	sc1000 weather guard for Outside Installation (also suitable for 2 x sc100 controllers)		
LZX948	Set of small parts for sc1000 roof (LZX958)		
LZX966	Set of small parts mounting hardware sc1000		
LZX355	Wall mounting kit For further details, repsectively further parts, please refer to the chapter "Mounting Assembly"		
	Spare Parts for Display Module		
LZX934	Cable for sc1000 display module		
LZX935	Handle belt for sc1000 display module		
LZX924	Display lightning for sc1000 display module		
YAB035	Display sc1000 display module		
LZX303	Desiccant		
LZY520	SD card 1 GB, for sc1000 Display module		
LZY522	USB / SD card Reader	SanDisk MobileMate USB reader	
	Spare Parts for Probe Module		
LZX976	Fuse set		
LZX982	Protection cap für SC-sensor connector		
LZX962	Air fan		
LZX981	Cable gland for rigid metallic conduit, pk/1		
	Documentation		
DOC023.52.03260	sc 1000 User Manual, English		
DOC032.53.90073	sc100/1000 - Profibus DP/V1 Quick Reference Document		

Note: For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Controller

sc100 2-Channel Universal Controller (DataSheet DOC053.52.03204)

The sc100 is an Universal 2-channel controller.
Designed with two galvanically separated inputs, the controller can operate 1 or 2 sensors at the same time. But the sensors need not to be the same.
Mix and match any combination of sc sensors and probes.

The digital signal transmission to the sc100 ensures trouble-free and operationally safe communication between the probes and the controller at transmission distances of up to 100m. Furthermore, this technology facilitates comprehensive diagnostic functions for the complete system.

Modules to link different bus-systems are available as options.
Every measurement can therefore be integrated into various data recording systems without problems.

Technical Data

Subject to change without notice

	sc100 Controller		
Designation	Microprocessor controlled system with Liquid Cristal dot matrix Display, 128 x 64 pixels, backlighting		
Inputs	2 sensors (sc technology), freely selectable		
Outputs	2 x 0/4 - 20 mA, 600 Ohm max. can be configured as required Optional: MODBUS RS232 / RS485 PROFIBUS DP LONBUS		
Relays	3 x SPDT contact (form c), U.L. rated 5 A 100/230 VAC, 5A 30 VDC user configurable for alarm, status, timer		
Control	PID, High/Low phasing, setpoint, deadband, overfeed timer, off delay and on delay		
Temperature			
Ambient	-20°C ... 60°C, 0 ... 95% relative Humidity non condensing (less than 7W sensor load) -20°C ... 40°C, 0 ... 95% relative Humidity non condensing (less than 25W sensor load)		
Storage	-20°C ... 70°C, 0 ... 95% relative Humidity non condensing		
Material	Metal enclosure with corrosion resitant finish		
Enclosure rating	IP66 (NEMA4X)		
Dimensions	144 x 144 x 150 mm (5.7 x 5.7 x 5.9 inches) (W x H x D)		
Weight (approximately)	1.6 kg (3.5 lbs)		
Power requirement	AC powered system	100-230 VAC ± 10%, 50/60Hz	11W with 7W sensor load
			34W with 25W sensor load
	DC powered system	24 VDC -15%/+20%	16W with 7W sensor load
			34W with 25W sensor load
Installation style	wall, pipe and control panel mounting		
Remarks	Several supported languages in the embadded software GB, D, F, I, DK, E, S, PL, CZ, SK, RO, BG, RU		
Warranty	24 month, extendable to 60 month		

Controller

sc100 2-Channel Universal Controller (DataSheet DOC053.52.03204)

Part No.	Designation
LXV401.99.00001	**sc100** - Universal 2 Channel Controller

L	X	V	4	0	1	.	9	9	.	X	X	0	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Power supply Options

100-240 VAC, without power cord	0
100-240 VAC, with EU-power cord	2
100-240 VAC, with UK-power cord	3
100-240 VAC, with CH-power cord	4
100-240 VAC, with US-power cord	5
24 VDC	7

Outputs / Interface Options

2 x I/0 outputs - no BUS connection (Standard)	0
MODBUS 232	1
MODBUS 485	2
PROFIBUS DP	3
LONBUS	4

Optional Mounting assembly

LZX997	Pole Mounting Assembly Kit, for sc60/100, pk/1 complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation
LZX961	Weather guard for sc60/100 Outside Installation, made of Plastic, pk/1

Recommended Accessories

LZX887	Interface cable MSV RS232 for sc60/sc100 for installation of software UpDates and Readout of Datalogger and Events

Note: For further accessories like sc extensions cables, BUS cables etc., please refer to the Chapter sc accessories

Documentation

DOC032.53.90073	sc100/1000 - Profibus DP/V1 Quick Reference Document

Note: A sc100 manual is not available serately; it it is part of the resepctive sensor.

Controller

sc60 1-Channel E-Chem Controller (DataSheet DOC053.52.00126)

The sc60 is a cost-effective single-channel E-Chem-controller and can operate any sc based or sc compatible pH, Conductivity or amperometric Dissolved Oxygen sensor.

The digital signal transmission to the sc60 ensures trouble-free and operationally safe communication between the probes and the controller at transmission distances of up to 100m. Furthermore, this technology facilitates comprehensive diagnostic functions for the complete system.

Modules to link different bus-systems are available as options.
Every measurement can therefore be integrated into various data recording systems without problems.

Technical Data

Subject to change without notice

	sc60 Controller		
Designation	Microprocessor controlled system with Liquid Cristal dot matrix Display, 128 x 64 pixels, backlighting		
Inputs	#		
Outputs	2 x 0/4 - 20 mA, 600 Ohm max. can be configured as required Optional: MODBUS RS232 / RS485 PROFIBUS DP		
Relays	3 x SPDT contact (form c), U.L. rated 5 A 100/230 VAC, 5A 30 VDC user configurable for alarm, status, timer		
Control	PID, High/Low phasing, setpoint, deadband, overfeed timer, off delay and on delay		
Temperature			
Ambient	-20°C ... 60°C, 0 ... 95% relative Humidity non condensing (less than 7W sensor load) -20°C ... 40°C, 0 ... 95% relative Humidity non condensing (less than 25W sensor load)		
Storage	-20°C ... 70°C, 0 ... 95% relative Humidity non condensing		
Material	Metal enclosure with corrosion resitant finish		
Enclosure rating	IP66 (NEMA4X)		
Dimensions	144 x 144 x 150 mm (5.7 x 5.7 x 5.9 inches) (W x H x D)		
Weight (approximately)	1.6 kg (3.5 lbs)		
Power requirement	AC powered system	100-230 VAC ± 10%, 50/60Hz	11W with 7W sensor load 34W with 25W sensor load
	DC powered system	24 VDC -15%/+20%	16W with 7W sensor load 34W with 25W sensor load
Installation style	wall, pipe and control panel mounting		
Remarks	Several supported languages in the embadded software GB, D, F, I, DK, E, S, PL, CZ, SK, RO, BG, RU no internal Datalogger!		
Warranty	24 month, extendable to 60 month		

Note: The sc60 operates all digital HACH LANGE E-Chem probes (sc and S sc version), exceptional the LDO sensor.

- ➔ 1200-S; pH combination sensor
- ➔ AD1200; pH combination gateway
- ➔ pHD-S; pHD sensor
- ➔ ADpHD; pHD gateway
- ➔ 3798-S; inductive conductivity sensor
- ➔ AD3400; contacting conductivity gateway
- ➔ AD3700; inductive conductivity gateway
- ➔ 5740; membrane DO sensor

Controller

sc60 1-Channel E-Chem Controller (DataSheet DOC053.52.00126)

Part No.	Designation
LXV403.99.00001	**sc60** - Universal 1-Channel E-Chem Controller

L	X	V	4	0	3	.	9	9	.	X	X	0	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Power supply Options

100-240 VAC, without power cord	0
100-240 VAC, with EU-power cord	2
100-240 VAC, with UK-power cord	3
100-240 VAC, with CH-power cord	4
100-240 VAC, with US-power cord	5
24 VDC	7

Outputs / Interface Options

2 x I/0 outputs - no BUS connection (Standard)	0
MODBUS 232	1
MODBUS 485	2
PROFIBUS DP	3

Optional Mounting assembly

LZX997	sc100 Pole Mounting Assembly Kit complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation
LZX961	Weather guard for sc60/100 Outside Installation, made of Plastic, pk/1

Recommended Accessories

LZX887	Interface cable MSV RS232 for sc60/sc100 for installation of software UpDates and Readout of Datalogger and Events

Note: For further accessories like sc extensions cables, BUS cables etc., please refer to the Chapter sc accessories

Documentation

DOC032.53.90073	sc100/1000 - Profibus DP/V1 Quick Reference Document

Note: A sc100 manual is not available serately; it it is part of the resepctive sensor.

Controller

MONEC 9135 Single Channel pH/ORP Controller

The MONEC 9135 is a single channel pH/ORP transmitter and has been designed to operate with a wide range of analogue pH and ORP sensors for measuring and/or continuous control of pH/Temperature or Redox potential (ORP) in nearly all non-hazardous applications .

Equipped with Standard and specific temperature compensation,
user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

Technical Data

Subject to change without notice

	MONEC 9135 pH/ORP Transmitter
Designation	Single channel pH/ORP Transmitter for respective measurement
Applications	Drinking and waste water Industrial process control : chemical, petrochemical, pulp and paper, food and beverage, sugar, steel, surface treatment industries Pure and Ultrapure water analysis : steam generation and electricity production, semiconductors, pharmaceutical industries
Analysis	
pH	-3 ... 14 pH
ORP	-1500 ... 1500 mV
Temperature	Pt100 or Pt1000: -20 ... 200°C (4 to 392°F)
Resolution	0.01 pH/0.1 pH (adjustable) / 1 mV / 0.1°C
Calibration	2 point (automatic & manual), 1-point process
Control function	frequency mode, pulse modes, combined, bidirectional proportional function
Sensor control	Autodiagnostic of the measurement loop by impedance control
Cable glands	2 x PG13 and 2 x PG11
Connections	2.5 mm² terminals with screws demountable terminals for the mains and relays
Cable length	0 ... 25 m (high impedance) 0 ... 100 m (low impedance)
Temperature	
Operation	– 20°C ... 60°C (4 to 140°F), 10 ... 90% relative Humidity, non condensing
Storage	– 20°C ... 70°C (4 to 158°F)
Compensation	Nernst, ultrapure water, different tables
Supported electrode types	- glass (with or without preamplifier) - antimony - redox - programmable (slope + Uiso + pHiso)
Outputs	2 x 0/4–20 mA galvanically separated; freely selectable, scaleable - linear, bilinear or logarithmic 4 Relays optional (250 VAC, 3 A max., 100 VDC, 0,5 A max.) optional MODBUS RS485 ProfiBus DP
Power requirements	100 ... 240 VAC, ±10% 50/60 Hz, 25 VA autoswitching
Low Voltage version (optional)	13 ... 30 VAC, 50/60 Hz 18 ... 42 VDC
Installation style	wall, pipe and control panel mounting
Material	Polyester-coated Aluminum housing
Enclosure rating	IP65 (NEMA 4X)
Dimensions	144 x 144 x 150 mm (5.7 x 5.7 x 5.9 inches) (W x H x D)
Weight (approximately)	2 kg (4.4 lbs)
Remarks:	Multi–lingual display: English, French, German, Italian, Spanish, Dutch
Warranty	24 month, extendable to 60 month

Controller

MONEC 9135 Single Channel pH/ORP Controller

Part No.	Designation
Z09135=A=0000	**MONEC 9135**, pH/ORP Controller

Z	0	9	1	3	5	=	A	=	0	0	X	X

Measure

pH/Temperature/ORP	3 5

Power Supply & Outputs Options

110...240 VAC + 2 x I/0 Output	0 0
110...240 VAC + 2 x I/0 Output + 4 Relays	0 4
110...240 VAC + 2 x I/0 Output + RS485 MODBUS	1 1
110...240 VAC + 2 x I/0 Output + RS485 MODBUS + 4 Relays	1 5
110...240 VAC + 2 x I/0 Output + ProfiBus DP	1 2
110...240 VAC + 2 x I/0 Output + ProfiBus DP + 4 Relays	1 6
Low Voltage Version + 2 x I/0 Output	2 0
Low Voltage Version + 2 x I/0 Output + 4 Relays	2 4
Low Voltage Version + 2 x I/0 Output + RS485 MODBUS	3 1
Low Voltage Version + 2 x I/0 Output + RS485 MODBUS + 4 Relays	3 4
Low Voltage Version + 2 x I/0 Output + ProfiBus DP	3 5
Low Voltage Version + 2 x I/0 Output + ProfiBus DP + 4 Relays	3 6

Standard accessories (supplied with the instrument)

The transmitter comes in a cardboard box with instruction manual, 4 cable glands, screws for panel mounting, and a quality certificate of conformity to specifications.

Optional Accessories

Z09135=T=0000	MONEC 9125 Transmitter Detailed test certificate
Z09125=A=1485	Profibus DP kit with board for 91xx / 92xx and Operator Manual

Documentation

Z621=191=035	Instruction manual in English 9135

Note: Please consider our Preference Packages in addition and refer to the Chapter "Electrochmistry"

Controller

MONEC 912X Conductivity/Resistivity/Concentration Controller

The MONEC 9125 transmitter and associated measuring sensors have been designed for measuring and continuous control of Conductivity, Resistivity or Concentration (with possibility of temperature measurement) in municipal and industrial processes.

Equipped with Standard and specific temperature compensation, user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

The Dual Channel conductivity Controller has a Calculation function allowing calculation of:
- Percent accepted: C2/C1 * 100 [%]
- Percent rejected: (1- C2/C1)*100 [%]
- Difference: C1-C2

Technical Data

Subject to change without notice

	MONEC 912X Mono and Dual channel conductivity transmitters		
Designation	Mono and Dual channel conductivity transmitter depending on selected model		
Applications	Drinking and waste water Industrial process control : chemical, petrochemical, pulp and paper, food and beverage, sugar, steel, surface treatment industries Pure and Ultrapure water analysis : steam generation and electricity production, semiconductors, pharmaceutical industries		
Analysis			
Conductivity			
Conductive sensors			
Cell constant [m-1]	k = 0.01	k = 0.10	k = 1.0
Measuring range	0.01µS/cm ... 200 µS/cm	0.1µS/cm ... 2 mS/cm	1 µS/cm ... 20 mS/cm
Inductive sensors			
Cell constant [m-1]	k = 1.0	k = 2.35	k = 10
Measuring range	50 µS/cm ... 1 S/cm	200 µS/cm ... 2 S/cm	1 mS/cm ... 10 S/cm
Temperature	Pt100 or Pt1000: -20 ... 200°C (4 to 392°F)		
Concentration[1]	HCl 0…18%, HNO3 0…30%, H2SO4 0…30%, NaOH 0…15%, NaCl 0…26%		
Resolution	min. 0.001 µS/cm, 0.1°C		
Calibration	Electric, 1 point or 2 points against standard or manual entry of cell constant		
Control function	frequency mode, pulse modes, combined, bidirectional proportional function		
Sensor control	continuous autoadaptive sensor frequency for polarization compensation with system alarm		
Cable entry	2 x PG13 and 2 x PG11 cable glads		
Connections	2.5 mm² terminals with screws demountable terminals for the mains and relays		
Cable length	100 m maximum		
Temperature			
Operation	– 20°C ... 60°C (4 to 140°F), 10 ... 90% relative Humidity, non condensing		
Storage	– 20°C ... 70°C (4 to 158°F)		
Compensation	fixed programmable coefficient in %/°C or in %/°F - non-linear, for ultrapure water - non-linear, freely programmable for concentration - specific software to conform to USP pharmaceutical regulations		
Supported electrode types	Conductive and Inductive sensors		
Outputs	2 x 0/4–20 mA galvanically separated; freely selectable, scaleable - linear, bilinear or logarithmic 4 Relays optional (250 VAC, 3 A max., 100 VDC, 0,5 A max.) optional MODBUS RS485 ProfiBus DP		
Power requirements	100 ... 240 VAC, ±10% 50/60 Hz, 25 VA autoswitching		
Low Voltage version (optional)	13 ... 30 VAC, 50/60 Hz 18 ... 42 VDC		
Installation style	wall, pipe and control panel mounting		
Material	Polyester-coated Aluminum housing		
Enclosure rating	IP65 (NEMA 4X)		
Dimensions	144 x 144 x 150 mm (5.7 x 5.7 x 5.9 inches) (W x H x D)		
Weight (approximately)	2 kg (4.4 lbs)		
Remarks:	Multi–lingual display: English, French, German, Italian, Spanish, Dutch		
Warranty	24 month, extendable to 60 month		

[1] applies to 9125 Concentration model

Controller

MONEC 912X

Part No.	Designation
Z091XX=A=0000	**MONEC 912X**, Conductivity/Resistivity/Concentration Controller

Z	0	9	1	X	X	=	A	=	0	0	X	X

Controller /Channel Option

2 channel	2 0
1 channel	2 5

Measurement Option

1 Channel Analyzer model

Conductivity/Resistivity	0
Concentration	1

2 Channel Analyzer model

Conductivity	0

Power Supply & Outputs Options

110...240 VAC + 2 x I/0 Output	0 0
110...240 VAC + 2 x I/0 Output + 4 Relays	0 4
110...240 VAC + 2 x I/0 Output + RS485 MODBUS	1 1
110...240 VAC + 2 x I/0 Output + RS485 MODBUS + 4 Relays	1 5
110...240 VAC + 2 x I/0 Output + ProfiBus DP	1 2
110...240 VAC + 2 x I/0 Output + ProfiBus DP + 4 Relays	1 6
Low Voltage Version + 2 x I/0 Output	2 0
Low Voltage Version + 2 x I/0 Output + 4 Relays	2 4
Low Voltage Version + 2 x I/0 Output + RS485 MODBUS	3 1
Low Voltage Version + 2 x I/0 Output + RS485 MODBUS + 4 Relays	3 4
Low Voltage Version + 2 x I/0 Output + ProfiBus DP	3 5
Low Voltage Version + 2 x I/0 Output + ProfiBus DP + 4 Relays	3 6

Standard accessories (supplied with the instrument)

The transmitter comes in a cardboard box with instruction manual, 4 cable glands, screws for panel mounting, and a quality certificate of conformity to specifications.

Optional Accessories

Z09125=T=0000	MONEC 9125 Transmitter Detailed test certificate
Z09125=A=1485	Profibus DP kit with board for 91xx / 92xx and Operator Manual

Documentation

Z621=191=025	Instruction manual in English 9125 Conductivity Analyzer
Z621=191=125	Instruction manual in English 9125 Concentration Analyzer

Note: Please consider our Preference Packages in addition and refer to the Chapter "Electrochmistry"

Controller

si792 Industrial 2-wire Transmitters (DataSheet DOC063.52.30008)

Technical Data

Subject to change without notice

	si792 / si792X Transmitter series
Designation	Micro-processor controlled Industrial Process transmitter for Liquid Analysis
Connection	2-wire micropower technology
Application range	Water, Waste Water, Process
Parameter	pH, ORP, Conductivity/Resistivity/Salinity/Concentration, Dissolved Oxygen please refer to the analytical part for details
Sensor Inputs	1 sensor (model depending)
Display	Liquid Cristal Display (LCD) 7 segments with symbols Main measured value display: character height 17 mm Temperature display: character height 10 mm
Connection Entry	3 knockouts for M20 x 1.5 cable glands 2 knockouts for ½" NPT or rigid metallic conduit
Lightning protection	EN 61000-4-5
Specialities:	
Data retention	Parameters and calibration data: > 10 years (EEPROM)
Passcodes	Modifiable according to FDA 21 CFR, Part 11 "Electronic Signatures" (HART only)
Sensor check	
pH/ORP	Automatic monitoring of glass and reference electrode (can be disabled). Delay: 30 seconds
Conductivity (contacting)	Polarization detection and monitoring of cable capacitance
Conductivity (inductive)	Monitoring of primary coil and its lines for short circuit and of secondary and its lines for open circuit
Dissolved Oxygen	Automatic monitoring for short circuits or open circuits (can be disabled). Delay: 30 seconds.
Sensor monitor	Direct display of measured values from sensor for validation
pH/ORP	electrode potential/temperature
Conductivity (contacting)	Resistance/temperature
Conductivity (inductive)	Direct display of measured values from sensor for validation (resistance/temperature)
Dissolved Oxygen	Direct display of uncorrected sensor signal (sensor current/temperature)
Power requirements	
HART	14 – 30 VDC (30 VDC maximum)
	specially for D.O.: 100 mA maximum, 0.8 W maximum (Ex)
FF and ProfiBus PA	FISCO bus supply: 9 to 17.5 VDC; Linear barrier: 9 to 24 VDC
Loop current—HART	4 – 20 mA floating; 3.80–22.00 mA specifiable
Current consumption FF and Profibus PA	< 13.2 mA
Maximum current in case of fault (FDE) — FF and Profibus PA	< 17.6 mA
Measurement error[3,4]	< 0.3% of current value + 0.05 mA
to be continued	

[1] Applies to si792(x) C and si792x C-FF transmitter only
[2] Applies to si792x C-PA transmitter only
[3] (± 1 count plus sensor error)
[4] IEC 746 Part 1, at nominal operating conditions
[6] si792(x) D and si792x D-FF only

Technical Data
Subject to change without notice

	si792 / si792X Transmitter series
Communication	
Analog Outputs	1 x 4 – 20 mA linear to measured value or Logarithmic scalable
HART	Digital communication by FSK modulation of loop current, reading of device identification, measured values, status and messages, reading and writing of parameters, start of product calibration, signaling of configuration changes according to FDA 21 CFR Part 11. Output averaging time constant: 0–120 seconds
Foundation Fieldbus (FF_H1)	Bus-powered device with constant current consumption. Cyclic and acyclic data exchange. 1 resource block, 1 transducer block, 3 analog input function blocks
pH/ORP specific	selectable: pH, ORP, temperature, Rglass, Rref, slope, asymmetry potential
Conductivity cont. specific	selectable: conductivity, resistivity, concentration, salinity, temperature, cell constant
Conductivity ind. specific	Selectable: conductivity, concentration, salinity, temperature, cell constant
Dissolved Oxygen specific	selectable: O2 saturation, O2 concentration, temperature, zero, slope, volume concentration
	Execution time: 50 ms
	Certified to ITK 4.6
	Physical interface: to IEC 1158-2
	Address range: 017 to 246
Profibus-PA (DPV1)	Bus-powered device with constant current consumption. Cyclic and acyclic data exchange. Physical block, 2 analog input function blocks, 2 discrete input blocks, logbook block, alarm block.
	PNO directive: PROFIBUS-PA, Profile for Process Control Devices, Version 3.0
	Physical interface: Physical interface: MBP-IS (Manchester Bus Powered-Intrinsically Safe) to IEC 1158-2 (DIN-EN 61158-2)
	Connection: via segment coupler to SPC, PC, PCS
	Address range: 1 to 126
Certification	Certification applies to the controller / does not apply to all sensors
EU Certification	
CE Marked to	EMC Directive 2004/108/EC ATEX Directive 94/9/EC
ATEX Certification	
si792 models	non hazardous areas
si792X models	ATEX II 2 (1) G EEx ib (ia) IIC T6 available for I/O+Hart models; pending for models with FF and PA communication
FM Certification (US)	
si792 models	FM Listed for: non hazardous and Class I, Division 2
si792X models	FM Listed for: Class I, Division 1, Groups A, B, C, D Class II, Division 1, Groups E, F Class III, Division 1 Class I, Zone 0, AEx ia, Group IIC T4 Enclosure: Type 2
CSA Certification (CA)	
si792 models	CSA Certified to: non hazardous and Class I, Division 2
si792X models	CSA Certified to: Class I, Division 1, Groups A, B, C, D Class I, Division 2, Groups A, B, C, D Sensor: Class I, Zone 0, Group IIC Transmitter: Class I, Zone 1, Group IIC Enclosure: Type 2
Environmental:	
Temperature	
Operation	–20 to 55°C (–4 to 131°F), 10 … 95% r.H. non condensing
Storage	–20 to 70°C (–4 to 158°F), 10 … 95% r.H. non condensing
Installation style	Wall, pipe and control panel mounting
Material	PBT (Polybutylene terephthalate)
Enclosure rating	IP65
Dimension (Front)	144 x 144 x 27 mm (W x H x D)
Dimension (overall)	144 x 159 x 105 mm (W x H x D)
Weight (approximately)	1 kg
Documentation	Manuals available in GB-D-F-E-I-TR
Warranty	24 month, optionally extendable to 60 month

Technical Data
Subject to change without notice

	si792 / si792X Transmitter series
si792/si79X P	**pH/ORP measurement**
Inputs	1 x Input for Combination or Differential pH/ORP Sensors 1 x Input for Glass/reference electrode acc. IEC 746 Part 1, at nominal operating conditions
	Input resistance—glass electrode >0.5 x 10^{12} Ω
	Input resistance—reference electrode >1 x 10^{10} Ω
	Input current—glass electrode <2 x 10^{-12} A
	Input current—reference electrode <1 x 10^{-10} A
Measuring range	
pH/ORP	– 2.00 to 16.00 pH units
ORP	– 1999 to 1999 mV
Measuring error	
pH/ORP	< 0.02 pH units plus sensor error; TC: 0.002 pH/K
ORP	<1 mV plus sensor error; TC: 0.1 mV/K
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC300Ω
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392°F) applies to models with I/O/HART and FF option – 20.0 to 150.0°C (–4 to 302°F) applies to models with ProfiBus PA option
NTC300Ω	– 20.0 to 110.0°C (–4 to 230°F) applies to all cummunication option models
Measurement error[3,4]	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)
Temperature compensation of sample	Linear –19.99 to 19.99%/K (25°C reference temperature)
Calibration	
pH/ORP	
Offset range	± 60 mV
Slope range	80 to 103% (47.5 to 61 mV/pH unit)
Calibration timer	0 to 9999 hours
ORP	
Calibration range	–700 to 700 mV (si792 P, si792x P and si792x P-FF only)
Calibration timer	0 to 9999 hours (si792 P, si792x P and si792x P-FF only)
si792/si792X D	**Dissolved Oxygen**
Inputs	1 x Input for Type A sensors: OxyFerm, OxySens Type B sensors: OxyGold G
Measuring current	0–1200 nA; resolution: 20 pA
Measurement error[3,4]	0.5% measured value + 0.05 nA
Temperature coeff.	0.005 nA/K
Permitted guard current	≤ 20 µA
Polarization voltage	400–1000 mV; resolution: approximately 3 mV
Measuring Range	
% Saturation	0 – 199.9% / 200–500% (–10 to 80 °C)
Concentration	0–9999 µg/L; 0–9999 ppb; 0–50.00 mg/L; 0–50.00 ppm (–10 to 80 °C)
Process pressure	0–9.999 bars (0–999.9 kPa/0–145 PSI)
Pressure correction	0–9.999 bars (0–999.9 kPa/0–145 PSI)
Salinity correction	0–45 ‰ [g/kg]
Calibration	
Type A sensor	Slope 25–130 nA (25 °C, 1013 mbars); Zero point ± 2 nA
Type B sensor	Slope 200–550 nA (25 °C, 1013 mbars), Zero point ± 2 nA
Timer	0 to 9999 hours, adjustable
Temperature	2-wire connection; accepts NTC30kΩ / NTC22kΩ
Measuring Range	– 20.0 to 150.0°C (–4 to 302°F)
Adjustment range	10 K
Resolution	0.1°C; 0.1°F
Measurement error[3,4]	< 0.5 K (< 1 K at T >100 °C)
to be continued	

Technical Data
Subject to change without notice

	si792 / si792X Transmitter series	
si792/si79X C	**Conductivity measurement** (conductive/contacting)	
Measuring principle	Conductive (contacting)	
Measuring range		
2 EL Procedure	0.2 µS - 200 mS	
4 EL Procedure	0.2 µS - 1000 mS	
Resolution	3 / 2 / 1 / 0 decimals in measuring range 10^1 / 10^2 / 10^3 /10^4 µS/cm; mS/cm; S/cm	
Resistivity	0.000 – 9.999 MΩ/cm, 00.00 – 99.99 MΩ/cm, 000.0 – 999.9 MΩ/cm	
Concentration		
NaCl	0.00 – 9.99% by weight	0 – 100°C (32–212°F)
HCl	0.00 – 9.99% by weight	0 – 50°C (32–122°F)
NaOH	0.00 – 9.99% by weight	0 – 100°C (32–212°F)
H2SO4	0.00 – 9.99% by weight	0 – 110°C (32–230°F)
HNO3	0.00 – 9.99% by weight	0 – 50°C (32–122°F)
Salinity	0.0 – 45‰ (0 – 35 °C)	
USP	00.00 – 99.99 µS/cm	
Measurement error	< 1% measured value + 0.4 µS	
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC 100 kΩ / NTC30kΩ / NTC8.55kΩ	
Measuring range		
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392 °F) applies to models with I/O/HART and FF option – 20.0 to 150.0°C (–4 to 302 °F) applies to models with ProfiBus option	
NTC 100 kΩ	– 20.0 to 150.0°C (–4 to 302 °F) applies to models with ProfiBus option	
NTC 30 kΩ	– 20.0 to 130.0°C (–4 to 266°F)	
NTC 8.55 kΩ	– 20.0 to 130.0°C (–4 to 266°F) applies to models with I/O/HART and FF option	
Adjustment range	10 K	
Resolution	0.1°C; 0.1°F	
Measurement error[3,4]	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)	
Temperature compensation of sample		
Linear	by entry of temperature coefficient (00.00–19.99%/K). T_{ref} = 25 °C	
Non-linear	for naturals waters according to EN 27888	
NaCl (Ultra-pure)	for ultrapure water with NaCl traces (0–120 °C)	
HCl (Ultra-pure)	for ultrapure water with HCl traces (0–120 °C)	
NH3 (Ultra-pure)	for ultrapure water with NH3 traces (0–120 °C)	
Off	Temperature compensation turned off / Conductivity at current Temperature	
si792/si79X T	**Conductivity measurement** (torroidal/inductive)	
Measuring principle	Inductive procedure	
compatible sensors	7MA2200 series, 3700 series, 8398 series	
Measuring range		
Conductivity	0.00–1999 mS/cm	
Concentration	0–100% by weight	
Salinity	0.0–45 ‰ (0–35 °C)	
Resolution		
Conductivity	3 / 2 / 1 / 0 decimals in measuring range 10^1 / 10^2 / 10^3 /10^4 µS/cm; mS/cm; S/cm	
Concentration	0.00–100.0% by weight	
Salinity	0.0–45 ‰ (0–35 °C)	
Measurement error[3,4]	< 1% measured value + 0.02 mS/cm	
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC30kΩ / NTC100kΩ	
Measuring range		
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392 °F)	
NTC 30 kΩ	– 20.0 to 150.0°C (–4 to 302 °F) applies to models with ProfiBus option	
NTC 100 kΩ	– 20.0 to 130.0°C (–4 to 266°F)	
Adjustment range	10 K	
Resolution	0.1°C; 0.1°F	
Measurement error[3,4]	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)	
Concentration		
NaCl	0 – 26% at 0 °C	0 – 28% at 100 °C (212 °F)
HCl	0 – 18% at –20 °C (–4 °F) 22 – 39% at –20 °C (–4 °F)	0 – 18% at 50 °C (122 °F) 22–39% 50 °C (122 °F)
NaOH	0–13% 0 °C (32 °F) 15–50% 0 °C (32 °F)	0–24% 100 °C (212 °F) 35–50% 100 °C (212 °F)
H2SO4	0–26% –17 °C (1.4 °F) 28–88% –17 °C (1.4 °F) 94–99% –17 °C (1.4 °F)	0–37% 110 °C (230 °F) 39–88% 115 °C (239 °F) 89–99% 115 °C (239 °F)
HNO3	0–30% –17 °C (1.4 °F) 35–96% –20 °C (–4 °F)	0–30% 50 °C (122 °F) 35–96% 50 °C (122 °F)

Controller

si792 Industrial 2-wire Transmitters - Analytical Information

Part No. **Designation**

si792 transmitter series

L	X	V	5	0	X	.	9	9	.	7	X	X	0	2

Parameter

pH / ORP	0
Conductive / Contacting Conductivity	1
Inductive Conductivity 3700 sensors	2
Inductive Conductivity 2200 sensors	3
Dissolved Oxygen	4

Language / Country Code Selection *please refer to Appendix E for further info*

Protection class / Communication option

non EEx: 1 x I/O with HART (Standard)	0 0
ATEX Zone 1: 1 x I/O with HART	0 1
ATEX Zone 1: PROFIBUS PA	6 1
ATEX Zone 1: FOUNDATION FIELDBUS	7 1

Note: Instrument Manuals are currently availble in English, German, French, Spanish, Italian and Turkish
According ATEX requirements, the seller/reseller must provide a manual in local language.
Therefore the si792X serie Transmiters may have limitations to sales. Please contact HACH LANGE.

Optional Mounting assembly

LZY483 Pipe Mount Installation Kit for si79X Transmitter series, pk/1

LZY484 Panel Mount Installation Kit, for si79X Transmitter series, pk/1

LZY576 Pole Mounting Assembly Kit, for si79X Transmitter series
complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation

composed of:

LZY483	"Pipe Mount" Installation Kit for si79X Transmitter series, pk/1
LZY485	Weather guard, for si79X Transmitter series
HRO304	Mounting pipe, 1.8 m, 40mm Ø
ATS010	Stand
LZX416	Installation kit

Optional accessories

LZY106 Isolating power supply HART, for DIN rail mounting, pk/1
to supply a two wire transmitter, output 4-20 mA,
intrinscally safe entrance 4 -20 mA with EEX IA/IB IIB/IIC, auxilary energie UC 24V

LZY107 Isolating power supply HART, for DIN rail mounting, pk/1
to supply a two wire transmitter, output 4-20 mA, intrinscally safe entrance 4 -20 mA
with EEX IA/IB IIB/IIC, auxilary energie AC 95-253V, secondary 24 VDC

Spare Parts

LZY486 si79X, Installation Kit
LZY487 Rear Housing, for si79X Transmitter series, pk/1

Documentation

DOC086.98.00794 Documentation Package, si792 Transmitter series, CD-ROM, pk/1
include Manuals, QuickStart Guides, ATEX EC type examination certificates,
FM / CSA control drawings, Declaration of Conformity (CE),
Device Descriptions for system integration in HART, Profibus PA and
Foundation Fieldbus networks

Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

si794 E-Chem transmitter,

4-wire technique,
variable power supply 20...253 V AC/DC,
4 relais contacts,
2 analog current outputs,
PID controller,
2 parameter sets,
several supported languages in the embadded software
German, English, French, Italian, Spanish.

Technical Data

Subject to change without notice

	si794 Transmitter series
Designation	Micro-processor controlled Industrial Process transmitter for Liquid Analysis
Connection	4-wire micropower technology
Application range	Water, Waste Water, Process
Parameter	pH, ORP, Conductivity/Resistivity/Salinity/Concentration, Dissolved Oxygen/D.O. trace please refer to the analytical part for details
Sensor Inputs	1 sensor (model depending)
Display	Liquid Cristal Display (LCD) 7 segments with symbols Main measured value display: character height 17 mm Temperature display: character height 10 mm
Connection Entry	3 knockouts for M20 x 1.5 cable glands 2 knockouts for ½" NPT or rigid metallic conduit
Protection	
Lightning protection	EN 61000-4-5
Electrical safety	Safe electrical isolation of all extra-low-voltage circuits against mains by double insulation according to EN 61010-1
Specialities:	
Data retention	Parameters and calibration data: > 10 years (EEPROM)
Sensor check	
pH/ORP	Automatic monitoring of glass and reference electrode (can be disabled). Delay: 30 seconds
Conductivity	
contacting	Polarization detection and monitoring of cable capacitance
inductive	Monitoring of primary coil and its lines for short circuit and of secondary and its lines for open circuit
Dissolved Oxygen	Automatic monitoring for short circuits or open circuits (can be disabled)
Dissolved Oxygen trace	Automatic monitoring for short circuits or open circuits (can be disabled)
Sensor monitor	
pH/ORP	Provides information on the sensor condition. Evaluation of zero/slope, response time, calibration interval, Sensocheck
Conductivity	
contacting	Resistance/temperature
inductive	Direct display of measured values from sensor for validation (resistance/temperature)
Dissolved Oxygen (si794D + D trace)	Provides information on the sensor condition. Evaluation of zero/slope, response time, calibration interval, Sensocheck
Mode indication	5 mode indicators "meas", "cal", "alarm", "cleaning", "config" 18 further icons for configuration and messages
Alarm indication	Red LED in case of alarm or HOLD, user defined
Service functions	Current specifiable for output 1 and 2 (0 … 22 mA)
	Controller output entered directly (start of control process)
	Device self-test (automatic memory test: RAM, FLASH, EEPROM)
	Display test of all segments
	Display of last error occured
	Sensor monitor (see above)
	manual control of 4 Relay contacts
Power requirements	
	24 (-15%) … 230 (+10%) V AC/DC autoswitching, 45 … 65 Hz; ~ 5VA, 2.5W
	Overvoltage category II, protection class II
to be continued	

* user selectable
[1] IEC 746 Part 1, at nominal operating conditions
[2] ± 1 count
[3] plus sensor error

Technical Data
Subject to change without notice

	si794 Transmitter series
Communication/Outputs	
Analog Outputs	2 x 0/4 – 20 mA linear to measured value or Logarithmic scalable
	22 mA in case of error messages
Output 1	0/4 – 20 mA, max. 10V, floating (galvanically connected to output 2)
Measurement Error	< 0.3% current value + 0.05 mA
Averaging filter	low pass, filter time interval: 0 … 120 sec
Process variable	
pH/ORP specific	pH or mV signal
	Start/end of scale: Configurable within the measuring range for pH or mV
	Span allowed: pH 2.00 ... 18.00 / 200 ... 3000 mV
Conductivity specific	
si794 C & si794 I	Conductivity, resistivity, concentration or salinity
	Start/end of scale: Configurable within the measuring range
	Minimum Span: linear: 5% of selected range logariythmic: 1 decade
Dissolved Oxygen	D.O. concentration or saturation
	Start/end of scale: Configurable within the measuring range
	Span allowed: 5 - 500%, 0.5 - 50 mg/l/ppm
Output 2	0/4 – 20 mA, max. 10V, floating (galvanically connected to output 1)
Measurement Error	< 0.3% current value + 0.05 mA
Averaging filter	low pass, filter time interval: 0 … 120 sec
Process variable	
pH/ORP specific	Temperature
	Start/end of scale: 20 ... 200 °C (-4 ... 392°F)
	Span allowed: 20 ... 220 K (36 ... 396°F)
Conductivity specific	
si794 C & si794 I	Temperature
	Start/end of scale: 20 ... 200 °C (-4 ... 392°F)
	Span allowed: +20 ... 320 K (36 ... 608°F)
Dissolved Oxygen	Temperature
	Start/end of scale: 20 ... 200 °C (-4 ... 392°F)
	Span allowed: +20 ... 170 K (68 ... 338°F)
Power Ouput	for operating an ISFET adapter
pH specific	+3 V (V0 = 2.9 ... 3.1 V / Ri = 360 Ω –3 V (V0 = -4.8 ... –3,7 V / Ri = 360 Ω
HOLD Input	Galvanically separated (OPTO coupler)
Function	Switches analyzer to HOLD mode
Switching Voltage	inactive 0 ... 2 V (AC/DC)
	active 10 ... 30 V (AC/DC)
CONTROL Input	
Function	
pH	Control input for automatic cleaning/calibration system
Conductivity	
si794 C	Switch-over to second parameter set
si794 I	Switch-over to second parameter set
Dissolved Oxygen	Control input for automatic cleaning
Switching Voltage	inactive 0 ... 2 V (AC/DC)
	active 10 ... 30 V (AC/DC)
Controller function	PID; output via relay contacts
pH specific	Relais R1: base valve Relais R2: acid valve
Setpoint specs	pH -2.00 … 16.00 / -1500 … +1500 mV
Neutral zone	pH 0.00 … 5.00 / 0000 … 500 mV
Conductivity specific	Setpoint and Neutral zone as desired within measuring range
D.O. specific	Relais R1: below setpoint Relais R2: above setpoint
Setpoint specs	0 - 500%; 0.00 - 50.0 mg/l / ppm
Neutral zone	0.0 - 50%; 0.00 - 5.00 mg/l / ppm
P action component	Controller gain KR: 0010 ... 9.999 %
I action component	Reset time Tr: 0000 ... 9.999 s (0000 s = no integral action)
D action component	Rate time Td: 0000 ... 9.999 s (0000 s = no derivative action)
Controller type	Pulse length or pulse frequency controlled
Pulse period	0001 ... 0600 s, min. ON time 0.5 (pulse length controller)
Max. pulse frequency	0001 ... 0180 min^{-1} (pulse frequency controller)

Technical Data
Subject to change without notice

	si794 Transmitter series
Limit values	Output via relay contacts R1, R2
	Contacts R1, R2 floating but inter-connected
Contact ratings	AC< 250 V / < 3 A / < 750 VA DC< 30 V / < 3 A / < 90 W
Contact response	N/C oder N/O
Delay	0000 ... 9.999 s
Set points	as desired within range; user selectable
Hysteresis	
pH specific	00.00 ... 05.00 pH / 0000 ... 0500 mV
Conductivity specific	0 … 50% full scale
Dissolved Oxygen	00.00 - 50.0%, 00.00 - 05.00 mg/l / ppm
Alarm contact	Relay contact, floating
Contact ratings	AC< 250 V / < 3 A / < 750 VA DC< 30 V / < 3 A / < 90 W
Contact response	N/C (fail safe type)
Delay	0000 ... 0600 s
Parameter Sets	
pH/ORP specific	2 selectable parameter sets for different applications; user selectable
Conductivity specific	same Please refer to manual for further details
Environmental:	
Temperature	
Operation	–20 to 55°C (–4 to 131°F), 10 … 95% r.H. non condensing
Storage	–20 to 70°C (–4 to 158°F), 10 … 95% r.H. non condensing
Installation style	Wall, pipe and control panel mounting
Material	PBT (Polybutylene terephthalate)
Enclosure rating	IP65 / NEMA 4X
Dimension (Front)	144 x 144 x 27 mm (W x H x D)
Dimension (overall)	144 x 159 x 105 mm (W x H x D)
Weight (approximately)	1 kg
Documentation	Manuals available in GB-D-F-E-I-TR
Certification	
EMC	EN 61326 (industrial levels)
Warranty	24 month, optionally extendable to 60 month

Technical Data
Subject to change without notice

	si794 P Transmitter model
	pH/ORP measurement
Inputs	1 x Input for Combination pH/ORP Sensors (ISFET possible) 1 x Input for Glass/reference electrode acc. IEC 746 Part 1, at nominal operating conditions
	Input resistance—glass electrode >0.5 x 10^{12} Ω
	Input resistance—reference electrode >1 x 10^{10} Ω
	Input current—glass electrode <2 x 10^{-12} A
	Input current—reference electrode <1 x 10^{-10} A
Measuring range	
pH/ORP	– 2.00 to 16.00 pH units
ORP	– 1999 to 1999 mV
Measuring error	
pH/ORP	< 0.02 pH units plus sensor error; TC: 0.002 pH/K
ORP	<1 mV plus sensor error; TC: 0.1 mV/K
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC30kΩ / NTC8.5Ω / NTC3kΩ
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392°F)
NTC30kΩ	– 20.0 to 150.0°C (–4 to 302°F)
NTC8.5kΩ	– 10.0 to 130.0°C (–4 to 266°F)
NTC30Ω	– 0.0 to 100.0°C (+32 to 212°F)
Resolution	0.1°C / 1°F
Measurement error[1,2,3]	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)
Temperature compensation of sample	Linear –19.99 to 19.99%/K (25°C reference temperature)
Calibration	
Calibration timer	0 to 9.999 hours
pH	automatic Buffer recognition, manual input of buffer values, data-entry of pre-measured electrodes
Zero adjustment	± 200 mV
Offset range	± 60 mV
Slope range	80 to 103% (47.5 to 61 mV/pH unit)
Calibration timer	0 to 9.999 hours
ORP	
Calibration range	–700 to 700 mV
Calibration timer	0 to 9.999 hours

to be continued

Technical Data
Subject to change without notice

	si794 D & si794 D trace Transmitter models
	Dissolved Oxygen
Inputs	1 x Input for
	Type A sensors: OxyFerm, OxySens
	Type B sensors: OxyGold
Measuring current	
si794 D	-2 - 1800 nA; resolution: 0.05 nA
si794 D trace	0 - 600 nA; resolution: 0.01 nA
Measurement error[1,2,3]	
si794 D	0.5% measured value + (0.5% or 0.05 mg/l or 0.05 ppm)
si794 D trace	0.5% measured value + (0.005 mg/l or 0.005 ppm)
Permitted guard current	≤ 20 µA
Polarization voltage	0 - 1000 mV; resolution 3 mV
Measuring Range	
% Saturation	
si794 D	0 - 500% (–10 to 80 °C)
si794 D trace	0 - 120% (–10 to 80 °C)
Concentration	
si794 D	0 - 50.00 mg/L; 0 - 50.00 ppm (–10 to 80 °C)
si794 D trace	0 - 9999 µg/l / ppb; 0.000 - 9.999 µg/l / ppb; 0.00 - 50.00 ppm (–10 to 80 °C)
Process pressure	0–9.999 bars (0–999.9 kPa/0–145 PSI)
Pressure correction	0–9.999 bars (0–999.9 kPa/0–145 PSI)
Salinity correction	0–45 ‰ [g/kg]
Calibration	
Type A sensor	Slope 25–130 nA (25 °C, 1013 mbars); Zero point ± 2 nA
Type B sensor	Slope 200–550 nA (25 °C, 1013 mbars), Zero point ± 2 nA
Timer	0 to 9999 hours, adjustable
Temperature	2-wire connection; accepts NTC30kΩ / NTC22kΩ
Measuring Range	– 20.0 to 150.0°C (–4 to 302°F)
Adjustment range	10 K
Resolution	0.1°C; 0.1°F
Measurement error[1,2,3]	< 0.5 K (< 1 K at T >100 °C)
to be continued	

Note: The trace resolution (display ppb, µg/L) can only be used with the SI794 D tr

Technical Data
Subject to change without notice

	si794 C Transmitter model
	Conductivity measurement (conductive/contacting)
Measuring principle	Conductive (contacting)
Measuring range	
2 EL Procedure	0 µS - 999.9 mS depending on cell constant k of selected sensor
k = 0.01	0.01 - 200 µS/cm model 8310
k = 0.1	0.1 - 2,000 µS/cm model 8311
k = 1.0	1 - 20,000 µS/cm model 8312
4 EL Procedure	0.2 µS - 999.9 mS depending on cell constant k of selected sensor
k = 0.0471	0.2 … 500 mS/cm model 7MA2100
Resolution	3 / 2 / 1 / 0 decimals in measuring range 10^1 / 10^2 / 10^3 /10^4 µS/cm; mS/cm; S/cm
Resistivity	00.00 – 99.99 MΩ/cm
Concentration	
NaCl	0.00 – 9.99% by weight 0 – 60°C (32–212°F)
HCl	0.00 – 9.99% by weight -20 – 50°C (32–122°F)
NaOH	0.00 – 9.99% by weight 0 – 100°C (32–212°F)
H2SO4	0.00 – 9.99% by weight -17 – 110°C (32–230°F)
HNO3	0.00 – 9.99% by weight -17 – 50°C (32–122°F)
Salinity	0.0 – 45‰ (0 – 35 °C)
USP	00.00 – 99.99 µS/cm
	Water monitoring in the pharmaceutical industry (USP) with additional user-defined limit value (%), output via relay contact
Measurement error	< 1% measured value + 0.4 µS * c
Response time T_{90}	< 1 sec at SensoCheck off; < 3 sec at SensoCheck on
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC30kΩ / NTC8.5Ω
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392°F)
NTC30kΩ	– 20.0 to 150.0°C (–4 to 302°F)
NTC8.5kΩ	– 10.0 to 130.0°C (–4 to 266°F)
Resolution	0.1°C / 1°F
Measurement error[1,2,3]	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)
Temperature compen-sation of sample	
Linear	by entry of temperature coefficient (00.00–19.99%/K). T_{ref} = 25 °C
Non-linear	for naturals waters according to EN 27888
NaCl (Ultra-pure)	for ultrapure water with NaCl traces (0–120 °C)
HCl (Ultra-pure)	for ultrapure water with HCl traces (0–120 °C)
NH3 (Ultra-pure)	for ultrapure water with NH3 traces (0–120 °C)
Off	Temperature compensation turned off / Conductivity at current Temperature
Calibration/Standardisation	
	manual input of cell constant (permissable cell constant: k = 0.05 … 19.999 cm^{-1})
	manual input of standard solution
	Product calibration (single point process calibration)
	Temperature probe adjustment
to be continued	

Technical Data
Subject to change without notice

	si794 I Transmitter model	
	Conductivity measurement (inductive/torroidal)	
Measuring principle	Inductive procedure	
compatible sensors	7MA2200 series, 3700 series, 8398 series	
Measuring range		
Conductivity	0.00–1999 mS/cm	
Concentration	0–100% by weight	
Salinity	0.0 - 45‰ (0 - 35°C)	
Resolution		
Conductivity	3 / 2 / 1 / 0 decimals in measuring range 10^1 / 10^2 / 10^3 /10^4 µS/cm; mS/cm; S/cm	
Concentration	0.00 - 100.0% by weight	
Salinity	0.0 - 45‰ (0 - 35°C)	
Measurement error[1,2,3]	< 1% measured value + 0.005 mS/cm	
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC100kΩ / NTC30kΩ	
Measuring range		
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392 °F)	
NTC 30 kΩ	– 20.0 to 150.0°C (–4 to 302 °F)	
NTC 100 kΩ	– 20.0 to 130.0°C (–4 to 266°F)	
Adjustment range	10 K	
Resolution	0.1°C; 0.1°F	
Measurement error[1,2,3]	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)	
Temperature compen-sation of sample		
Linear	by entry of temperature coefficient (00.00–19.99%/K). T_{ref} = 25 °C	
Non-linear	for naturals waters according to EN 27888	
Off	Temperature compensation turned off / Conductivity at current Temperature	
Concentration		
NaCl	0 – 26% at 0 °C	0 – 26% at 100 °C (212 °F)
HCl	0 – 18% at –20 °C (–4 °F) 22 – 39% at –20 °C (–4 °F)	0 – 18% at 50 °C (122 °F) 22–39% 50 °C (122 °F)
NaOH	0–13% 0 °C (32 °F) 15–50% 0 °C (32 °F)	0–24% 100 °C (212 °F) 35–50% 100 °C (212 °F)
H2SO4	0–26% –17 °C (1.4 °F) 28–88% –17 °C (1.4 °F) 94–99% –17 °C (1.4 °F)	0–37% 110 °C (230 °F) 39–88% 115 °C (239 °F) 89–99% 115 °C (239 °F)
HNO3	0–30% –17 °C (1.4 °F) 35–96% –20 °C (–4 °F)	0–30% 50 °C (122 °F) 35–96% 50 °C (122 °F)
Calibration/Standardisation		
	manual input of cell constant (permissable cell constant: k = 0.01 … 19.999 cm^{-1})	
	manual input of standard solution	
	Product calibration (single point process calibration)	
	Zero adjustment	
	Temperature probe adjustment	

Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

Part No. **Designation**

si794 transmitter series

L	X	V	5	0	X	.	9	9	.	0	0	0	0	2

Model option

si792 P	pH / ORP	**5**
si794 C	Conductive/Contacting Conductivity (2EL / 4EL)	**6**
si794 I	Inductive Conductivity (3700/7MA2200 sensors)	**7**
si794 D	Dissolved Oxygen	**8**
si794 D tr	Dissolved Oxygen trace	**9**

Language / Country Code Selection *please refer to Appendix E for further info*

Note:

Transmitter comes with individual testing report,
user manual ("DIN A6"), printed version english,
CD-ROM including manuals in 5 languages,
Quick start guide (printed version, 5 languages)
Instrument Manuals are currently availble in English, German, French, Spanish, Italian and Turkish

Optional Mounting assembly

LZY484 Panel Mount Installation Kit, for si79X Transmitter series, pk/1

LZY576 Pole Mounting Assembly Kit, for si79X Transmitter series
complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation

composed of:
LZY483 "Pipe Mount" Installation Kit for si79X Transmitter series, pk/1
LZY485 Weather guard, for si79X Transmitter series
HRO304 Mounting pipe, 1.8 m, 40mm Ø
ATS010 Stand
LZX416 Installation kit

Spare Parts

LZY487 Rear Housing, for si79X Transmitter series, pk/1

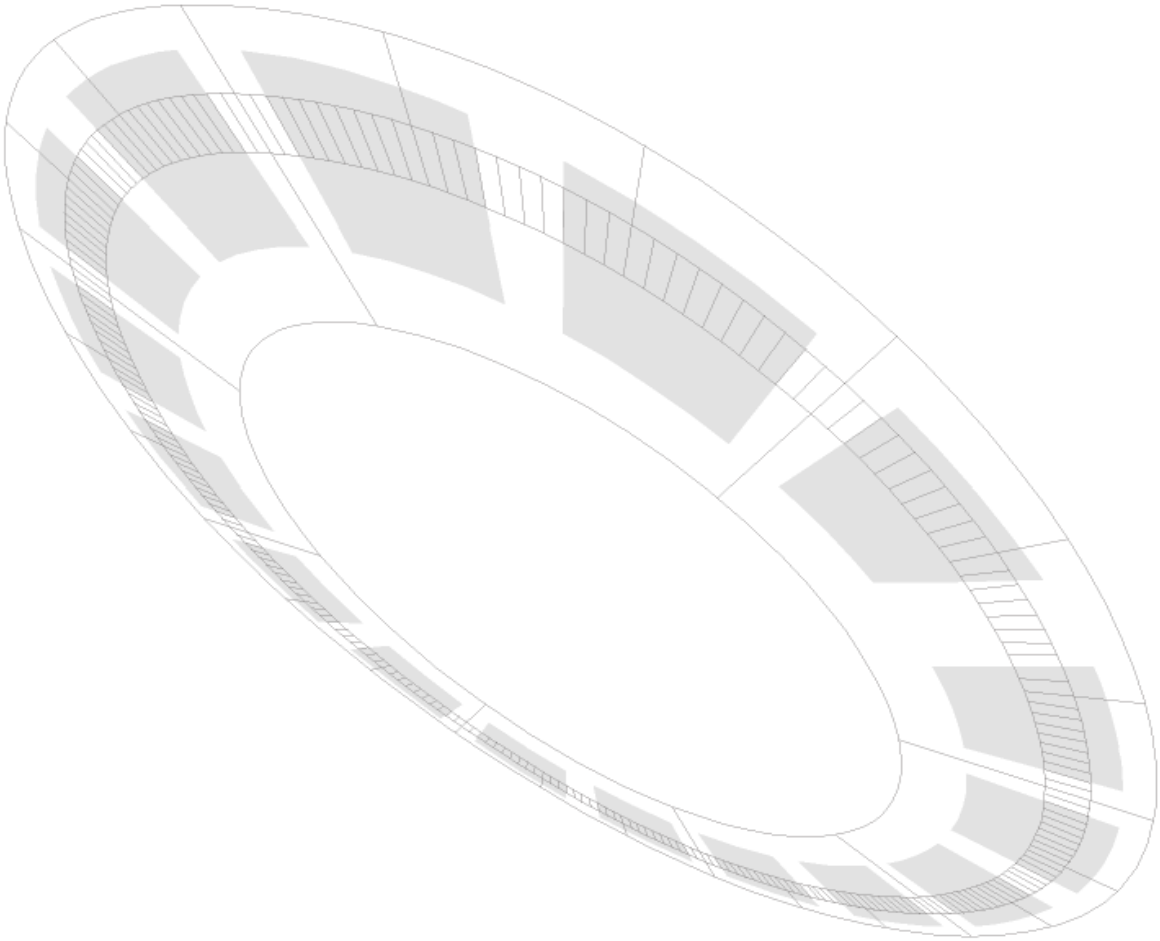
Documentation

DOC083.98.90130 Documentation Package, si794 Transmitter series, CD-ROM, pk/1
include Manuals, QuickStart Guides and Safety Instructions

DOC083.98.90130 SI794 P User Manual
DOC083.98.90130 SI794 I User Manual
DOC083.98.90130 SI794 C User Manual
DOC083.98.90130 SI794 D User Manual
DOC083.98.90130 SI794 D tr User Manual

Electrochemistry

Analytical Systems for pH/ORP/Conductivity and Dissolved Oxygen Measurement in Process



Electrochemistry

Controller overview

Analytical overview
Subject to change without notice

analog controller / transmitters → | digital controllers →





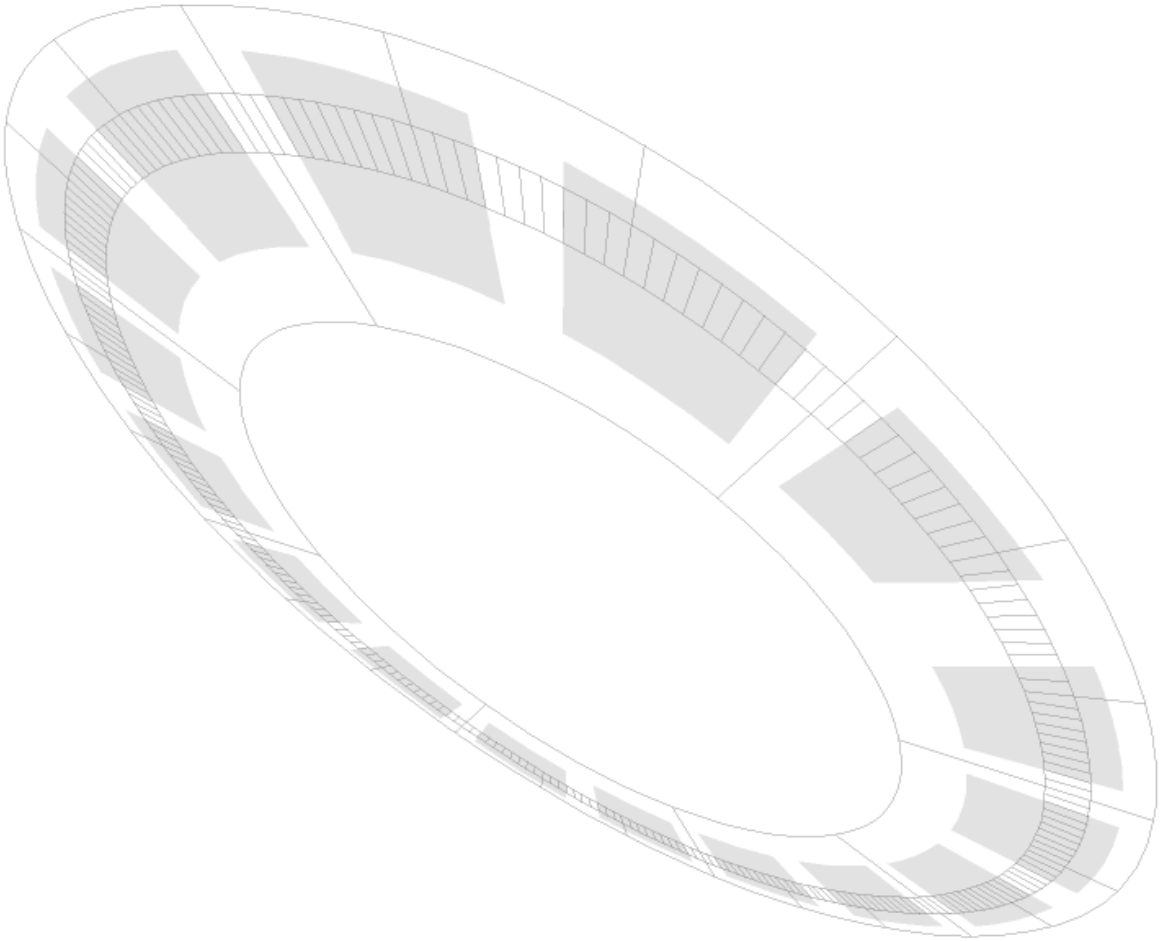


	MONEC series	si792	si792X	si794	sc60	sc100	sc1000
pH							
Conventional	X	X	X	X	X	X	X
Differential	-	X[B]	X[B]	-	X	X	X
ORP							
Conventional	X	X	X	X	X	X	X
Differential	-	X[B]	X[B]	-	X	X	X
Conductivity							
Conductive 2 EL	X	X	X	X	X	X	X
Conductive 4 EL	-	X	X	X	-	-	-
Inductive/Torroidal	X[1]	X	X[1]	X	X	X	X
Concentration	X[1]	X	X[1]	X	X	X	X
Dissolved Oxygen							
Drinking Water	-	X	X	X	X	X	X
Waste Water	-	X	X	X	X	X	X
Ultra-Pure	X	X	X	**si794D tr**	-	-	-
Food & Beverage	-	X	X	X	-	-	-
N° of Channels							
1	X	X	X	X	X	-	-
2	-	-	-	-	-	X	-
Multi	-	-	-	-	-	-	X
Communication Protocols							
I/O	**2 x I/O**	**1 x I/O**	**1 x I/O**	**2 x I/O**	**2 x I/O**	**2 x I/O**	**multiple**
HART	-	X	X	-	-		-
MODBUS	X	-	-	-	X	X	X
PROFIBUS PA	-	X	X	-	-	-	-
PROFIBUS DP	**DP V1.0**	-	-	-	**DP V1.0**	**DP V1.0**	**DP V1.0**
Foundation Fieldbus	-	X	X	-	-	-	-
	4 wire	2 wire	2 wire	4 wire	4 wire	4 wire	4 wire
Power	13..30 VAC 50/60 Hz 18...42 VDC 100...240 VAC 50/60Hz	14 ... 30 VDC for HART FISCO bus supply: 9 to 17.5 VDC; Linear barrier: 9 to 24 VDC for FF and PA		20-253 V AC/DC 45- 65 Hz	24 VDC -15%/+20% 100-230 VAC ± 10%, 50/60Hz		
Relays	0 or 4	-	-	2	3	3	internal or external
Enclosure rating	IP65 (NEMA4) (NEMA4X optional)	IP65 (NEMA4) (NEMA4X optional)	IP65 (NEMA4) (NEMA4X optional)	IP65 (NEMA4) (NEMA4X optional)	IP66 (NEMA 4X)	IP66 (NEMA 4X)	IP66 (NEMA 4X)

Notes: 1 depending on sensor model A requires 2 channel input B no ATEX Certification; US Certification: Class 1 Div1

Electrochemistry

Analytical Solutions for pH/ORP Measurement in Process



Electrochemistry pH

General overview

MONEC 9135

SI 792

SI 792 X

for EEX

Cable fixed length or Top connector	5m fixed cable	AS9 screw head	S7 screw head	TOP68 plug	S7 screw head	SMEK plug	10m fixed cable	S7 screw head	S7 screw head	TOP68 plug
Cable with top connector 3 m cable 5 m cable 10 m cable 20 m cable		Z359016,10110 Z359016,10120 Z359016,10122	LZY037 (5m) LZY031 (10m) Z359016,10122	LZX547 (5m) LZX534 (10m)	LZY037 (5m) LZY031 (10m) Z359016,10122	LZY021 (5m) LZY581 (10 m) LZY582 (20m)		LZY037 (5m) LZY031 (10m) Z359016,10122	LZY037 (5m) LZY031 (10m) Z359016,10122	LZX548 (5m) LZX516 (10m)
pH sensors & Temperature sensors										
Sensor model **Part No.**	8346 Z913S/P10/2 (Kit to order)	8362 Z08362=A=0000	LZY025 LZY025	LTLCON_PT100 LZX537	LZX885 LZX885	LZY027 LZY027	8350 series Z08350=X=000X	8418B Z368418,00000	8416 Z368416,00000	PRO140_PT100 LZX546
				LTLCON LZX536				Z368418,00000	Z368416,00000	PRO140 LZX545

Electrode specs										
pH range	5.5 ... 12	2...12	0 ... 14	2 ... 11	0 ... 14	2 ... 13	0 ... 14	0 ... 14	2...14	0 ... 14
Temperature	-10°C ... +80°C	0...80°C	-30°C ... 80°C	-20°C ... 50°C	0 ... +80°C	0°C ... +100°C	0°C ... +110°C	0°C ... +100°C	0°C ... +110°C	-5°C ... +135°C
p_{max} @ T_{max}	atmospheric	4 bar @ 25°C	max. 6 bar	max 3.5 bar		max. 10 bar	10 bar @ 80°C 3.5 bar @ 110°C	max 2.5 bar	16bar @ 25°C 6bar @ 100°C	max 34 bar1
Temperature sensor	Pt100	Pt100, class A	no	LTLCONPT100 Pt100 integrated LTLCON w/o	no	Pt1000	Pt100	no	no	PRO140PT100 Pt100 integrated PRO140 w/o
Reference electrode	refillable reference electrode with electrolyte reservoir	combination glass electrode for pure water applications	Liquid KCl electrolyte, refillable, Ag/AgCl	KCl, saturated KCl/AgCl crystal	EVEREF B double liquid junction, POLY-LITE Polymer	Polymer electrolyte, Ag/AgCl	Polymer electrolyte, KNO3 and KCl	Gel, Argenthal	Argenthal, XEROLYT (solid KCl gel)	Gel KCl/AgCl + KNO3
Electrode shaft material	see datasheet	see datasheet	Glass	PES (Polyethersulfon)	Glass	Glass	PPS (Polyphenylene Sulphide)	Glass	Glass	Glass
Diaphragm	open system		triple ceramic diaphragm	ring diaphragm porous Teflon	2 open holes	hole diapgragm	porous Teflon	ceramic junction	open junction	ring diaphragm, porous Teflon double
Application	Heavy-duty industrial probe for use in high caustic applications, e.g. neutralisation with lime; water contains fluoride and pH 3...6 or below, strong HF acid (>1%)	ultra-pure and pure water application	Boiler Feed and Ultra-pure water, water <100 µS/cm Conductivity, plating baths, critical media	Drinking water, ground water, surface water of low temperature (below 5°C) and low conductivity (10...100 µS/cm)	general purpose, withstand organic solvents, liquids with low ion concentration or partly aqueous samples	Service water, waste water, suspensions, food processing, organic solvents, hot acids and caustics	Horizontal, Vertical or up-side down mounting Water and WW Treatment, Coagulation and Flocculation Process, Monitoring and Control Pulp Stock Applications, Ore Separation	general application, drinking water	gel pH electrode for industry applications, pressurized gel for high pressure applications, samples contain proteins, sulfides, emulsion, suspensions, high acid solutions etc.	industrial process water, harsh conditions, high temperature, high pressure, sterilizable
not suitable for	samples with changing ORP potential	other applications than pure water		Temp > 5°C, conductivity > 100µS/cm	water contain fluoride with pH<6	water contain fluoride with pH<6	water contain fluoride with pH<6	sterilization, autoclaving process, water containing fluoride with pH<6	sterilization, autoclaving process, water containing fluoride with pH<6	water containing fluoride with pH<6

Pure Water		X	X							
Potable Water				specially for low temperature low conductivity	X	X	X > 100µS/cm	X > 100µS/cm		
Food & Beverage					X not sterilizable	X not sterilizable				X Sterilizable
In-process	X[1]				X	X	X	X	suited for high temperature/ high pressure applications	

Waste Water										
Neutralisation	X				X	X			X	
Industrial influent					X	X	X		X	
Municipal influent					X	X	X			
Aeration					X	X	X			
Digester										
Effluent					X	X	X			

Note: not suitable for media with changing ORP potential; suitable for critical media, e.g. plating baths, solvents etc.; recommended as Standard electrode for standard applications; recommended as Standard electrode for standard applications

SI 794

sc 60/100

sc1000

sc digital extension cables

LZY328
AD1200 sc

6120500.99
ADpHD

TOP68 plug	5m fixed cable	3 m fixed cable	S7 screw head	S7 screw head	6 m fixed cable	10 m fixed cable	10 m fixed cable	10 m fixed cable	7.7 m fixed cable
LZX548 (5m) LZX516 (10m)			LZY037 (5m) LZY031 (10m) Z359016,10122	LZY037 (5m) LZY031 (10m) Z359016,10122					
									
HIGHPH_PT100 LZX540	pHPULP_PT100 LZX475	PHRET_PT100 LZX477	Pt1000 LZY473	Pt1000 LZY029	pHD series PDXXX.99	pHD sc series DPDXXX.99	pHD S sc LXV427.99.10001	1200 S sc LXV426.99.10001	8362 sc 6178002
HIGHPH LZX539		PHRET LZX476							
1 ... 14	1 ... 14	0 ... 14			-2...141)	-2...141)	0 ... 14	0 ... 14	2 ... 12
0°C ... +80°C	-5°C ... 135°C	-5°C ... 135°C	-30°C ... +135°C	-30°C ... +135°C	-5 ... 95°C	-5 ... 70°C	0 ... 50°C	-5 ... 50°C	0 ... 80°C
3.5 bar	10 bar @ 25°C 7.0 bar @ 100°C 3.5 bar @ 120°C	max 15 bar	10 bar	10 bar	6.9bar@105°C	6.9 bar@70°C	max 2 bar overpressure	max 2 bar overpressure	4 bar @ 25°C
LZX540 Pt100 integrated LZX539 no	Pt 100	PHRETPT100 Pt100 integrated PHRET w/o			NTC300Ohm	NTC300Ohm	NTC300Ohm	Pt100	Pt100, class A
Gel KCl/AgCl	exterior EPH gel; interior KCl/AgCl	KCl/AgCl + KNO3 gel			Differential pH electrode with high impedance glass	Differential pH electrode with high impedance glass	Differential pH electrode with high impedance glass	combination glass electrode with EVEREF B double liquid junction, POLYLITE Polymer	combination glass electrode for pure water
PES (Polyethersulfon)	Stainless Steel	Stainless Steel	Stainless Steel, Mat. 1.4571	Glass	see datasheet	see datasheet	see datasheet	see datasheet	see datasheet
ring diaphragm, porous Teflon	ring diaphragm porous Teflon double	ring diaphragm porous Teflon double			salt bridge (pHD) with Kynar® (PVDF)			2 open holes	
suitable for high pH values, range of 9...14	Inline applications; optional rectractable; sterilizable suitable up to 15% TS content, Pulp, Paper, high temperature	Inline applications, high temperature, sterilizable	General purpose T-sensor for non-corrosive applications	General purpose T-sensor	PEEK: most process solutions Ryton: less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids; PD1P3.99 respectively DPD1P3.99 weak HF conc (<1%) or intermittent, when Fluorides are present, pH never below 6		less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids	less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions	pure water
	water contain fluoride with pH<6	waste water, water contain high solids: use PHPULP, water contain fluoride with pH<6			Ryton: not for very acidic and very alkaline solutions, Non-oxidizing organic chemicals have little effect; amines, aromatic compounds and halogenated compounds may cause swelling and softening over extended periods of time at elevated temperatures;		Ryton: oxidizing, concentrated acid, alkaline and salt solutions Stainless steel: no corrosive liquids or high chloride concentrations, water contain fluoride with	corrosive liquids or high chloride concentrations, water contain fluoride with pH<6	other applications than pure water and clean water
			X	X					X
			X	X	X	X			
			X	X					
specially for high pH	X	X	X	X	X	X			
specially for high pH	X	X	X	X	X	X	X	X	
	X		X	X	X	X	X	X	
			X	X		X	X	X	
			X	X		X	X	X	
			X	X	X	X			
			X	X		X	X	X	

recommended as low costs version
for retractable inline applications
with non-demanding conditions

Electrochemistry ORP

General overview

sc digital extension cables

for EEX

Cable fixed length or Top connector	10 m fixed cable	S7 screw head	S7 screw head	S7 screw head	6 m fixed cable	10 m fixed cable	10 m fixed cable	10 m fixed cable	7.7 m cable
Cable with top connector 3 m cable 5 m cable 10 m cable 20 m cable		LZY037 (5m) LZY031 (10m) Z359016,10122	LZY037 (5m) LZY031 (10m) Z359016,10122	LZY037 (5m) LZY031 (10m) Z359016,10122					
pH sensors & Temperature sensors									
Sensor model **Part No.**	8351 Z08351=C=0000	LZY028	Pt1000 LZY473	Pt1000 LZY029	pHD series RDXXX.99	pHD sc series DRDXXX.99	pHD S sc LXV427.99.20001	1200 S sc LXV426.99.20001	8362 sc 6178003

Electrode specs									
ORP range	± 1500 mV	± 2000 mV			± 1500 mV	± 1500 mV	± 2000 mV	± 1500 mV	± 1500 mV
Temperature	0°C ... +110°C	0°C ... +100°C	-30°C ... +135°C	-30°C ... +135°C	-5 ... 95°C	-5 ... 70°C	0 ... 50°C	-5 ... 50°C	0 ... 80°C
p_{max} @ T_{max}	10 bar @ 80°C 3.5 bar @ 110°C	max. 6 bar	10 bar	10 bar	6.9bar @ 105°C	6.9 bar @ 70°C	max 2 bar overpress	max 2 bar overpressure	4 bar @ 25°C
Temperature sensor Redox sensing element	non Platinum	non Platinum			NTC300Ohm Platinum Optional: Gold	NTC300Ohm	non Platinum	non Platinum	Pt100, class A Platinum
Reference electrode	Polymer electrolyte, KNO3 and KCl	Gel electrolyte, non-refillable Ag/AgCl			Differntial pH electrode with high impedance glass	Differntial pH electrode with high impedance glass	Differntial pH electrode with high impedance glass	combination glass electrode with EVEREF B double liquid junction, POLYLITE Polymer	combination glass electrode for pure water
Electrode shaft material	PPS (Polyphenylene Sulphide)	Glass (Duran)	Stainless Steel, Mat. 1.4571	Glass	see datasheet	see datasheet	see datasheet	see datasheet	see datasheet
Diaphragm	porous Teflon	Glass			salt bridge (pHD) with Kynar® (PVDF)	salt bridge (pHD) with Kynar® (PVDF)	salt bridge (pHD) with Kynar® (PVDF)	Glass	Glass
Application	General purpose Horizontal, Vertical or up-side down mounting	General purpose	General purpose T-sensor for non-corrosive applications	General purpose T-sensor	PEEK: most process solutions Ryton: less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids; PD1R3.99 respectively DPD1R3.99 for weak HF conc (<1%) or intermittent, when Fluorides are present, pH never below 6		less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids	less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions	pure water
not suitable for	water contain fluoride with pH<6	water contain fluoride with pH<6			Ryton: not for very acidic and very alkaline solutions, Non-oxidizing organic chemicals have little effect; amines, aromatic compounds and halogenated compounds may cause swelling and softening over extended periods of time at elevated temperatures		Ryton: oxidizing, concentrated acid, alkaline and salt solutions Stainless steel: no corrosive liquids or high chloride concentrations, water contain fluoride with pH<6	corrosive liquids or high chloride concentrations, water contain fluoride with pH<6	other applications than pure water

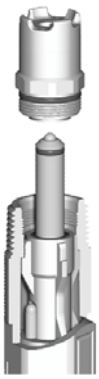
Pure Water		X							X
Potable Water	X	X			X	X			
Food & Beverage	X not sterilizable	X not sterilizable							
In-process	X	X			X	X			

Waste Water									
Neutralisation		X			X	X	X	X	
Industrial influent	X	X			X	X	X	X	
Municipal influent	X	X				X	X	X	
Aeration	X	X				X	X	X	
Digester					X	X			
Effluent	X	X				X	X	X	

pHD pH / pHD ORP S sc

Digital Differential pH & ORP Immersion sensors (DataSheet DOC053.52.03255)

pHD sc - high class differential sensors for operation life



pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode. The end result is unsurpassed measurement accuracy,reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.

Due to its special design, the reference system of the pHD S sc electrode is protected by a salt-bridge and does not come in contact with the media being immersed.

As a result, poisoning of the reference electrode cannot attack the electrode and reduces necessary cleaning and maintenance intervals.

Controller compatibility

sc60/100

sc1000

Technical Data

Subject to change without notice

	pHD S sc pH	pHD S sc ORP
Sensor style	Differential pH sensor	Differential ORP sensor with Platinum/Titanium electrode
Temperature sensor	NTC300 integrated	NTC300 integrated
Measuring range		
pH/ORP	0 ... 14 pH	±2000 mV
Temperature	-5°C ... 75°C	-5°C ... 75°C
Accuracy		
pH/ORP	± 0.02 pH	± 5 mV
Temperature	± 0.5°C	n.a.
Sensitivity	± 0,01 pH	± 0.5 mV
Stability	0.03 pH / 24h non cumulative	2 mV/24h non cumulative
Response time T_{90}		
pH, mV	T90 < 5 sec	T90 < 5 sec
Temperature	T90 < 2 min	T90 < 2 min
Temp. compensation	Automatic or manual	none
Calibration	Automatic - 1 or 2 point with buffer, manual 1 or 2 point with buffer	Manual 1 point, factory calibrated
Process connection	Immersion style, chain or pole mounting with appropriate mounting hardware	
Sample pressure p_{max}	20 m immersion depth (corresponding to 2 bar)	
Flow velocity v_{max}	3 m/s	
Temperature		
Operation	-5°C ... 50 °C	
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing	
Materials		
Sensor Housing	Stainless steel metal housing with Ryton® (PVDF) ends and salt bridge	
Sensor cable	Polyurethane, 4 conductor with shield, rated to 105°C	
other materials	Ryton (PVDF) Salt Bridge: Ryton (PVDF) Glass process electrode Titanium Ground electrode Viton-O-ring seal	Ryton (PVDF) Salt Bridge: Ryton (PVDF) Glass & Platinum process electrode Titanium Ground electrode Viton-O-ring seal
Sensor cable	10 m hardwired, with encapsulated IP 68 connector, extendable with sc sensor cables up to 110m	
Power consumption	< 7 W	
Dimensions	44 mm x 342 mm (Ø x L)	
Weight	approx. 0.9 kg	
Controller compatibility	any sc controller out of sc controller series (sc 60/100/1000)	
Warranty	1 year warranty / 24 month pro-rated replacement	

pHD pH / pHD ORP S sc

Digital Differential pH & ORP Immersion sensors (DataSheet DOC053.52.03255)

Part No.	Designation
LXV427.99.10001	**pHD S sc**, Digital sensor, with 10 m connection cable, without sc controller

L	X	V	4	2	7	.	9	9	.	X	0	0	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Measure option

pH sensor (pH 0...14) **1**
ORP sensor with Platinum electrode (± 2000 mV) **2**

Note:

sc Digital Controller, and sc extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
2 Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Replacements / Consumables

Replacement Salt Bridge

The double junction salt bridge on the standard cell of all Hach pHD™ Differential technique sensors is field-replaceable. Each salt bridge has a ceramic inner junction, Viton O-ring, and contains binary, equi-transferrant fill solution. (Salt bridges are shipped in a salt solution.)

	pHD sc & pHD sensors sensor body material	Salt bridge material outer junction	
SB-P1SV	PEEK	Kynar (PVDF)	
SB-R1SV	Ryton	Kynar (PVDF)	

5H1304	O-ring, Viton, pk/1
5H1306	O-ring, EDPM, pk/1
25M1A1025-115	Standard Cell Solution (equitransferrant pH 7 buffer, 500 ml)

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

5867000 Digital Termination Box
Only used when the desired length of cable between the digital sensor/digital gateway and sc digital controller (sc60 or sc100) is greater then 100 m (max. 400 m).

Cleaning Systems for pHD sc and pHD Sensors

1000A3335-006 Cleaning Systems for pHD sc and pHD Sensors, complete system, 230 VAC, pk/1
Air blast cleaning system, 230 V, includes Kynar® (PVDF) washer head with 7.6 m (25 ft) tubing and quick connect fitting, and a compressor in a NEMA 4X enclosure

1000A3335-004 Air/Water blast cleaning - head only, pk/1
includes ¼" barb fitting. This washer head is intended for immersion applications with a user-supplied air or water wash system only.

Documentation

DOC023.52.03251 Operating Manual pHD S sc pH/ORP sensor, GB *charged if ordered separately*

The ADpHD Digital Gateway allows to operate analog differential electrodes by any sc controller. This might be of interest if the process conditions exceed the specifications of a digital pHD sensor model (with inbulit AD converter).

A complete system consists of the following components and have to be ordered individually.

⇨ ADpHD Digital Gateway
⇨ Digital extension cable to connect the Gateway to the sc Digital Controller
⇨ Suitable Hach Lange pHD-pH or pHD-ORP electrodes

Controller compatibility

sc60/100

sc1000

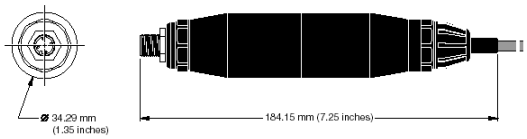
Technical Data
Subject to change without notice

	AD phD sc Digital Gateway
Designation	AD converter to operate analog pHD-pH/ORP sensors with sc controller series
	pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode. The end result is unsurpassed measurement accuracy,reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.
Connectors	
output (to sc Controller)	using sc digital cables with sc plugs
Electrode input	using suitable electrode cables with bare leads to be connected to digital gateway
Temperature	
Operation	-20°C ... 60°C (-4 to 140 °F)
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing
Materials	
Gateway housing	ABS plastic
Dimensions	3.4 cm x 17.5 cm (1⅜ x 7") (Ø x L)
Weight	145 g (5 oz)
Controller compatibility	any sc controller out of sc controller series (sc 60/100/1000)
Warranty	2 years

Part No.	**Designation**
6120500.99	**AD pHD**, Digital Gateway for analog pHD-pH and pHD-ORP sensors

6	1	2	0	5	0	0	.	9	9	

Language / Country Code Selection *please refer to Appendix E for further info*



pH Measurement

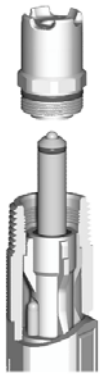
Differential pH sensors (DataSheet DOC053.52.00013)

pHD and pHD sc - high class differential sensors for operation life

pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode.
The outcome is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.

Due to its special design, the reference system of the pHD S sc electrode is protected by a salt-bridge and does not come in contact with the media being immersed.

As a result, poisoning of the reference electrode cannot attack the electrode and reduces necessary cleaning and maintenance intervals.



Technical Data

Subject to change without notice

	pHD-pH sc	pHD-pH
Designation	Digital Differential pH sensor with inbuilt digital electronics	Analog Differential pH sensor
Temperature sensor	NTC300 integrated	
Measuring range		
pH	-2 ... 14 pH	
Temperature	-5°C ... 70°C	-5°C ... 95°C
Accuracy		
pH	± 0.02 pH	
Temperature	± 0.5°C	
Sensitivity	± 0,01 pH	
Stability	2 mV/24h non cumulative	
Response time T_{90}		
pH, mV	< 5 sec	
Temperature	< 2 min	
Temperature compensation	Automatic in specified range or manually fixed at a user-entered temperature; additional selectable temperature correction factors (ammonia, morpholine, or user-defined pH/°C linear slope) available for pure water automatic compensation from 0.0 to 50 °	
Calibration	Automatic - 1 or 2 point with buffer, manual 1 or 2 point with buffer	
Process connection	Sensors are available in four mounting styles - convertible, insertion, sanitary, and immersion	
Sample pressure p_{max}	6.9 bar @ 70°C	6.9 bar @ 105°C
Flow velocity v_{max}	3 m/s (10 ft./sec)	
Temperature		
Operation	-5°C ... 70°C	-5°C ... 95°C
Storage	-30°C ... 70°C; 95 % relative humidity, non-condensing	
Materials		
Sensor Housing	PEEK® or Ryton® (PVDF) body PEEK: recommended for strong Acids RYTON: Suitable in almost every applications, for strong caustics and weak acids not suitable for strong acids	
Sensor cable	PUR (Polyethylene) 5-conductor, shielded, rated to 105 °C (221 °F), 10 m (33 ft) standard length	Five-conductor (+ 2 isolated shields) cable with XLPE (cross-linked poly-ethylene) jacket; rated to 150 °C (302 °F); 6 m (20 ft) standard length
other materials	salt bridge of matching material with Kynar® junction, glass process electrode, titanium ground electrode, and Viton® O-ring seals	
Controller compatibility	sc controller series	sc controller series with AD pHD
Power consumption	< 7 W	
Dimensions	please refer to Technical DataSheet	
Weight	0.316 kg (11Oz)	
Warranty	1 year warranty / 24 month pro-rated replacement	

Note: For technical drawings and schemes please refer to the Technical DataSheet.

pH Measurement

pHD Analog Combination pH Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**

Analog pHD pH sensors comes with a built-in preamplifier, integral cable 6 m terminated with stripped and tinned wires; requires a digital gateway and sc extension cable for operation with any sc controller.

PDXXX.99 **pHD™**, Analog Differential pH Sensors

P	D	X	X	X	.	9	9

Sensor body material and style option

PEEK (Polyetheretherketone)

Convertible style (1" NPT at both ends)[A]	1	P
Insertion style (no threads on electrode end)	2	P
Sanitary style (2" flange for Tri-Clover fitting)	3	P

Ryton (Polyphenylenesulfide)

Convertible style (1" NPT at both ends)[A]	1	R

Electrode glass option

Glass, wide-range (0-14 pH; general purpose)	1
Glass, HF-resistant	3

Note:

sc Digital Controller, AD pHD Gateway, and sc connection/extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box (5867000) is required.
The maximum cable length is limited to 410m in total then. (for sc60/100 only; not for sc1000)
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

[A] When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
The protector threads onto the end of the sensor:

1000F3374-002	Sensor protector, made of PEEK
1000F3374-003	Sensor protector, made of Ryton

6120500.99 **AD pHD**, Digital Gateway for analog pHD-pH and pHD-ORP sensors

6	1	2	0	5	0	0	.	9	9

Language / Country Code Selection *please refer to Appendix E for further info*

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Note: For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

pH Measurement

pHD Digital Combination pH Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**

Digital sensors include all built-in digital electronics and integral 10 m cable, terminated with sc connector, ready to use with any sc controller out of the sc digital controller series.

DPDXXX.99 **pHD™**, Digital Differential pH Sensors

D	P	D	X	X	X	.	9	9	

Sensor body material and style option

PEEK (Polyetheretherketone)

Convertible style (1" NPT at both ends)[A]	1	P
Insertion style (no threads on electrode end)	2	P
Sanitary style (2" flange for Tri-Clover fitting)	3	P

Ryton (Polyphenylenesulfide)

Convertible style (1" NPT at both ends)[A]	1	R

Electrode glass option

Glass, wide-range (0-14 pH; general purpose)	1
Glass, HF-resistant	3

Note:

sc Digital Controller, and sc extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

[A] When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
The protector threads onto the end of the sensor:

1000F3374-002	Sensor protector, made of PEEK
1000F3374-003	Sensor protector, made of Ryton

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Note: For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

pH Measurement

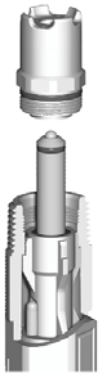
Differential ORP sensors (DataSheet DOC053.52.00013)

pHD and pHD sc -
high class differential sensors for operation life

pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode.
The end result is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.

Due to its special design, the reference system of the pHD S sc electrode is protected by a salt-bridge and does not come in contact with the media being immersed.

As a result, poisoning of the reference electrode cannot attack the electrode and reduces necessary cleaning and maintenance intervals.



Technical Data

Subject to change without notice

	pHD-ORP sc	pHD-ORP
Designation	Digital Differential ORP sensor with inbuilt digital electronics	Analog Differential ORP sensor
Temperature sensor	NTC300 integrated	
Measuring range		
ORP	± 2000 mV	
Temperature	-5°C ... 70°C	-5°C ... 95°C
Accuracy		
ORP	± 5 mV	
Temperature	± 0.5°C	
Sensitivity	± 0,01 pH	
Stability	2 mV/24h non cumulative	
Response time T_{90}		
ORP, mV	< 5 sec	
Temperature	< 2 min	
Temperature compensation	none	
Calibration	1 point with ORP reference solution	
Process connection	Sensors are available in four mounting styles - convertible, insertion, sanitary, and immersion	
Sample pressure p_{max}	6.9 bar @ 70°C	6.9 bar @ 105°C
Flow velocity v_{max}	3 m/s (10 ft./sec)	
Temperature		
Operation	-5°C ... 70°C	-5°C ... 95°C
Storage	-30°C ... 70°C; 95 % relative humidity, non-condensing	
Materials		
Sensing element	Platinum or Gold (Gold is recommended for media containing zinc, cyanide, cadmium or nickel)	
Sensor Housing	PEEK® or Ryton® (PVDF) body PEEK: recommended for strong Acids RYTON: Suitable in almost every applications, for strong caustics and weak acids not suitable for strong acids	
Sensor cable	PUR (Polyethylene) 5-conductor, shielded, rated to 105 °C (221 °F), 10 m (33 ft) standard length	Five-conductor (+ 2 isolated shields) cable with XLPE (cross-linked poly-ethylene) jacket; rated to 150 °C (302 °F); 6 m (20 ft) standard length
other materials	salt bridge of matching material with Kynar® junction, glass process electrode, titanium ground electrode, and Viton® O-ring seals	
Controller compatibility	sc controller series	sc controller series with AD pHD
Dimensions	please refer to Technical DataSheet	
Weight	0.316 kg (11Oz)	
Warranty	1 year warranty / 24 month pro-rated replacement	

Note: For technical drawings and schemes please refer to the Technical DataSheet.

ORP Measurement

pHD Analog Combination ORP Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**

Analog pHD ORP sensors comes with a built-in preamplifier, integral cable 6 m terminated with stripped and tinned wires; requires a digital gateway and sc extension cable for operation with any sc controller.

RDXXX.99 **pHD™**, analog Differential ORP Sensors

R D X X X . 9 9

Sensor body material and style option

PEEK (Polyetheretherketone)

Convertible style (1" NPT at both ends)[A] ..... 1 P
Insertion style (no threads on electrode end) ..... 2 P
Sanitary style (2" flange for Tri-Clover fitting) ..... 3 P

Ryton (Polyphenylenesulfide)

Convertible style (1" NPT at both ends)[A] ..... 1 R

Sensing element option

Platinum 5
Gold (recommended for media containing zinc, cyanide, cadmium or nickel) 6

Note:

sc Digital Controller, AD pHD Gateway, and sc connection/extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box (5867000) is required.
The maximum cable length is limited to 410m in total then. (for sc60/100 only; not for sc1000)
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

[A] When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
The protector threads onto the end of the sensor:

1000F3374-002 Sensor protector, made of PEEK
1000F3374-003 Sensor protector, made of Ryton

6120500.99 **AD pHD**, Digital Gateway for analog pHD-pH and pHD-ORP sensors

6 1 2 0 5 0 0 . 9 9

Language / Country Code Selection *please refer to Appendix E for further info*

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Note: For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

ORP Measurement

pHD Digital Combination ORP Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**

Digital sensors include all built-in digital electronics and integral 10 m cable, terminated with sc connector, ready to use with any sc controller out of the sc digital controller series.

DRDXXX.99 **pHD™**, Digital Differential ORP sensors

D	R	D	X	X	X	.	9	9	

Sensor body material and style option

PEEK (Polyetheretherketone)

Convertible style (1" NPT at both ends)[A]	1	P
Insertion style (no threads on electrode end)	2	P
Sanitary style (2" flange for Tri-Clover fitting)	3	P

Ryton (Polyphenylenesulfide)

Convertible style (1" NPT at both ends)[A]	1	R

Sensing element option

Platinum	5
Gold (recommended for media containing zinc, cyanide, cadmium or nickel)	6

Note:

sc Digital Controller, and sc extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

[A] When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
The protector threads onto the end of the sensor:

1000F3374-002	Sensor protector, made of PEEK
1000F3374-003	Sensor protector, made of Ryton

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Note: For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

pH & ORP Measurement

pHD and pHD sc Combination pH/ORP sensors - common accessories

Part No. **Designation**

pHD Sensor replacements (for analog and digital models)

Replacement Salt Bridge

The double junction salt bridge on the standard cell of all Hach pHD™ Differential technique sensors is field-replaceable. Each salt bridge has a ceramic inner junction, Viton O-ring, and contains binary, equi-transferrant fill solution. (Salt bridges are shipped in a salt solution.)

	pHD sc & pHD sensors sensor body material	Salt bridge material outer junction	
SB-P1SV	PEEK	Kynar (PVDF)	
SB-R1SV	Ryton	Kynar (PVDF)	

5H1304 O-ring, Viton, pk/1
5H1306 O-ring, EDPM, pk/1

25M1A1025-115 Standard Cell Solution for pHD and pHD sc sensors
specially formulated solution to replenish standard cell chamber in pHD™ Differential sensors while replacing salt bridge; packaged in resealable 500 ml bottle

25M8A1002-101 Gel Powder, for high temperature applications, pk/2 grams

Sensor storage caps (Replacement)

1000F3374-001 Sensor storage cap for Convertible and Immersion Style Sensor (Replacement)
1000A3378-001 Sensor storage cap for Insertion and Sanitary Style Sensors (Replacement)

Digital extension cable (between sc controller and probe)

LZX848 Digital Extension Cable, 5 m
LZX849 Digital Extension Cable, 10 m
LZX850 Digital Extension Cable, 15 m
LZX851 Digital Extension Cable, 20 m
LZX852 Digital Extension Cable, 30 m
LZX853 Digital Extension Cable, 50 m

5867000 Digital Termination Box
Only used when the desired length of cable between the digital sensor/digital gateway and sc digital controller (sc60 or sc100) is greater then 100 m (max. 400 m).

Cleaning Systems for pHD sc and pHD Sensors

1000A3335-006 Cleaning Systems for pHD sc and pHD Sensors, complete system, 230 VAC, pk/1
Air blast cleaning system, 230 V, includes Kynar® (PVDF) washer head with 7.6 m (25 ft) tubing and quick connect fitting, and a compressor in a NEMA 4X enclosure

1000A3335-005 Cleaning Systems for 1" pHD sc and pHD sensors for 115 VAC operation

1000A3335-004 Air/Water blast cleaning - head only, pk/1
includes ¼" barb fitting. This washer head is intended for immersion applications only with a user-supplied air or water wash system.

pH/ORP Measurement

1200 S sc Digital Immersion sensors (DataSheet DOC053.52.03253)

The 1200 S sc sensor is based on a high quality pH combined electrode.
The perforated membrane combined with a polymerised solid electrolyte makes this electrode particulary insensitive to soiling and thus garantuees low user maintenance.

The probe is specially suitable for soiled media, like biological treated waste water (municipal and/or industrial) or process water.

The digital technology design allows these sensors to be combined with any other sc sensor, probe or analyzer as required.

Controller compatibility

sc60/100

sc1000

Technical Data

Subject to change without notice

	1200 S sc pH	1200 S sc ORP
Sensor style	Combination sensor	Combination sensor with Platinum electrode
Temperature sensor	Pt100 integrated	Pt100 integrated
Reference system	Ag/AgCl polymer	
Membrane	Perforated membrane	
Measuring range		
pH/ORP	0 ... 14 pH	±1500 mV
Temperature	-5°C ... 50°C	-5°C ... 50°C
Accuracy		
pH/ORP	± 0.02 pH	± 5 mV
Temperature	± 0.2°C	n.a.
Response time T_{90}		
pH, mV	T90 < 15 sec	T90 < 15 sec
Temperature	T90 < 2 min	T90 < 2 min
Temperature compensation	Automatic or manual	none
Calibration	Automatic - 1 or 2 point with buffer, manual 1 or 2 point with buffer	Manual - 1 point, factory calibrated
Process connection	Immersion style, chain or pole mounting with appropriate mounting hardware	
Sample pressure p_{max}	20 m immersion depth respectively 2 bar over-pressure	
Flow velocity v_{max}	4 m/s	
Temperature		
Operation	-5°C ... 50 °C	
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing	
Materials		
Sensor Housing	Stainless steel metal housing	
Sensor cable	Polyurethane	
other materials	PPS	PPS, Glass/platinum
Sensor cable	10 m hardwired, with encapsulated IP 68 connector, extendable with sc sensor cable up to 110m	
Power consumption	< 7 W	
Dimensions	42 mm x 504 mm (Ø x L)	
Required Maintenance:	Change of sealing 1x/2 years (after 1000 hours)	
Weight	approx. 1 kg	
Controller compatibility	any sc controller out of sc controller series (sc 60/100/1000)	
Warranty	24 month for sensor excluding pH/ORP sensor	

pH / ORP Measurement

1200 S sc Digital Immersion sensors (DataSheet DOC053.52.03253)

Part No.	Designation
LXV426.99.10001	**1200-S sc Digital sensor**, with 10 m connection cable, without sc controller

L	X	V	4	2	6	.	9	9	.	X	0	0	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Sensor model option

pH sensor (pH 0...14) **1**

ORP sensor with Platinum electrode (± 1500 mV) **2**

Note: The sensors includes built-in digital electronics, a replaceable Ø12mm pH or ORP combination electrode and integral 10 m cable terminated with connector for the sc digital controller series.
sc Digital Controller, AD pHD Gateway, and sc connection/extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Replacements

LZX889	1200 S sc, pH electrode with fitting (Replacement)	
LZX890	1200 S sc, ORP electrode with fitting (Replacement)	
LZX899	Protection cap for electrode, replacement	

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Documentation

Operation Manual 1200 S sc pH/ORP sensor, GB *charged if ordered separately*

pH / ORP

1200 sc Digital Combination pH/ORP Sensors (DataSheet DOC053.52.03255)

The 1200 sc is a collective product name for a package which consists of a Hach Lange analog Combination pH or ORP electrode and a AD1200 sc Digital Gateway. This product allows any Hach Lange combination electrode which is listed in the following to be operated by a sc controller.

A complete system consists of the following components
and have to be ordered individually.

⇨ AD1200 sc Digital Gateway
⇨ Digital extension cable to connect the Gateway to the sc Digital Controller
⇨ Suitable Hach Lange analog pH/ORP combination electrode
⇨ Separate analog sensor cables if required

Technical Data

Subject to change without notice

	AD1200 sc Digital Gateway
Designation	AD converter to operate analog pH or ORP combination sensors with sc controller series
T-sensor compatibility	Pt100 and Pt1000
Connectors	
output (to sc Controller)	using sc digital cables with sc plugs
Electrode input	using suitable electrode cables with bare leads to be connected to digital gateway
Special notes	Electrode cables must have a diameter between 5.6 ... 6.5 mm Ø to ensure IP68 protection rate (suitable cables e.g. LZX548 and LZX546), otherwise the Gateway adapter set LZY288 is recommended
Temperature	
Operation	–20 ... 60 °C (-4 to 140 °F)
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing
Materials	
Gateway housing	ABS plastic
Dimensions	3.4 cm x 17.5 cm (1⅜ x 7") (Ø x L)
Weight	145 g (5 oz)
Controller compatibility	any sc controller out of sc controller series (sc 60/100/1000)
Warranty	2 years

Part No.	**Designation**
6120600.99	**AD pHD**, Digital Gateway for conventional analog pH and ORP sensors

6	1	2	0	6	0	0	.	9	9	

Language / Country Code Selection *please refer to Appendix E for further info*

Optional accessories

LZY288 Cable gland kit for AD1200sc

This kit allows the connection of Analon, Polymetron or other HACH LANGE electrodes with integrated or external temperature sensors to the gateway.
consisting of:
1 assembling instruction, 1 adapter for gateway housing, 1 cable gland
5 Different rubber inlays for sensor cables (1x3 mm, 2x3 mm, 1x 3+6 mm, 2x5 mm, 1x6...8 mm)

alternatively

LZY328 Kto AD1200 sc, Digital Gateway with Cable Gland Kit
consisting of: 6120600 + LZY288

Note:
sc Digital Controller, and sc extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m (using sc digital extension cables).

pH sensors

Ø12mm 120mm Standard electrodes

Sensors Specs	pH combination electrode	pH combination electrode	pH combination electrode with PT1000	pH combination electrode "PRO140"	pH combination electrode "PRO140" with PT100	pH combination electrode "HighPH"	pH combination electrode "HighPH" with PT100	pH combination electrode
								
Application	Boiler-feed water and ultra-pure water with conductivities <100 µS/cm; plating baths, critical media	Service water, waste water, suspensions, food precessing, organic solvents, hot acids and caustics	Service water, waste water, suspensions, food precessing, organic solvents, hot acids and caustics	General purpose pH process electrode for harsh operating conditions; in particular for high temperature and/or high pressure applications; sterilizable (suitable for SIP, CIP Applications)		pH process electrode in particular for high pH applications in range of 9...14		general purpose, withstand organic solvents, liquids with low ion concentration or partly aqueous samples
Measuring range	pH 0 ... 12	pH 2 13	pH 2 13	pH 0 ... 14		pH 1 14		pH 0 ... 14
Permissible Tmax	-30°C ... + 80°C	0°C ... + 100°C	0°C ... + 100°C	0 ... 135°C		0°C ... + 80°C		0 ... +80°C
Permissible pmax @ Tmax	6 bar	10 bar	10 bar	16 bar		3.5 bar		
Reference electrode	liquid KCl electrolyte, refillable, triple ceramic diaphragm, Ag/AgCl	Polymer, capillary precision glass diaphragm, Ag/AgCl	Polymer electrolyte, hole diaphragm, Ag/AgCl	KCl/AgCl + KNO3-Gel, double ring diaphragm, porous Teflon Reference: Ag/AgCl		KCl/AgCl ring diaphragm, porous Teflon		EVEREF B double liquid junction, POLYLITE Polymer
Electrode shaft material	Glass (Duran)	Glass (Duran)	Glass (Duran)	Glass	Glass	PES (Polyethersulfon)		Glass
Top connector plug	S7 type	S7 type	SMEK type	Top 68 type	Top 68 type	Top 68 type	Top 68 type	S7 type
Plug/cable combination								
5 m cable		LZY037	LZY021	LZX548	LZX548	LZX548	LZX548	LZY037
10 m cable		LZY031	LZY581	LZX516	LZX516	LZX516	LZX516	LZY031
20 m cable		Z359016,10122	LZY582	-	-	-	-	Z359016,10122
Special cable for sensor monitoring								
5 m cable	n.a.	LZY020	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Thermometer	none	none	inbuild Pt1000	none	Pt100 inbuilt	none	Pt100 inbuilt	none
Process connection	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Dimensions	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm
Weight	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg
Order Number:	LZY025	LZY023	LZY027	LZX545	LZX546	LZX539	LZX540	LZX885
DataSheet	DOC053.52.90096	DOC053.52.90093	DOC053.52.90093	DOC053.52.90093	DOC053.52.90093			

pH & Temperature sensors

Ø12mm 120mm Standard electrodes continued

Sensors Specs	pH combination electrode "LTLCON"	pH combination electrode "LTLCON" with PT100	pH combination electrode "8418B"	pH combination electrode "8416"
				
Application	pH process electrode for Drinking water, ground water, surface water applications, in particular with low temperature (below 5°C) and low conductivity (10...100 µS/cm) characteristics		pH process electrode for Drinking Water and non-demanding general purpose application	gel pH electrode for industrial applications, pressurized gel for high pressure applications, samples contain proteins, sulfides, emulsion, suspensions, high acid solutions etc.
Measuring range	pH 2 ... 11		pH 0 ... 14	pH 2 ... 14
Permissible Tmax	-20°C ... 50°C		0 ... +100°C	0 ... +110°C
Permissible pmax @ Tmax	3.5 bar		2.5 bar	16bar @ 25°C 6bar @ 100°C
Reference electrode	KCl gel, saturated KCl/AgCl crystal		Gel, Argenthal ceramic junction	Argenthal, XEROLYT (solid KCl gel) open junction
Electrode shaft material	PES (Polyethersulfon)		Glass	Glass
Top connector plug	Top 68 type	Top 68 type	S7 type	S7 type
Plug/cable combination				
5 m cable	LZX547 (2 wire)	LZX548 (4-wire)	LZY037	LZY037
10 m cable	LZX534 (2 wire)	LZX516 (4-wire)	LZY031	LZY031
20 m cable	-	-	on request	on request
Special cable for sensor monitoring				
5 m cable	n.a.	n.a.	n.a.	n.a.
Thermometer	none	Pt100 inbuilt	none	none
Process connection	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Dimensions	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm
Weight	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg
Order Number:	LZX536	LZX537	Z368418,00000	Z368416,00000
DataSheet				

Thermometer Pt1000	Thermometer Pt1000	Thermometer Pt100
		
All standard applications	All non-corrosive applications, typically used in chemical industries and Power Plants	high durability even for demanding applications like in Petrochemical industry and Electroplating processes
-30°C ... +135°C	-30°C ... +135°C	-30°C ... +150°C
10 bar @ 135°C	10 bar @ 135°C	10 bar @ 150°C
n.a.	n.a.	n.a.
Glass (Duran)	Stainless Steel, Mat. 1.4571	PVDF
S7 type	S7 type	3 m fixed cable
LZY037	LZY037	
LZY031	LZY031	
Z359016,10122	Z359016,10122	
n.a.	n.a.	n.a.
Pt1000 (2-wire)	Pt1000 (2-wire)	Pt100 (3-wire)
Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 110 mm
appr. 0.15 kg	appr. 0.15 kg	appr. 0.10 kg
LZY029	LZY473	Z368495,00000
DOC053.52.90091	DOC053.52.90091	DOC053.52.90091

pH sensors

¾" and special electrodes

Sensors Specs	pH combination electrode 8350 series	pH combination electrode "pHPULP_Pt100"	pH combination electrode "'pHRET"	pH combination electrode "'pHRET_Pt100"	pH combination electrode 8346
					
Application	Horizontal, Vertical or up-side down mounting Water and WW Treatment, Coagulation and Flocculation Process, Monitoring and Control Pulp Stock Applications, Ore Separation	Inline applications; optional rectractable; sterilizable suitable up to 15% TS content, Pulp, Paper, high temperature	Inline applications, high temperature, sterilizable	Inline applications, high temperature, sterilizable	Heavy-duty industrial probe for use in high caustic applications, e.g. neutralisation with lime; water contains fluoride and pH 3...6 or below, strong HF acid (>1%)
Measuring range	pH 0 ... 14 (1)	pH 1 ... 14	pH 0 ... 14	pH 0 ... 14	pH 5.5 ... 12
Permissible Tmax	0°C ... +110°C (1)	-5°C ... 135°C	-5°C ... 135°C	-5°C ... 135°C	-10°C ... +80°C
Permissible pmax @ Tmax	10 bar @ 80°C 3.5 bar @ 110°C	10 bar @ 25°C 7.0 bar @ 100°C 3.5 bar @ 120°C	max 15 bar	max 15 bar	atmospheric
Reference electrode	Polymer electrolyte, KNO3 and KCl	exterior EPH gel; interior KCl/AgCl	KCl/AgCl + KNO3 gel	KCl/AgCl + KNO3 gel	refillable reference electrode with electrolyte reservoir
Electrode shaft material	PPS (Polyphenylene Sulphide)	Stainless Steel	Stainless Steel	Stainless Steel	Polypropylene
Cable	10 m interal cable	5 m integral cable	3 m integral cable	3 m integral cable	5 m integral cable
Thermometer	Pt100 inbuilt	Pt100 inbuilt	none	Pt100 inbuilt	
Process connection	¾" NPT	R ¾"	inline in conjunction with inline retractable armature LZX465		Immersion - 8 hole flange, immersion depth 1m, other depths available
Dimensions	Ø 26.4 x 150 mm	Ø 22 x 300 mm	Ø 12 x 205 mm	Ø 12 x 205 mm	see datasheet
Weight					
Order Number:	please refer tp page 23	LZX475	LZX476	LZX477	please refer to page 28
DataSheet	TE8350revE				TE8346revD

Note: (1) model depending

ORP & Temperature sensors

Ø12mm 120mm standard and ¾" electrodes

Sensors Specs	ORP combination electrode	ORP combination electrode
		
Application	general purpose	general purpose horizontal, vertical or up-side down mounting
Measuring range	± 2000 mV	± 1500 mV
Permissible Tmax	0°C ... +100°C	0°C ... +110°C
Permissible pmax @ Tmax	max. 6 bar	10 bar @ 80°C 3.5 bar @ 110°C
Reference electrode	Gel electrolyte, non-refillable Ag/AgCl	Polymer electrolyte, KNO3 and KCl
Electrode shaft material	Glass (Duran)	PPS (Polyphenylene Sulphide)
Top connector plug	S7 screw head	10 m fixed cable
Plug/cable combination		
5 m cable	LZY037	
10 m cable	LZY031	
20 m cable	on request	
Special cable for sensor monitoring		
5 m cable	n.a.	
Thermometer	none	none
Process connection	Pg 13.5 thread	¾" NPT thread
Dimensions	Ø12 x 120 mm	Ø26.4 x 150 mm
Weight	appr. 0.15 kg	appr. 0.62 kg
Order Number:	LZY028	Z08351=C=0000
DataSheet	DOC053.53.90093	TE8350revE

Thermometer Pt1000	Thermometer Pt1000	Thermometer Pt100
		
All standard applications	All non-corrosive applications, typically used in chemical industries and Power Plants	high durability even for demanding applications like in Petrochemical industry and Electroplating processes
-30°C ... +135°C	-30°C ... +135°C	-30°C ... +150°C
10 bar @ 135°C	10 bar @ 135°C	10 bar @ 150°C
n.a.	n.a.	n.a.
Glass (Duran)	Stainless Steel, Mat. 1.4571	PVDF
S7 type	S7 type	3 m fixed cable
LZY037	LZY037	
LZY031	LZY031	
on request	on request	
n.a.	n.a.	n.a.
Pt1000 (2-wire)	Pt1000 (2-wire)	Pt100 (3-wire)
Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 110 mm
appr. 0.15 kg	appr. 0.15 kg	appr. 0.10 kg
LZY029	LZY473	Z368495,00000
DOC053.52.90091	DOC053.52.90091	DOC053.52.90091

pH / ORP sensors

Ø12mm 120mm Standard electrode accessories

Part No.	Designation
	Connection cables
	TOP68 plug sensor cables
LZX548	Plug cable combination, TOP68 type, 4 wire, 5 m
LZX516	Plug cable combination, TOP68 type, 4 wire, 10 m
LZX547	Plug cable combination, TOP68 type, 2 wire, 5 m
LZX534	Plug cable combination, TOP68 type, 2 wire, 10 m

	SMEK plug sensor cables
LZY021	Plug cable combination, SMEK type, 5 m
LZY581	Plug cable combination, SMEK type, 10 m
LZY582	Plug cable combination, SMEK type, 20 m

	S7 plug sensor cables (Single shielded, 2 wire)
Z359016,10110	Plug cable combination, S7 plug, 3 m
LZY037	Plug cable combination, S7 plug, 5 m
Z359016,10120	Plug cable combination, S7 plug, 10 m
Z359016,10122	Plug cable combination, S7 plug, 20 m

	Electrode filling solution and accessories
C74450A184A1	KCl supply reservoir for connection to refillable combination electrodes or reference electrodes (e.g. LZY025)
C74450A184D1	Hose, 2 m long to connect the KCl supply reservoir to the reference electrode/combination electrode
C20C320	KCl filling solution 3 M, 500ml
	alternatively
LZY091	KCl in plastic bottle (1 kg)
62011	Wash bottle, 500 ml (e.g. for easy refilling of KCl)

Calibration Tools

pH Calibration Solution, NIST, 500 ml

Z	3	6	3	1	3	X	,	0	0	5	0	0

pH option

pH 4.00	**0**
pH 6.88	**1**
pH 9.22	**2**

¾" pH / ORP sensors

8350 Combination sensor series (DataSheet TE8350revE)

pH/redox combination probes Models 8350/8351
For immersion and flow–through installations

Applications

➔ For all measurements in drinking, waste and industrial process water
➔ Treatment of effluents, cooling towers
➔ Measurements of corrosive chemical products

Features

➔ Wide measuring range: 0 to 14 pH, ±1500 mV redox
➔ Quick response time for accurate temperature compensation (built-in Pt100)
➔ Optimised life-expectancy : high resistance to poisoning due to the double junction
➔ Chemical resistance of body and junction materials, glass bulb protection against shocks
➔ Maintenance free : Combination gelified electrode
➔ Auto-diagnostic of electrodes : glass and reference impedances self-checking
➔ Possible installation from all positions, horizontal and upside down
➔ Built-in low noise cable (10 m/33 ft)

Technical Data

Subject to change without notice

	8350.0	8350.3	8350.4	8350.5
Sensor model				
Designation				
Application	high temperature corrosive media	high temperature corrosive media	fouling samples no organic samples	water samples containing F-
pH Measuring range	0 ... 14	0 ... 14	0 ... 12	0 ... 12
Accuracy	0.05 pH @ 25°C			
Response time				
pH, mV	95% of signal within 10 sec			
Drift	< 2 mV / week (typical)			
Temperature sensor	Pt100			
	integral in sensor body no direct contact with media	Temperature sensor outside electrode body / direct contact with media made of glass		
Process connection	¾" NPT thread at both sensor ends			
	Installation possible: vertical, horizontal, upside down, inline or immersion			
permissble T_{max}	110°C	110°C	80°C	110°C
permissble p_{max}	10 bar @ 80°C 3.5 bar @ 110°C	0 ... 110°C 10 bar @ 80°C	0 ... 80°C 10 bar @ 25°C	0 ... 110°C 10 bar @ 80°C
Further Probe specs				
Diaphragm	Flat PTFE junction (Teflon)			
Impedance measurement	no	yes by Pt ring	yes by SS ring	yes by SS ring
Impedance	150 to 500 MΩ	150 to 500 MΩ	50 to 250 MΩ	100 to 150 MΩ
Electrode	Glass	Glass	Glass	Glass
Electrolyte	KNO3 and KCl			
Shaft material	PPS	PPS	CPVC	PPS
Special notes	not suitable for water samples containing fluoride @ pH< 6			
	liquid earth rod, domed glass with guard	liquid earth rod, domed glass with guard	liquid earth rod, flat glass	liquid earth rod, domed glass with guard
Dimensions	150 x 26.4 mm			
Cable	fixed 10 m low noise cable			
	for cable length > 10m up to < 25m use junction box Z08350=A=8500 + cable Z358048,00000			
	for cable length > 25m use junction box (with pre-amp) Z08350=A=8000 + cable Z370=506=025			

Note: Select flat sensor for viscous/ fibrous solutions as pulp stock
For technical Data of 8351 ORP sensor model please refer to the Technical DataSheet

¾" pH / ORP sensors

8350 Combination sensor series (DataSheet TE8350revE)

Part No.	Designation
Z0835X=X=000X	**8350**, ¾" sensor series

Z	0	8	3	5	X	=	X	=	0	0	0	X

pH sensor model option

8350.0	0	A	0
8350.3	0	A	3
8350.4	0	C	4
8350.5	0	C	5

ORP sensor model option

8351	1	C	0

Optional Accessories

Z08350=A=8500	Juntion box, for 8350/8351, IP65, Aluminium epoxy painted (for distances > 10m up to < 25m)
Z358048,00000	Coaxial cable for high impedance measurements, length per metre
Z08350=A=8000	Juntion box with built-in preamplifier, for 8350/8351, IP65, Aluminium epoxy painted (for distances > 25m)
Z370=506=025	Low impedance cable (for use with pre-amplifier), length per metre

Calibration Tools

pH Calibration Solution, NIST, 500 ml

Z	3	6	3	1	3	X	,	0	0	5	0	0

pH option

pH 4.00	0
pH 6.88	1
pH 9.22	2

Note: For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

pH sensors for Pure water applications

8362 and 8362sc Pure Water pH sensor (DataSheet TE8362revD & L2409)

Applications

- Steam generation (power, other industries) : feedwater, boiler water, condensate recovery
- Pure water treatment systems (any industries) : demineralized water, deionized water

Advantages

- Specially designed for pure water: no retaining areas, minimized junction potential, electrostatic charge and stray current protected;
- Highly accurate : automatic temperature compensation for ultra-pure water applications that meet or exceed ASTM standard;
- Simple universal mounting;
- Minimal maintenance : no filling solution required, sensor visible for preventive maintenance, easily removable if necessary;
- Easy on-line calibration : quick-release sample cup used as calibration vessel.

Technical Data

Subject to change without notice

	8362	8362 sc
Designation	Complete measuring system, consisting of Flow-thru cell, pH electrode, T-sensor with 3 m cable each; designated for ultra-pure/pure water pH measurement	
Controller compatibility	MONEC 9135 controller or sc60/100/1000 using AD1200 Gateway	sc60/100/1000
Temperature sensor	Pt100, grade A (± 0,15°C)	
Measuring range		
pH	2 ... 12	
Temperature	0 to 80 °C (32 to 176 °F)	
Accuracy	0.05 pH for conductivity > 0.1 µS/cm 0.1 pH for conductivity < 0.1 µS/cm	
Response time T_{90}		
pH, mV	90% of signal within 20 sec	
Process connection	Bypass with atmospheric outlet (after sample cooler and pressure reducer if applicable)	
Inlet	⅛" NPT thread	
Outlet	⅛" NPT thread	
Flow requirement	100 to 300 ml/min - Ideal : 150 ml/min	
permissble T_{max}	80°C max (32°F - 176°F)	
permissble p_{max}	4 bar @ 25°C (60 psi); outlet must be at atmospheric pressure	
Material		
Measurement chamber	electropolished Stainless Steel 316L and PMMA (polymethyl metacrylate)	
Electrode	Glass	
Electrolyte	KNO3 and KCl	
Shaft material	316L stainless steel	
Special notes		panel pre-mounted for easy and fast installation; integrated flow-meter for accurate results and junction box
Cable	3 m cable for pH and temperature further cable lengths optional	7.7 m sc cable (supplied with the instrument)
Maintenance	1h/month typical	
Dimensions		304.8 x 384.4 x 165.1 mm
Weight		3.6 kg (8 lb)
Warranty	24 month for sensor excluding pH/ORP sensor	

Note: 8362 sc is also available as ORP model

pH sensors for Pure water applications

8362 Pure Water pH sensor (DataSheet TE8362revD)

Part No.	Designation
Z08362=A=00XX	**8362 ultrapure water pH system**, analog module (for use with MONEC 9135), w/o controller

Z 0 8 3 6 2 = A = 0 0 X X

Cable length

3 m	.....	0 0
10 m	.....	1 0

Note:

Controller must be ordered separately; please refer to the chapter "Controller/Display Units"
8362 Ultra-pure water pH system consists of Flow-thru cell, pH electrode, T-sensor
with appropriate cable length for pH and T-sensor depending on the selected model.
Above mentioned system can be operated on a sc60/100/1000 controller too,
but requires the AD1200 Digital gateway with cable gland accessories LZY328.
For further information please refer to the chapter "1200 sc Digital Combination pH/ORP Sensors"
For operation with the sc sensor controllers, please choose preferably the 8362 sc model.

Spare Parts/Replacement

Z08362=A=2000	8362 pH electrode	
Z08362=A=1001	8362 temperature sensor, Pt100	
Z08362=A=4000	Kit of 2 SS ⅛" NPT fittings for inlet/outlet connections	
Z08362=C=4000	Flow-thru chamber for 8362, made pf Polymethylmethacrylate (PMMA)	
Z221=183=062	Operating manual 8362, GB	*charged if ordered separately*

Electrode cables

8362 T-sensor cable — Z 0 8 3 6 2 = A = 3 0 0 X

Cable length option

3 m	.....	1
10 m	.....	2
20 m	.....	3

8362 pH sensor cable — Z 3 5 9 0 1 6 , 1 0 1 X X

Cable length option

3 m	.....	1 0
10 m	.....	2 0
20 m	.....	2 2

Calibration Tools

pH Calibration Solution, NIST, 500 ml — Z 3 6 3 1 3 X , 0 0 5 0 0

pH option

pH 4.00	.....	0
pH 6.88	.....	1
pH 9.22	.....	2

pH sensors for Pure water applications

8362sc Pure Water pH sensor (DataSheet L2409)

Part No.	Designation
617800X	**8362 sc** Ultrapure Water measuring system

6	1	7	8	0	0	X

Model

pH panel	**2**
ORP panel	**3**

Note: Measuring system includes pH respectively ORP sensor, digital electronics junction box, flow meter and 7.7 m (25 ft.) digital interconnect cable.
Compatible with sc60/100 and sc1000 controller.
Controller must be ordered separately; please refer to the chapter "Controller/Display Units"
The maximum cable length between the sensor and controller is limited to 110m.

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Spare Parts/Replacement

Z08362=A=2000	8362 pH electrode
Z08362=A=1001	8362 temperature sensor, Pt100
Z08362=A=4000	Kit of 2 SS 1/8"NPT fittings for inlet/outlet connections
Z08362=C=4000	Flow-thru chamber for 8362, made pf Polymethylmethacrylate (PMMA)

Calibration Tools

pH Calibration Solution, NIST, 500 ml

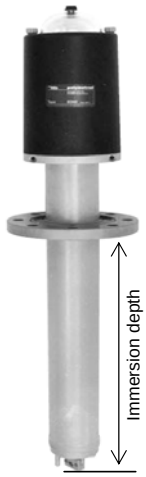
Z	3	6	3	1	3	X	,	0	0	5	0	0

pH option

pH 4.00	**0**
pH 6.88	**1**
pH 9.22	**2**

pH sensors

8346 pH/ORP sensor (DataSheet TE8346revD)



Features

- Heavy-duty industrial probe for use in difficult applications
- Continuous cleaning (abrading) keeps the electrode constantly active
- The probe may be equipped with gold or platinum electrodes to monitor the ORP, or with an antimony electrode to measure the solution pH
- The electrolyte reservoir is integrated with the probe
- The probe's reservoir may be pressurized with instrument air or with a simple hand pump (retrofit is possible)
- The probe is available for different immersion depths

Controller compatibility

MONEC 9135

Technical Data
Subject to change without notice

	8346 pH/ORP sensor
Designation	pH/ORP probe with automatic cleaning for Heavy Duty applications, e.g. neutralisation with lime, sample with high load of typical electrode poisoning substances, where other pH probes fails
Controller compatibility	MONEC 9135
Special notes	for media with no significant change of ORP potential
Process connection	Immersion style, pole mounting with appropriate mounting hardware
Sample pressure	atmospheric
Temperature	
Operation	-10 ... + 80°C (14–176°F)
Ambient	-10 ... + 55°C (14–131°F)
Materials	
Probe body	Polypropylene
Electrolyte reservoir	Grilamide TR55
Protective hood	Plexiglas, blue
Electrode tubing	Polyurethane
Electrode tubing nipple	Polycetal
Drive shaft	Stainless Steel
Dimensions	423 mm + selected sensor Immersion length x 90 mm shaft Ø (220 mm flange Ø) please refer to DataSheet TE8346revD for details
Weight	depending on configuration; please contact HACH LANGE in case of need

pH sensors

8346 pH/ORP sensor (DataSheet TE8346revD)

Part No.	Designation
	8346 Preference Package
Z9135/P10/2	pH Measurement Package in Waste and Process Water with mechanical cleaning (220V) 1000 mm immersion depth; 9135 pH/ORP transmitter with relays consisting of: 9135 pH/ORP Single channel transmitter with 4 relay-board Immersion sensor (1m) PP, model 8346, NW100/ND10, flange PVC Power supply 220V/ 50/60 Hz Antimony ring electrode, model 8438 Reference electrode, model 8429 B Temperature sensor, 1m 5m screened cable, 6 cores, type 2666
	Individual items
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board
Z363389,01000	Immersion sensor (1m) PP, model 8346, NW100/ND10, flange PVC
Z08346=A=5220	Power supply 220V/ 50/60 Hz
Z363629,84380	Antimony ring electrode, model 8438
Z368429,00000	Reference electrode, model 8429 B
Z363389,21000	Temperature sensor, 1m
Z370=506=025	6 conductor, low impedance cable, type 2666, per metre
	Spare Parts
Z363700,74106	Diaphragm assembly for 8346.-E consisting of 3 diaphragms; 3 hex nuts PP; 6 seal
Z363700,83462	Cleaning bar assembly for 8346. consisting of: 1 sintered ceramic bar, 1 hud, 1 screw
Z151380,00000	Electrolyte tybing, per m
Z359025,00060	Support rod
Z363633,10000	Electrolyte reservoir for wall mounting
	Optional accessores/Other items
	Immersion Probe 8346.E (with Electromotor)
Z363389,00500	500 mm Immersion depth
Z363389,01000	1000 mm Immersion depth
Z363389,01500	1500 mm Immersion depth
	Pressurizing the Electrolyte Reservoir
Z599990,05704	Quick-connect plug — for use with Instrument Air
Z599990,05604	Quick-connect jack — for use with Instrument Air
Z599990,05704	Quick-connect plug — for use with Hand Pump
Z359026,10000	Pressure adaptor with gauge, model 8538.1 — for use with Hand Pump
	Electrodes — **suitable temperature range**
Z363629,84361	ORP electrode, Gold ring, model 8436 — -10 ... + 50°C (14–122°F)
Z363629,84351	ORP electrode, Platinum ring, model 8435 — -10 ... + 50°C (14–122°F)
Z363629,84380	pH electrode, Antimony ring, model 8438 — -10 ... + 120°C (14–248°F)
Z368429,00000	Reference electrode, model 8429-B — depending on measurement electrode
	Temperature Sensors
Z363389,20500	8346.1T - Pt100 for 8346, Immersion depth 500 mm
Z363389,21000	8346.2T - Pt100 for 8346, Immersion depth 1000 mm
Z363389,21500	8346.3T - Pt100 for 8346, Immersion depth 1500 mm

pH / ORP Preference Packages

MONEC 9135 series

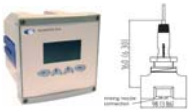
The MONEC 9135 is a single channel pH/ORP transmitter and has been designed to operate with a wide range of pH and ORP sensors for measuring and/or continuous control of pH/Temperature or Redox potential (ORP) in nearly all non-hazardous applications .

Equipped with Standard and specific temperature compensation, user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

Note: For technical data, please refer to to the chapter "Controller & Transmitters"

Part No. **Designation**

Preference Packages for Flow Thru applications in Drinking & Industrial Process Water



MONEC 9135 pH Measuring system **Z 9 1 3 5 / P 0 5 / X**

Controller configuration

Controller w/o relays **1**
Controller with 4 relays **2**

Note: The preference packages are favouribly priced measurement systems for pH, consisting of:

Z08350=C=0005	pH electrode with 10 m cable and temperature sensor, model 8350.5
Z08350=A=9500	Flow T-piece for 8350/51 electrode, PVC, ND40
Z08350=A=9510	Kit with 2 adapters ND40- 1" for 8350/8351 probes
	and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay)
	alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board

Preference Packages for Flow Thru applications in Pure & Ultra-Pure Water

MONEC 9135 pH Measuring system **Z 9 1 3 5 / P 0 1 / X**

Controller configuration

Controller w/o relays **1**
Controller with 4 relays **2**

Note: The preference packages are favouribly priced measurement systems for pH, consisting of:

Z08362=A=0000	pH flow-through system with electrode, 3 m cable and Pt100 sensor, up to 80°C @ 6 bar
	and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay)
	alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board

Note: All preference packages are supplied without pH Buffer solutions
For suitable Buffer solution please consult the chapter Consumables

pH / ORP Preference Packages

MONEC 9135 series continued

Part No. **Designation**

Preference Packages for Immersion applications in Waste Water

MONEC9135 pH Measuring system

Z	9	1	3	5	/	P	0	X	/	X

Controller relais option + Immersion pipe with adjustable flange

Controller w/o relais

+ 500 mm Immersion length	6	1
+ 1000 mm Immersion length	7	1
+ 1500 mm Immersion length	8	1

Controller with 4 relais

+ 500 mm Immersion length	6	2
+ 1000 mm Immersion length	7	2
+ 1500 mm Immersion length	8	2

Note: The preference packages are favouribly priced measurement systems for pH, consisting of:

Z08350=C=0005	pH electrode with 10 m cable and temperature sensor, model 8350.5
	and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay)
	alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board
	and Immersion pipe with adjustable flange in appropriate length (PP, NW 32/ND 10, flange PVC)
Z08350=A=1005	Immersion pipe with adjustable flange, PP NW 32/ND 10 (0.5m), flange PVC
Z08350=A=1010	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1m), flange PVC
Z08350=A=1015	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1.5 m), flange PVC

MONEC 9135 ORP Measuring system

Z	9	1	3	5	/	R	0	X	/	X

Controller relais option + Immersion pipe with adjustable flange

Controller w/o relais

+ 1000 mm Immersion length	2	1
+ 1500 mm Immersion length	3	1

Controller with 4 relais

+ 500 mm Immersion length	1	2
+ 1000 mm Immersion length	2	2
+ 1500 mm Immersion length	3	2

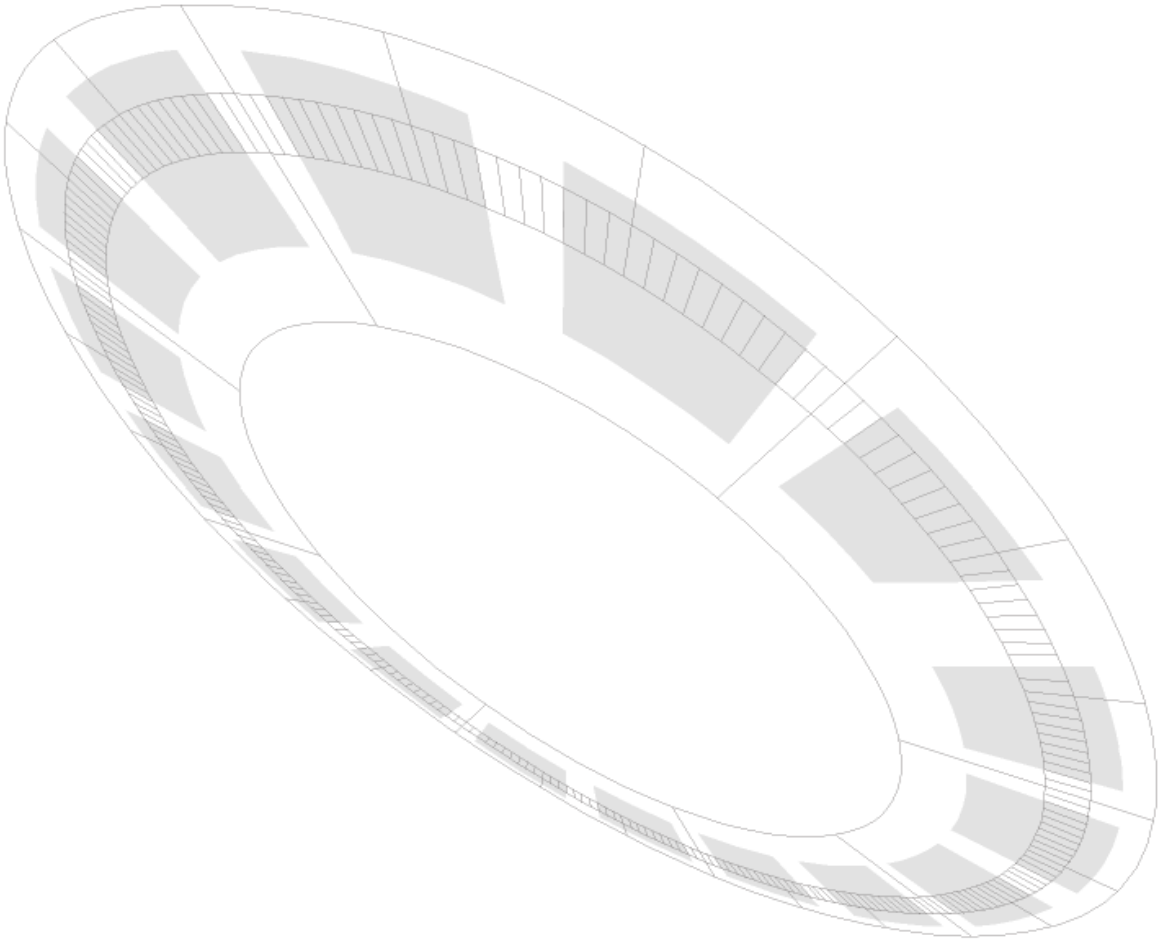
Note: The preference packages are favouribly priced measurement systems for ORP, consting of

Z08351=C=0000	8351 redox combined sensor, guarded platinum sensor, PPS body, 10m cable
	and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay)
	alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board
	and Immersion pipe with adjustable flange in appropriate length (PP, NW 32/ND 10, flange PVC)
Z08350=A=1005	Immersion pipe with adjustable flange, PP NW 32/ND 10 (0.5m), flange PVC
Z08350=A=1010	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1m), flange PVC
Z08350=A=1015	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1.5 m), flange PVC

Note: All preference packages are supplied without pH Buffer solutions
For suitable Buffer solution please consult the chapter Consumables

Electrochemistry

Analytical Systems for Conductivity/Concentration Measurement in Process



Electrochemistry Conductivity

General overview

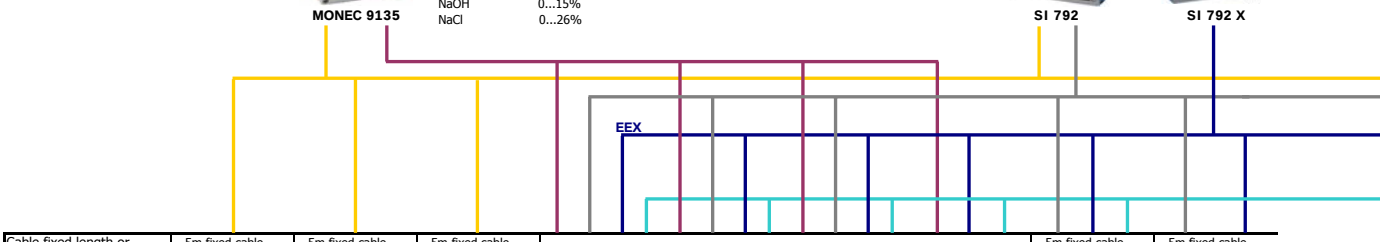
MONEC 9135

MONEC 9125 Concentration Transmitter
pre-programmed methods for

HCl	0...18%
HNO_3	0...30%
H_2SO_4	0...30%
NaOH	0...15%
NaCl	0...26%

SI 792

SI 792 X



Cable fixed length or Top connector	5m fixed cable	5m fixed cable	5m fixed cable					5m fixed cable	5m fixed cable
Cable with top connector 5 m cable 10 m cable 20 m cable				Z08319=A=0005 (for EEX) Z08319=A=0015 Z08319=A=0020		use Z08319=A=1115 (5m) in conjunction with AD3400 Gateway only, because of cable diameter compatibility!			
Conductivity sensors									
Sensor model **Part No.**	8398.2 Z08398=A=2000	8398.3 Z08398=A=3000	8398.5 Z08398=A=5000	8310/8315 Z08310=A=0000 Z08315=A=0000	8311/8316 Z08311=A=0000 Z08316=A=0000	8312/8317 Z08312=A=0000 Z08317=A=0000	8394 Z08394=A=1500 Z08394=A=2000	2EL LZY082	4EL 7MA21008BC

Electrode specs									
Measuring principle	Inductive	Inductive	Inductive	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive	4EL Conductive
Measuring range									
Conductivity	0.2 ... 2000 mS/cm			0.01 ... 20 (A) 0.01 ... 50 (B) 0.01 ... 200 (C) µS/cm	0.01 ... 200 (A) 0.01 ... 500 (B) 0.01 ... 2000 (C) µS/cm	1 ... 2000 (A) 1 ... 5000 (B) 1 ... 20000 (C) µS/cm	0.01 ... 20 (A) 0.01 ... 50 (B) 0.01 ... 200 (C) µS/cm	1 ... 2000 (A) 1 ... 2500 (B) µS/cm	0.1 ... 500 mS/cm
Concentration	Yes, using 9125 Concentration Transmitter			Yes, in conjunction with si79x Transmitter series					
Temperature	140°C	140°C	140°C	0 ... 125°C for models 3410/3411/3412 0 ... 150°C for models 3415/3416/3417 and 3494				up to 80°C	100°C
p_{max} @ T_{max}	140°C, 18 bar	140°C, 18 bar	140°C, 18 bar	10 bar @ 125°C for models 3410/3411/3412 25 bar @ 150°C for models 3415/3416/3417 and 3494				6 bar max.	6 bar max.
Temperature sensor	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt
Cell constant k	2.35	2.35	2.35	0.01	0.1	1.0	0.01	1.0	0.0471
Electrode shaft material	PEEK	PEEK	PEEK	Polyester black or SS316L			SS316L	Graphite	epoxy resin with graphite
Process connection	Sanitary style 2" clamp	DN50 union nut	DN20 flange or shaft	¾" NPT	¾" NPT	¾" NPT	Sanitary style 1.5 or 2" clamp	Pg 13.5 thread	DN50 conical flange
max cable length	50 m	50 m	50 m	depending on application					50 m
EEX protection according DIN50014 / EN50020 rating: II 2G Eex ia IIC T4 zone 1	no	no	no	yes	yes	yes	yes	yes	yes
Max. cable length in EEx zone 1 in conjunction with si792X transmitter series	n.a.	n.a.	n.a.	5 m	5 m	5 m	5 m	5 m	5 m
Degree of protection	not specified	not specified	not specified	IP65	IP65	IP65	IP65	IP68	IP54
Application	Water, waste water, dirty cooling water, fouled water, chemical leakages, general CIP applications, Industrial applications, like concentration measurement, etc. For further information please refer to chapter 3700sc			Typical: High Purity Water, Deionised Water, Steam Condensate, Injection Water	Typical: RO Permeate Boiler Water Soft Drinking Water	Typical: Untreated Raw Water, Cooling Water Drinking Water	Typical: High Purity, Deionised Water, Steam Condensate, Pharmaceutical	Typical: Drinking Water and other clean water water applications	Typical: Clean water and slightly coating forming media; pH 3..11 (25°C) pH 4..10 (>25°C)

Pure Water				X	X		X		
Potable Water					X	X		X	X
Food & Beverage	X	X	X	X	X	X		X	
In-process	X	X	X	X	X	X	X	X	X
Waste Water									
Neutralisation			X						X
Industrial influent			X						X
Municipal influent			X						X
Aeration									
Digester									
Effluent								X	X
In process			X						X

Note:

A in conjunction with sc controllers
B in conjunction with si79X and SIPAN Field controllers
C in conjunction with MONEC 9125 Conductivity controller

si79x Transmitter series
pre-programmed methods for

NaCl	0 – 26% at 0 °C 0 – 28% at 100 °C (212 °F)
HCl	0 – 18% at –20 °C (–4 °F) 0 – 18% at 50 °C (122 °F)
NaOH	0–13% 0 °C (32 °F) 0–24% 100 °C (212 °F)
H2SO4	0–26% –17 °C (1.4 °F) 0–37% 110 °C (230 °F)
HNO3	0–30% –17 °C (1.4 °F) 0–30% 50 °C (122 °F)
Salinity	0.0 – 45‰ (0 – 35°C)
USP	00.00 – 99.99 µS/cm

sc digital extension cables

6120700.99
AD 3400

6120800.99
AD 3700

EEX

AD3700 sc
pre-programmed methods for

TDS	0 ... 9999 ppm
H_2SO_4	0...30% 40 ... 80% 93 ... 99%
NaOH	0...16%

Speciality:
1 customized calibration curve with up to 10 calibation points

	5m fixed cable	5m fixed cable	5m fixed cable	5m fixed cable	6m fixed cable	6m fixed cable		3798 sc
								
	Ind (FEP) 7MA22008BF	Ind (FEP) **EEX** 7MA22008EB	Ind 7MA22008DA	Ind - San 7MA22008CB	370X	372X		3798 sc
	Inductive	Inductive	Inductive	Inductive	Inductive	Inductive		Inductive
	0.1 ... 2500 mS/cm	0.1 ... 2500 mS/cm	0.1 ... 2500 mS/cm	0.1 ... 2500 mS/cm	200 µS/cm ... 2,000 mS/cm	200 µS/cm ... 2,000 mS/cm		250 µS/cm ... 2,500 mS/cm
	yes	yes	yes	yes	yes	yes		no
	130°C	130°C	130°C	130°C	up to 200°C depending on sensor material			-5 ... 50°C
	10 bar max.	10 bar max.	10 bar max.	10 bar max.	up to 13.8 bar @ 200°C depending on sensor material			20 m resp. 2 bar
	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt1000 inbuilt	Pt1000 inbuilt		Pt100 inbuilt
	3.82	3.82	3.0	3.16	4.44	4.44		2.35
	FEP	FEP	PEEK	PEEK	availalble in PP, PVDF, PEEK and PFA Teflon			PEEK, SS, PPS
	DN50 conical flange	DN50 conical flange	DN50 conical flange	Varivent	Sanitary style 2" clamp	¾" NPT thread (convertible style)		Immersion mounting
	50 m	50 m	50 m	50 m	100m / 400m	100m / 400m		100m / 400m
	no	yes	no	no	PEEK and PFA Teflon sensor models only in conjunction with si792X models with restriction to Tmax = 120°C; max. 2 m/ sec flow Conductivity > 0.1 µS/cm			
	n.a.	5 m	n.a.	n.a.	6 m (electrode dependant)			n.a.
	IP65	IP67	IP65	IP65	IP68	IP68		
	Industrial applications like CIP applications, phase separation of product/water applications, product monitoring in food and beverage industry, Concentration measurement and control of acids and caustics, For further information please refer to chapter				General purpose Water, waste water, dirty cooling water, fouled water, chemical leakages, general CIP applications, Industrial applications, like concentration measurement, etc. For further information please refer to chapter 3700sc			Non-corrosive media in Municipal and Industrial applications
								(X)
			X	X	X	X		
	X	X	X	X	X	X		
					X	X		
					X	X		X
					X	X		X
					X	X		X
					X	X		X

Conductivity / Concentation measurement

General Material Compatibility overview

PEEK = Polyetheretherketone
This material type is ideal for the widest range of applications within the chemical, pulp & paper, and refinery industries. The only known materials to severely attack PEEK are very high concentrations of acids, such as nitric or sulfuric acid. It has a higher temperature capability than the Polypropylene or PVDF sensors.

PFA Teflon = Perfluoroalkoxy Teflon
This material type is ideal for extremely corrosive applications, especially high concentrations of sodium hydroxide, nitric acid, sulfuric acid, or hydrofluoric acid. It has the highest temperature rating of the four sensor types. It is also ideal for applications which have a tendency to coat the sensor.

PP = Polypropylene:
This material type is ideal for wastewater applications where the temperatures and pressures are close to ambient and chemical compatibility is not a serious concern.

PVDF = PolyVinylidene Fluoride, also called "KYNAR®"
This material type is one of the most rigid and abrasion-resistant materials. It has good chemical resistance to halogens, such as chlorine or bromine. It is ideal for applications which require higher pressure ratings, but do not have high temperatures, such as water treatment applications in the semiconductor industry.

Material		PEEK			PVDF			PP			EPDM			VITON			Stainless Steel		
Temperature in °C		20	60	100	20	60	100	20	60	100	20	60	100	20	60	100	20	60	100
Chemical component	**%**																		
Sulphuric acid	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛
	50	Yes	Yes	⌛	Yes	⌛	Yes	Yes	Yes	⌛	Yes	⌛	No	Yes	Yes	⌛	⌛	⌛	⌛
	95	No	No	No	Yes	⌛	No	⌛	No	No	⌛	No	No	Yes	⌛	No	⌛	⌛	⌛
Hydrochloric acid	10	Yes	Yes	⌛	Yes	Yes	Yes	Yes	Yes	⌛	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	sat	Yes	Yes	⌛	Yes	Yes	Yes	Yes	Yes	⌛	No	No	No	Yes	Yes	Yes	No	No	No
Nitric acid	<25	Yes	Yes	Yes	Yes	Yes	⌛	Yes	Yes	No	Yes	⌛	No	Yes	Yes	Yes	Yes	Yes	Yes
	50	⌛	⌛	⌛	Yes	Yes	⌛	⌛	No	No	No	No	No	Yes	Yes	Yes	Yes	⌛	⌛
	95	No	No	No	Yes	⌛	No	No	No	No	No	No	No	Yes	Yes	⌛	Yes	⌛	⌛
Phosphoric acid	<25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	⌛	Yes	Yes	Yes	No	No	No
	95	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	⌛	⌛	No	⌛	⌛	No	No	No	No
Hydrofluoric acid	40	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No
	75	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No
Acetic acid	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	No	Yes	Yes	⌛
	glacial	Yes	Yes	⌛	Yes	⌛	No	Yes	⌛	No	Yes	⌛	No	No	No	No	Yes	Yes	⌛
Formic acid	80	⌛	⌛	⌛	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	⌛	No	No	No	Yes	⌛	⌛
Citric acid	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calcium hydroxide	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Potassium hydroxide	50	Yes	Yes	Yes	Yes	Yes	⌛	Yes	Yes	No	Yes	Yes	⌛	⌛	⌛	No	Yes	Yes	Yes
Sodium hydroxide	10	Yes	Yes	Yes	Yes	⌛	No	Yes	Yes	Yes	Yes	Yes	⌛	Yes	⌛	No	Yes	Yes	Yes
	40	Yes	Yes	Yes	Yes	Yes	⌛	Yes	Yes	No	Yes	Yes	⌛	Yes	⌛	No	Yes	Yes	Yes
Ammonia	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
	30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
Ammonium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	⌛
Zinc chloride	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	⌛
Iron chloride	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Sodium sulphite	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Sodium carbonate	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Potassium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛	No	Yes	Yes	Yes	Yes	⌛	⌛
Sodium sulphate	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calcium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛
Sodium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	⌛
Sodium nitrate	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	⌛
Aluminium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Hydrogen peroxide	30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Sodium hypochlorite	50	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	No	⌛	⌛	No	Yes	Yes	⌛	⌛	⌛	⌛
Potassium dichromate	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	Yes	Yes	Yes	Yes	Yes	⌛
Chlorinated salt water		Yes	Yes	Yes	Yes	⌛	No	No	No	No	No	No	No	Yes	⌛	No	No	No	No
Ethanol	80	Yes	Yes	Yes	Yes	Yes	⌛	Yes	Yes	Yes	Yes	Yes	Yes	Yes	⌛	⌛	Yes	Yes	Yes
Cyclohexane		Yes	Yes	Yes	Yes	Yes	⌛	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Toluene		Yes	Yes	Yes	Yes	Yes	Yes	⌛	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Trichloroethane		Yes	Yes	Yes	⌛	⌛	⌛	No	No	No	No	No	No	⌛	⌛	⌛	Yes	Yes	No
Water		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

⌛ momentarily

For further substances we recommend to refer to http://www.coleparmer.com/techinfo/chemcomp.asp

Conductivity, inductive

Digital Conductivity Sensor Model 3798 (DataSheet DOC053.52.03252)

The 3798-S-sc sensor is using a non-contacting, inductive measurement technique and therefor particularly suitable for heavily soiled media, such as municipal and industrial wastewater.

Neverless the wide measuring range also allows reliable measurement in polluted surface water and drinking water.
Its resitant PEEK housing makes the sensor lastingly resitant.

The 3798 S sc sensor comes factory precalibrated for immediate use.
Calibration can be done by using either an Electrical Calibration tool or conventional Conductivity Standards.

Controller compatibility

sc60/100

sc1000

Technical Data
Subject to change without notice

	3798 S sc
Designation	Immersion style Inductive Conductivity probe for non-corrosive Waste Water Applications
Sensor style	Inductive Conductivity Sensor with integrated Pt100
Cell constant k	2.35 cm^{-1}
Measuring range	
Conductivity	250 µS/cm ... 2.5 S/cm (2.500.000 µS/cm)
Temperature	-5 ... 60 °C
Response time T_{90}	
Conductivity	< 2 s
Temperature	< 2 min
Accuracy	
Conductivity	± 1% of actual value or ± 0,004 mS/cm whichever is greater
Temperature	± 0.2°C
Reproducabilty	< 0.2 %
Temperature compensation	Automatic or manual
Calibration	Zero value calibration in air. Fixed value calibration with defined resistance or with standard solution
Process connection	
Installation style	Immersion style; Immersed directly into the media using pole or chain mounting
Max. flow rate	4 m/s
Pressure p_{max}	20 m immersion depth (corresponding to 2 bar)
Temperature	
Operation	-20 ... 50 °C
Materials	
Sensor Housing	Stainless steel metal housing
Sensing element	PEEK (Polyetheretherketone)
Sensor cable	Polyurethane
other materials	PPS
Sensor cable	10 m hardwired, with encapsulated IP 68 connector, extendable with sc sensor cables up to 100m
Power consumption	< 7 W
Weight	Approx. 1 kg
Dimensions	42 mm x 360 mm (Ø x L)
Required Maintenance:	Change of sealing 1x/2 years (after 1000 hours)
Controller compatibility	any sc controller out of sc controller series
Warranty	2 years fulfilling the required service intervals

Conductivity, inductive

Digital Conductivity Sensor Model 3798 (DataSheet DOC053.52.03252)

Part No.	Designation
LXV428.99.00001	**3798-S sc** Digital Inductive Conductivity Sensor

L	X	V	4	2	8	.	9	9	.	0	0	0	0	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Note:
Each sensor includes a PEEK inductive sensor and integral 10 m cable terminated with connector for the sc60/100/sc1000 digital controller.
sc Digital Controller, and sc extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
The maximum cable length between the sensor and controller is limited to 100m.
For further extension cables, please consult the chapter sc controller/display units accessories
Using different cables instead of the below mentioned, will void the warranty.
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Accessories

LZX985	Electrical Calibration tool for 3798-S sc	

Conductivity Reference/calibration solutions*

25M3A2000-119	100-1000 µS/cm	1 Liter bottle
25M3A2050-119	1000-2000 µS/cm	1 Liter bottle
25M3A2100-119	2000-150,000 µS/cm	1 Liter bottle
25M3A2200-119	200,000-300,000 µS/cm	1 Liter bottle

* Specify the desired conductivity value of the solution.

Digital extension cable (between display unit and probe)

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30m
LZX853	Digital Extension Cable, 50 m

Documentation

DOC023.52.03252	Operation Manual, 3798 S sc, Immersion Conductivity probe, GB	*charged if ordered separately*

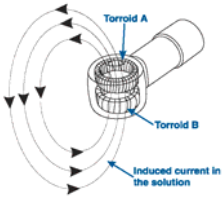
Conductivity, inductive

3700 Conductivity sensor series - Application Guide

Industry	Application	Recommended Sensor and Material
Metals Finishing and Mining	Plating bath monitoring	Convertible (Polypropylene)
	Alkaline/caustic wash	Convertible (Polypropylene)
	Rinse water	Convertible (Polypropylene)
	Pickling processes	Convertible (PVDF)
	Metals recovery	Convertible (PEEK)
	Copper floatation	Convertible (PEEK)
	Scrubbers	Convertible (Polypropylene)
Chemicals and Refining	Acid production	Convertible (PFA Teflon)
	Caustic production	Convertible (PFA Teflon
	Phosphates	Convertible (PFA Teflon)
	Fertilizers	Convertible (PFA Teflon)
	Detergents	Convertible (PFA Teflon)
	Glycerin	Convertible (PVDF)
	Moisture detection	Convertible (PVDF or PFA Teflon)
	Scrubbers	Convertible (PVDF)
	Wastewater	Convertible (PVDF)
	Oil well drilling mud	Convertible (PEEK)
	Leak detection	Convertible (PEEK)
	Alkylation	Convertible (PFA Teflon)
	Spill detection	Convertible (PEEK)
Food and Beverage	Brine concentration	Convertible (Polypropylene)
	Desalting	Convertible (Polypropylene)
	Cheese production	Sanitary (PFA Teflon)
	Caustic peeling	Convertible (PFA Teflon)
	Pickle making	Sanitary (Polypropylene)
	CIP applications	Sanitary (PFA Teflon)
	Rinse water control	Convertible (Polypropylene)
	Sugar carbonation	Convertible (PFA Teflon)
Pulp and Paper	White, black and green liquor	Convertible (PEEK)
	Stock washing	Convertible (PEEK)
	Wash and cooking liquor control	Convertible (PEEK)
	Scrubbers	Convertible (PEEK)
	Spill detection	Convertible (PEEK)
Textile Manufacturing	Rinse water	Convertible (Polypropylene)
	Dye baths	Convertible (Polypropylene)
	Bleaching	Convertible (Polypropylene)
	Mercerizing	Convertible (Polypropylene)
	Acid washing	Convertible (Polypropylene)
	Carbonizing and scouring baths	Convertible (Polypropylene)
Natural Waters, Lakes, Streams, and Sea Water	Water pollution monitoring	Convertible (Polypropylene)
	Salt intrusion	Convertible (Polypropylene)
	Salinity	Convertible (Polypropylene)
Clean Water Treatment	Ion exchange regeneration	Convertible (Polypropylene)
	Reverse osmosis concentrate monitoring	Convertible (Polypropylene)
	Softener regeneration	Convertible (Polypropylene)
	Acid/caustic concentration control	Convertible (PVDF)
Wastewater Treatment	Acid/caustic concentration control	Convertible (PEEK)
	Spill detection	Convertible (PEEK)
Steam Generation	Boiler blowdown	Convertible (Polypropylene)
	Flue gas scrubbers	Convertible (Polypropylene)

Conductivity, inductive

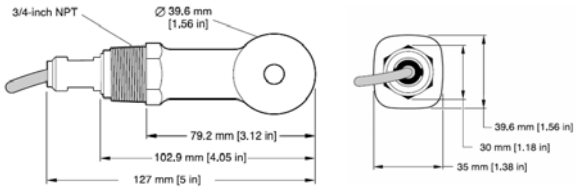
3700 Conductivity sensor series (DOC053.52.00014)



The 3700 inductive conductivity sensors comes with a choice of material and body styles, providing high flexibility to applications and process connections

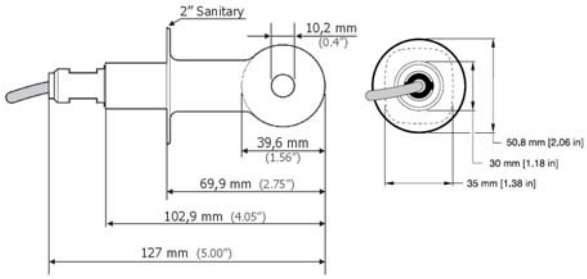
- Convertible – 2-inch NPT, designed for tee, other flow through, insertion, and pipe mountings for immersion.
- Sanitary (CIP) –2-inch flange, special cap, and EPDM compound gasket. Conforms to provisions of 3-A Sanitary Standards.

convertible sytle



- ➔ Inductive conductivity sensors for use in industrial process water
- ➔ Wetted Material available in PP, PVDF, PEEK or PFA Teflon
- ➔ Concentration measurement of concentrated acids and lyes
  - ➔ wide measuring range
- ➔ integrated Pt1000 for temperature compensation
- ➔ Versatile process connections
  - ➔ Convertible style – ¾" NPT design
  - ➔ Sanitary style – 2" flange design

sanitary style (2" flange design)



3A approved materials

		D37XXE2T.99 digital sensor preference packages (consisting of analog sensor model + AD3700 digital gateway + 1 m digital sc sensor cable)	37XXE2T.99 analog sensor models
	sc60	yes	
	sc100	yes	
	sc1000	yes	
	si792		all sensor models without limitations
	si792X		PEEK or PFA Teflon designed sensor models only for II 2G Eex ia IIC T4 zone 1 with restriction to Tmax = 120°C; max. 2 m/ sec flow Conductivity > 0.1 µS/cm
	si794		all sensor models without limitations

Conductivity, inductive

3700 Conductivity sensor series (DOC053.52.00014)

Technical Data
Subject to change without notice

	3700 / 3700 sc
Designation	Inductive Conductivity sensor for Conductivity and Concentration Measurement
Sensor style	Inductive Conductivity Sensor with integrated Pt1000
Cell constant k	4.44 cm^{-1}
Measuring range	
Conductivity	200 µS/cm ... 2.0 S/cm (2.000.000 µS/cm)
Temperature	-10 ... 200°C
Response time T_{90}	
Conductivity	< 2 s
Temperature	< 2 min
Accuracy	
Conductivity	± 1% of actual value or ± 0.004 mS/cm whichever is greater
Temperature	± 0.2°C
Reproducabilty	< 0.2 %
Temperature compensation	Automatic or manual
Calibration	Zero value calibration in air. Fixed value calibration with defined resistance or with standard solution
Process connection	¾" NPT or 2" flange design depending on sensor model option
Installation style	Immersion, Insertion, Union and Sanitary Mounting
Max. flow rate	3 m/s
Pressure p_{max} @ T_{max}	
Polypropylen	6.9 bar @ 100°C
PVDF	6.9 bar @ 120°C
PEEK	13.8 bar @ 200°C
PFA Teflon	13.8 bar @ 200°C
Temperature	
Operation	-10 ... 200°C (limited by choosen sensor body material and mounting hardware)
Materials	
Sensor Housing	PP, PVDF, PEEK or PFA Teflon
Sensor cable (sensor material see below)	5 conductor (plus two isolated shields) cable with XXXX jacket; rated to XXXºC, 6 m (20 ft.) long (XXXX sensor material depending; see below)
PP & PVDF	XLPE (cross-linked polyethylene) jacket; rated to 150ºC (302ºF)
PEEK & PFA Teflon	Teflon-coated jacket; rated to 200ºC (392ºF)
Weight	depending on sensor style and material
Dimensions	depending on sensor style and material
Controller compatibility	
analog models	si79X transmitter series
digital models	sc controller series in conjunction with AD3700 digital gateway
EEx protection acc. DIN 50014/EN 50020	II 2G Eex ia IIC T4 zone 1 / using si792X in conjunction with PEEK or PFA Teflon designed sensor models at maximum process temperature of 125°C (Temperature class 4)
Warranty	

Technical Data
Subject to change without notice

	AD3700 sc Digital Gateway
Designation	AD converter to operate analog 3700 sensors with sc controller series
Controller compatibility	any sc controller out of sc controller series (sc60/100/1000)
T-sensor compatibility	Pt100 and Pt1000
Connectors	
output (to sc Controller)	using sc digital cables with sc plugs
Electrode input	using suitable electrode cables with bare leads to be connected to digital gateway
Temperature	
Operation	–20 ... 60 °C (-4 to 140 °F)
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing
Materials	
Gateway housing	ABS (Acrylonitrile butadiene styrene) plastic
Dimensions	3.4 cm x 17.5 cm (1⅜ x 7") (Ø x L)
Weight	145 g (5 oz)
Warranty	2 years

Conductivity, inductive

3700sc Digital Conductivity Sensor series (DOC053.52.00014)

Part No. **Designation**

3700 sc Conductivity sensor series D 3 7 X X E 2 T . 9 9

Sensor Body Style and Body material option

Sanitary style (2" flange design) (suitable for CIP/SIP depending on material)

made of PP	(pmax 6.9 bar @ 100°C)	**0 5**
made of PVDF	(pmax 6.9 bar @ 120°C)	**0 6**
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	**0 8**

Convertible style (¾" NPT threaded)

made of PP	(pmax 6.9 bar @ 100°C)	**2 5**
made of PVDF	(pmax 6.9 bar @ 120°C)	**2 6**
made of PEEK	(pmax 13.8 bar @ 200°C)	**2 7**
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	**2 8**

Note:
All 3700 sc Digital Sensors comes in appropriate body material,
with 6 m (20 ft) integral cable, digital gateway (6120800.99) and a 1 m digital extension cable.
sc Digital Controller (sc60/sc100/sc1000), and sc extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box (5867000) is required.
The maximum cable length is limited to 410m in total. (not compatible with sc1000)
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Accessories

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Replacements

6120800.99 **AD3700 sc**, Digital Gateway to operate 3700 sensors 6 1 2 0 8 0 0 . 9 9

Note:
sc Digital Controller and sc extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units

Note:
The AD3700 sc Digital Gateway is pre-calibrated for Concentration Measurement of
H2SO4 in the range of 0...30%, 40...80% and 93...99%
NaOH in the range of 0...16%
furthermore the Digital Gateway accepts measurement by factor
or user defined calibration curves up to 10 calibration points.

Conductivity, inductive

3700 Conductivity Sensor series ~~(DOC053.52.00014)~~

Part No. **Designation**

3700 Conductivity sensor series | 3 | 7 | X | X | E | 2 | T | . | 9 | 9 |

CE

ATEX

FM APPROVED

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Sensor Body Style and Body material option

Sanitary style (suitable for CIP/SIP depending on model)

made of PP	(pmax 6.9 bar @ 100°C)	**0 5**
made of PVDF	(pmax 6.9 bar @ 120°C)	**0 6**
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	**0 8**

Convertible style

made of PP	(pmax 6.9 bar @ 100°C)	**2 5**
made of PVDF	(pmax 6.9 bar @ 120°C)	**2 6**
made of PEEK	(pmax 13.8 bar @ 200°C)	**2 7**
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	**2 8**

Note:

All 3700 analog sensors comes in appropriate body materials with 6 m (20 ft) integral cable
Analog sensors are compatible with si792/792X/794 transmitters only
For EEX applications (II 2G Eex ia IIC T4 zone 1) only si792X in conjunction with PEEK or PFA Teflon overmolded sensor models at maximum process temperature of 125°C (Temperature class 4) are suitable.
The maximum cable length between the sensor and controller is limited to 50 m.
The maximum cable length in Eex application between the sensor and controller is limited to 5 m.

Sanitary style – has an integral 2" flange and comes with special cap and EPDM compound gasket
The gasket and cap are also available separately as spare parts.

Spare Parts

70F1037-003	Special Cap (for 3700 inductive conductivity sensor "Sanitary style")
9H1327	Gasket, made of EDPM, 2"

Optional accessories

60A2053	Junction Box for analog cable extension, Aluminum, for surface mount
1W1100	Interconnect Cable, 6 wire, for analog 3700 sensor series crosslinked polyethylene jacket rated to 150°C

Conductivity, inductive

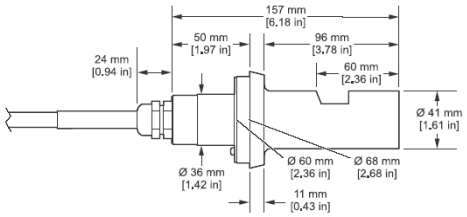
3700/3700sc Conductivity sensor Accessories (DOC053.52.00014)

Part No.	Designation	
	Conductivity Reference Solutions	
C20C280	0.001 Molar KCl, 148 µS/cm @ 25 °C	500 ml bottle
C20C270	0.01 Molar KCl, 1413 µS/cm @ 25 °C	500 ml bottle
C20C250	0.1 Molar KCl, 12.88 mS/cm @ 25 °C	500 ml bottle
25M3A2000-119	100-1000 µS/cm*	1 Liter bottle
25M3A2050-119	1000-2000 µS/cm*	1 Liter bottle
25M3A2100-119	2000-150,000 µS/cm*	1 Liter bottle
25M3A2200-119	200,000-300,000 µS/cm*	1 Liter bottle

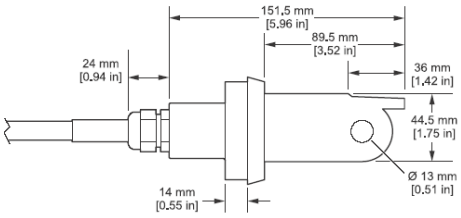
* Specify the desired conductivity value of the solution.

Conductivity, inductive

2200 series Conductivity sensors (DataSheet DOC053.53.90100)



sensor models: 7MA22008BF/EB



sensor model: 7MA22008DA

- ➔ Inductive conductivity sensors for use in industrial process water
- ➔ Concentration measurement of concentrated acids and lyes
- ➔ integrated Pt100 for temperature compensation
- ➔ Universal application
  - ➔ DN50 conical flange design for installation in immersion and flow fittings
  - ➔ wide measuring range
  - ➔ Wetted Material available in PEEK or FEP

Controller compatibility

si79X series

Technical Data

Subject to change without notice

	7MA22008DA	7MA22008BF	7MA22008EB
Designation	Inductive Conductivity sensor with integrated Temperature sensor		
Fields of applications (typical)	Industrial process water chemical industry and food & beverage Industry	Industrial process water concentration measurement of acids and lyes	Industrial process water concentration measurement of acids and lyes
Measurement method	Inductive		
Cell constant K	3.00	3.82	3.82
Temperature sensor	Pt100 inbuilt		
Measuring range	100 µS/cm ... 2,500 mS/cm		
Response time t_{90} Temperature	50s	100s	100s
Process connection	DN50 conical flange		
T_{max} operation	130°C (applies to immersed sensor part)		
p_{max} @ T_{max}	10 bar		
Wetted material	PEEK	PEEK	FEP
Dimension	please refer to technical drawings		
Weight	~ 1.2 kg		
cable	5 m integral cable, extendable to 50 m max. / for EEx applications: 5 m max.		
Protection class acc. DIN EN 60529	IP65	IP65	IP67
Certification & Approvals	loop rating in conjunction with (1) = si792/si792X; (2) = si792X transmitters		
ATEX	not applicable	not applicable	II 2G Eex ia IIC T4 zone 1 (2)
FM	Class 1 Div 2 (1)(2)	Class 1 Div 2 (1)(2)	Class 1 Div 1 (2)
CSA	Class 1 Div 2 (1)(2)	Class 1 Div 2 (1)(2)	Class 1 Div 2 (2)

FEP Perfluoroethylenepropylene
PEEK Polyetherketone

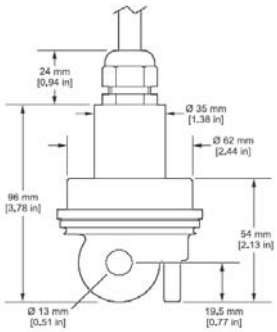
Conductivity, inductive

2200 series Conductivity sensors (DataSheet DOC053.53.90100)

Part No.	Designation
	Inductive Conductivity sensor with DN50 conical flange
7MA22008DA	Inductive Conductivity sensor, made of PEEK, integrated Pt100 T-sensor, 5 m fixed cable Process connection: DN50 conical flange Cell constant k = 3.00 cm^{-1}; Measuring range: 100 µS/cm ... 2,500 mS/cm max. 10 bar @ max 130°C
7MA22008BF	Inductive Conductivity sensor, made of FEP, integrated Pt100 T-sensor, 5 m fixed cable Process connection: DN50 conical flange Cell constant k = 3.82 cm^{-1}; Measuring range: 100 µS/cm ... 2,500 mS/cm max. 10 bar @ max 130°C
7MA22008EB	Inductive Conductivity sensor, made of FEP, integrated Pt100 T-sensor, 5 m fixed cable Intrinsic safe EEx ia IIC T4, ambient temperature < 80°C; Medium temperature < 130°C Process connection: DN50 conical flange Cell constant k = 3.82 cm^{-1}; Measuring range: 100 µS/cm ... 2,500 mS/cm max. 10 bar @ max 130°C
	Recommended Calibration tools
LZY011	Electrical Calibration tool for 2200 Inductive conductivity sensor series
	Optional accessories
LZY318	Junction box for extension cable, 10 terminals, (W x L x H = 75 x 110 x 55 mm)
C79451A3300N100	Extension cable, for series 2200 Inductive Conductivity sensors, 10 m
C79451A3300N200	Extension cable, for series 2200 Inductive Conductivity sensors, 20 m
C79451A3300N300	Extension cable, for series 2200 Inductive Conductivity sensors, 30 m
C79451A3300N500	Extension cable, for series 2200 Inductive Conductivity sensors, 50 m
	Replacements
LZY042	Standard gasket, made of Viton, pk/5 for flow through armatures and welding fittings with DN 50 conical flange process connection

Conductivity, inductive

2200 series Conductivity sensor - Varivent design (DataSheet DOC053.53.90098)



➔ Inductive conductivity sensors for use in Food & Beverage industry
- ➔ Dairies, Breweries, Bottled Water, Juice and Soft Drink Production
- ➔ suitable for CIP/SIP applications

➔ Varivent process connection for installation in Varivent fittings
- ➔ suitable for DN40 to DN150 Standard fittings, e.g. VARINLINE® Access Unit

Controller compatibility

si79X series

Technical Data
Subject to change without notice

	7MA22008CB
Designation	Inductive Conductivity sensor with integrated Temperature sensor
Fields of applications (typical)	Food & Beverage industry, e.g. Dairies, Breweries, Bottled Water, Juice and Soft Drink Production
Measurement method	Inductive
Cell constant K	3.16
Temperature sensor	Pt100 inbuilt
Measuring range	100 µS/cm ... 2,500 mS/cm
Response time t_{90} Temperature	50s
Process connection	Varivent
T_{max} operation	130°C (applies to immersed sensor part)
p_{max} @ T_{max}	10 bar
Wetted material	PEEK
Gasket	EDPM (for up to 135°C), VITON (for up to 200°C)
Dimension	please refer to technical drawings
Weight	~ 1.2 kg
cable	5 m integral cable, extendable to 50 m max.
Protection class acc. DIN EN 60529	IP65
Certification & Approvals	loop rating in conjunction with (1) = si792/si792X; (2) = si792X transmitters
ATEX	not applicable
FM	Class 1 Div 2 (1)(2)
CSA	Class 1 Div 2 (1)(2)

EDPM ethylene propylene diene M-class rubber

VITON Viton is a brand of synthetic rubber and fluoropolymer elastomer registered trademark of DuPont Performance Elastomers

Conductivity, inductive

2200 series Conductivity sensor - Varivent design (DataSheet DOC053.53.90098)

Part No.	Designation	
	Inductive Conductivity sensor with DN50 conical flange	
7MA22008CB	Inductive Conductivity sensor, made of PEEK, integrated Pt100 T-sensor, 5 m fixed cable Process connection: Varivent® DN40 to DN125 Cell constant k = 3.16 cm^{-1}; Measuring range: 100 µS/cm ... 2,500 mS/cm max. 10 bar @ max 130°C including 1 x EDPM Gasket	
	Recommended Calibration tools	
LZY011	Electrical Calibration tool for 2200 Inductive conductivity sensor series	
	Optional accessories	
LZY318	Junction box for extension cable, 10 terminals, (W x L x H = 75 x 110 x 55 mm)	
C79451A3300N100	Extension cable, for series 2200 Inductive Conductivity sensors, 10 m	
C79451A3300N200	Extension cable, for series 2200 Inductive Conductivity sensors, 20 m	
C79451A3300N300	Extension cable, for series 2200 Inductive Conductivity sensors, 30 m	
C79451A3300N500	Extension cable, for series 2200 Inductive Conductivity sensors, 50 m	
	Replacements	
LZY087	EPDM gasket, for Varivent fittings, pk/5	for up to 135°C
LZY088	Viton gasket, for Varivent fittings, pk/25	for up to 200°C

Conductivity, conductive

Conductive Conductivity Sensor 3400 / 831X / 8394 series (DOC053.52.00015)

Cl 1 D1

3400 sensor series - high quality Conductivity probes

The high quality Stainlessl Steel or graphite probes of the 3400 family are available with three different cell constants, namely 0.01 cm^{-1}, 0.1 cm^{-1} and 1 cm^{-1} covering a measuring range from 0.01 µS/cm to 20 mS/cm.

The specific cell constant of each probe is determined in conformity with ISO 7888/ ASTM D 1125 and entered in the sc controller when it is first taken into operation (HACH LANGE DRY-CAL* method).

The application spectrum extends from drinking water to ultrapure water at high temperatures and pressures or other clean media applications.

Controller compatibility

MONEC 9125

si79X series

sc60/100

sc1000

Technical Data
Subject to change without notice

	3400 sc / 831X / 8394 sensors			
Designation	High-Quality-Conductivity sensors for Middle-/Pure and Ultra-Pure Conductivity measurement			
Sensor design	2 conductor electrode with integrated Pt100, grade A			
Model	3410 & 3415	3411 & 3416	3412 & 3417	3494 A/B/C/D
Cell constant k	0.01 cm^{-1}	0.1 cm^{-1}	1.0 cm^{-1}	0.01 cm^{-1}
Accuracy	± 2%	± 2%	± 2%	± 2%
Measuring range				
Conductivity				
si 79X series	0.01 ... 50 µS/cm	0.1 ... 500 µS/cm	1 ... 2000 µS/cm	0.01 ... 50 µS/cm
SIPAN series	0.01 ... 50 µS/cm	0.1 ... 500 µS/cm	1 ... 2000 µS/cm	0.01 ... 50 µS/cm
sc controller series	0.01 ... 20 µS/cm	0.1 ... 200 µS/cm	1 ... 2000 µS/cm	0.01 ... 20 µS/cm
Temperature	-10 ... 200°C			
Response time T_{90}				
Conductivity	< 2 s			
Temperature	< 2 min			
Accuracy				
Conductivity	± 1% of actual value or ± 0,004 mS/cm whichever is greater			
Temperature	± 0,2°C			
Reproducabilty	< 0.2 %			
Calibration	HACH LANGE DRY-Cal or calibration with standards			
Materials				
Sensor Materials	3410	3411	3412	
Head / Body	Polyester / SS	Polyester / SS	Polyester / Graphite	
T_{max} operation	125°C for models 3410/3411/3412			
p_{max} @ T_{max}	10bar @ 125°C	10bar @ 125°C	10bar @ 125°C	
Sensor Materials	3415	3416	3417	3494
Head / Body	SS / SS316L	SS / SS316L	SS / SS316L	SS / SS316L (Ra< 0.4 µm)
T_{max} operation	150°C for models 3415/3416/3417 and 3494 A/B/C/D			
p_{max} @ T_{max}	25bar @ 150°C	25bar @ 150°C	25bar @ 150°C	15bar @ 150°C 25bar @ 100°C
Process connection	¾" NPT	¾" NPT	¾" NPT	1.5" or 2" Triclamp
Installation style	Bypass or inline			
Sensor cable	with sensor plug and open ends to controller/digital gateway; Protection class IP65; available in 5, 10 and 20 m length; max 5 m for Ex-applications in conjunction with si792X only			
Weight	depending on sensor style and material			
Dimensions	depending on sensor style and material			
Controller compatibility	sc controller series using AD3400 Digital Gateway MONEC 9125 and si79X controller (analog sensors only)			

Conductivity, conductive

Digital Conductivity sensor series 3400 / 831X / 8394 series (DOC053.52.00015)

Part No. **Designation**

3400 sc ¾" NPT Conductivity sensor series — D 3 4 1 X . 9 9

Sensor model option

Standard probes (max. 10bar @ 125°C)

Cell contant k = 0.01	0 ... 20 µS/cm	**0**
Cell contant k = 0.1	0 ... 200 µS/cm	**1**
Cell contant k = 1.0	0 ... 2000 µS/cm	**2**

High temperature probes (max. 25bar @ 150°C)

Cell contant k = 0.01	0 ... 20 µS/cm	**5**
Cell contant k = 0.1	0 ... 200 µS/cm	**6**
Cell contant k = 1.0	0 ... 2000 µS/cm	**7**

Language / Country Code Selection *please refer to Appendix E for further info*

3494 sc Conductivity sensor series - Sanitary style — D 3 4 9 4 X . 9 9

Cell constant k = 0.01, 0.01 ... 20 µS/cm, 150°C max

Sensor model option

Standard sensor

1.5" connection	**C**
2.0" connection	**D**

Sensor with Material certificate 3.1B

1.5" connection	**A**
2.0" connection	**B**

Language / Country Code Selection *please refer to Appendix E for further info*

Note:

All 3400 and 3494 sc Digital Sensors comes in appropriate body materials, including top connector cable 5m (Z08315=A=1115), an AD3400sc digital gateway (6120800.99) and a 1 m digital extension cable.
sc Digital Controller, and sc extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box (5867000) is required (for use with sc60/100 only). The maximum cable length is limited to 410m in total.
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Refer to Appendix E for more details about manuals and user interfaces in different available languages

Accessories

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Conductivity, conductive

Analog Conductivity sensor series 831X / 8394 series (DOC053.52.00015)

Part No. **Designation**

831X ¾" NPT Conductivity sensor series

Z	0	8	3	1	X	=	A	=	0	0	0	0

Sensor model option

Standard probes (max. 10bar @ 125°C)

Cell contant k = 0.01	0.01 ... 50 µS/cm	**0**
Cell contant k = 0.1	0.1 ... 500 µS/cm	**1**
Cell contant k = 1.0	1.0 ... 2000 µS/cm	**2**

High temperature probes (max. 25bar @ 150°C)

Cell contant k = 0.01	0.01 ... 50 µS/cm	**5**
Cell contant k = 0.1	0.1 ... 500 µS/cm	**6**
Cell contant k = 1.0	1.0 ... 2000 µS/cm	**7**

3494 sc Conductivity sensor series - Sanitary style
Cell constant k = 0.01, 0.01 ... 50 µS/cm, 150°C max

Z	0	8	3	9	4	=	A	=	X	X	X	X

Sensor model option

Standard sensor

1.5" connection		**1 5 0 0**
2.0" connection		**2 0 0 0**

Sensor with Material certificate 3.1B

1.5" connection		**1 5 1 1**
2.0" connection		**2 0 1 1**

Conductivity, conductive

3400 / 831X / 8394 series Conductivity sensor accessories

Part No. **Designation**

Replacements for 3400 sc series

Replacement sensor	Sensor bundle	Body Material	k	Measuring range using sc controllers	T_{max}	p_{max}
Z08310=A=0000	D3410.99	Polyester black	0.01	0 - 20 µS/cm	125°C	10 bar @ 125°C
Z08315=A=0000	D3415.99	SST 316 L	0.01	0 - 20 µS/cm	150°C	25 bar @ 150°C
Z08311=A=0000	D3411.99	Polyester black	0.1	0 - 200 µS/cm	125°C	10 bar @ 125°C
Z08316=A=0000	D3416.99	SST 316 L	0.1	0 - 200 µS/cm	150°C	25 bar @ 150°C
Z08312=A=0000	D3412.99	Polyester black	1.0	0 - 2000 µS/cm	125°C	10 bar @ 125°C
Z08317=A=0000	D3417.99	SST 316 L	1.0	0 - 2000 µS/cm	150°C	25 bar @ 150°C
Z08394=A=1511	D3494A.99	SS316L, (Ra < 0.4 µm)	0.01	0 - 20 µS/cm	150°C	10 bar @ 150°C 25 bar @ 100°C
Z08394=A=2011	D3494B.99					
Z08394=A=1500	D3494C.99					
Z08394=A=2000	D3494D.99					

Note: Material Certificate 3.1B including material conformity certificate and roughness certificate. These certificates ensure that each 8314 probe delivered meets the Food and Drug administration (FDA) requirements. Ideal for applications such as the monitoring of ultra pure water, pharmaceutical and use in the food industry.

831X sensor connection cable with IP65 sensor plug and open ends

Z08319=A=0005	5m cable for 2 electrode conductivity sensors series 831X
Z08319=A=0010	10m cable for 2 electrode conductivity sensors series 831X
Z08319=A=0020	20m cable for 2 electrode conductivity sensors series 831X
	alternatively
Z08319=A=0000	Top connector for 831X Conductivity sensors with connection drawing
Z588800,29050	Shielded 4 conductor cable (per metre)
Z08319=A=1115	5m cable for 2 electrode conductivity sensors series 831X, for use with AD3400 Gateway[1]

Note: Sensor cables can be used for connection to MONEC, SIPAN or si79x Controllers
To connect a 831X Cond. sensor to a AD3400 Digital gateway, please use cable Z08315=A=1115.
[1] cable diameter = 5.4 ± 0.3 mm

Conductivity Calibration Solutions

C20C280	0.001 Molar KCl, 148 µS/cm @ 25 °C	500 ml bottle
C20C270	0.01 Molar KCl, 1413 µS/cm @ 25 °C	500 ml bottle
C20C250	0.1 Molar KCl, 12.88 mS/cm @ 25 °C	500 ml bottle
25M3A2000-119	100-1000 µS/cm*	1 Liter bottle
25M3A2050-119	1000-2000 µS/cm*	1 Liter bottle
25M3A2100-119	2000-150,000 µS/cm*	1 Liter bottle
25M3A2200-119	200,000-300,000 µS/cm*	1 Liter bottle

* Specify the desired conductivity value of the solution.

Conductivity, conductive

3400 sc Digital Conductivity sensor accessories

Part No.	Designation	
6120700.99	**AD3400 sc**, Digital Gateway to operate 3400 sensor series	6 1 2 0 7 0 0 . 9 9

Note: sc Digital Controller, and sc extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m (using sc digital extension cables).

Technical Data
Subject to change without notice

	AD3400 sc Digital Gateway
Designation	AD converter to operate analog 831X/8394 sensors with sc controller series
Controller compatibility	sc controller series
T-sensor compatibility	Pt100 and Pt1000
Connectors	
output (to sc Controller)	using sc digital cables with sc plugs
Electrode input	using suitable electrode cables with bare leads to be connected to digital gateway recommended cable: Z08315=A=1115
Temperature	
Operation	–20 ... 60 °C (-4 to 140 °F)
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing
Materials	
Gateway housing	ABS (Acrylonitrile butadiene styrene) plastic
Dimensions	3.4 cm x 17.5 cm (1⅜ x 7") (Ø x L)
Weight	145 g (5 oz)
Warranty	2 years

Conductivity Preference Packages

MONEC 9125 series

The MONEC 9125 transmitter and associated measuring sensors have been designed for measuring and continuous control of Conductivity, Resistivity or Concentration (with possibility of temperature measurement) in municipal and industrial processes.

Equipped with Standard and specific temperature compensation, user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

Part No. **Designation**

Preference Packages for Flow-Through applications in Drinking & Industrial Process Water

MONEC 9125 Conductivity Measuring system

Z	9	1	2	5	/	C	0	X	/	X

Controller Relais option + Conductivity sensor option + 5m cable

Controller w/o relais	Measuring range		
+ 8310 sensor (k = 0.01)	0.01 ... 200 µS/cm	..... **1**	**1**
+ 8311 sensor (k = 0.1)	0.1 ... 2000 µS/cm	..... **2**	**1**
+ 8312 sensor (k = 1.0)	1 ... 20 mS/cm	..... **3**	**1**
Controller with 4 relais			
+ 8310 sensor (k = 0.01)	0.01 ... 200 µS/cm	..... **1**	**2**
+ 8311 sensor (k = 0.1)	0.1 ... 2000 µS/cm	..... **2**	**2**
+ 8312 sensor (k = 1.0)	1 ... 20 mS/cm	..... **3**	**2**

The preference packages are favourably priced measurement systems, consting of

Z08310=A=0000	2-electrode sensor (k=0.01), Tmax. 125°C @ Pmax. 10bar, Pt100 and ¾" NPT thread
Z08311=A=0000	2-electrode sensor (k=0.1), Tmax. 125°C @ Pmax. 10bar, Pt100 and ¾" NPT thread
Z08312=A=0000	2-electrode sensor (k=1.0), Tmax. 125°C @ Pmax. 10bar, Pt100 and ¾" NPT thread
	and MONEC 9125 controller depending on the selected configuration
Z09125=A=0000	9125 Conductivity Single channel transmitter (without relay)
	alternatively
Z09125=A=0004	9125 Conductivity Single channel transmitter with 4 relay-board
	and
Z08318=A=0001	Flow cell made from stainless steel, Tmax. 150°C @ 25 bar
Z08319=A=0005	5 m connecting cable with connector, IP 65

Preference Packages for Flow-Through CIP applications Sanitary Design, e.g. food & beverage

MONEC 9125 Conductivity Measuring system
with 2" Sanitary welding ferrule

Z	9	1	2	5	/	C	0	4	/	X

Controller Relais option

Controller w/o relays	**1**
Controller with 4 relay board	**2**

The preference packages are favourably priced measurement systems, consting of

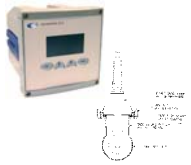
Z08394=A=2011	2" Sanitary flanged 2-electrode sensor (k=0,01), Tmax. 150°C @ pmax. 25bar, with Mat.Cert. 3.1B
Z08319=A=0005	5 m connecting cable with connector, IP 65
Z08394=A=0510	Kit for 2" clamp probe with EPDM gasket,clamp and welding ferrule
	and MONEC 9125 controller depending on the selected configuration
Z09125=A=0000	9125 Conductivity Single channel transmitter (without relay)
	alternatively
Z09125=A=0004	9125 Conductivity Single channel transmitter with 4 relay-board

Conductivity Preference Packages

MONEC 9125 series

Part No. **Designation**

Preference Packages for Flow-Through CIP applications Sanitary Design, e.g. food & beverage



MONEC 9125 Conductivity Measuring system Z 9 1 2 5 / C X X / X

with 4 Relais board, with DIN fitting DN50 or DN65 for food industry

Fitting option

DIN fitting DN65 (Kit with tee, gasket, nut)	**1**	**1**	.....	**2**
DIN fitting DN50 (welding ferrule, gasket, nut)	**1**	**0**	.....	**2**

The preference packages are favouribly priced measurement systems, consting of

Z08398=A=3000	8398 Inductive conductivity probe, DN 50 (DIN 11851), k = 2.35, PEEK, 0 ... 2000 mS/cm
	and
Z402=400=500	DN 50 nut for 8398.3
Z429=600=500	EPDM gasket for 8398.3 probe
Z581=200=500	Welding ferrule for 8398.3 probe
	or
Z08398=A=6500	Kit (tee, gasket, nut) for 8398.3 in DN 65 pipes
	and MONEC 9125 controller depending on the selected configuration
Z09125=A=0004	9125 Conductivity Single channel transmitter with 4 relay-board

Preference Packages for Immersion applications e.g. Waste Water

MONEC 9125 Conductivity Measuring system Z 9 1 2 5 / C 1 4 / X

with 1500 mm Immersion pipe with adjustable flange

Controller Relais option

Controller w/o relays	**1**
Controller with 4 relay board	**2**

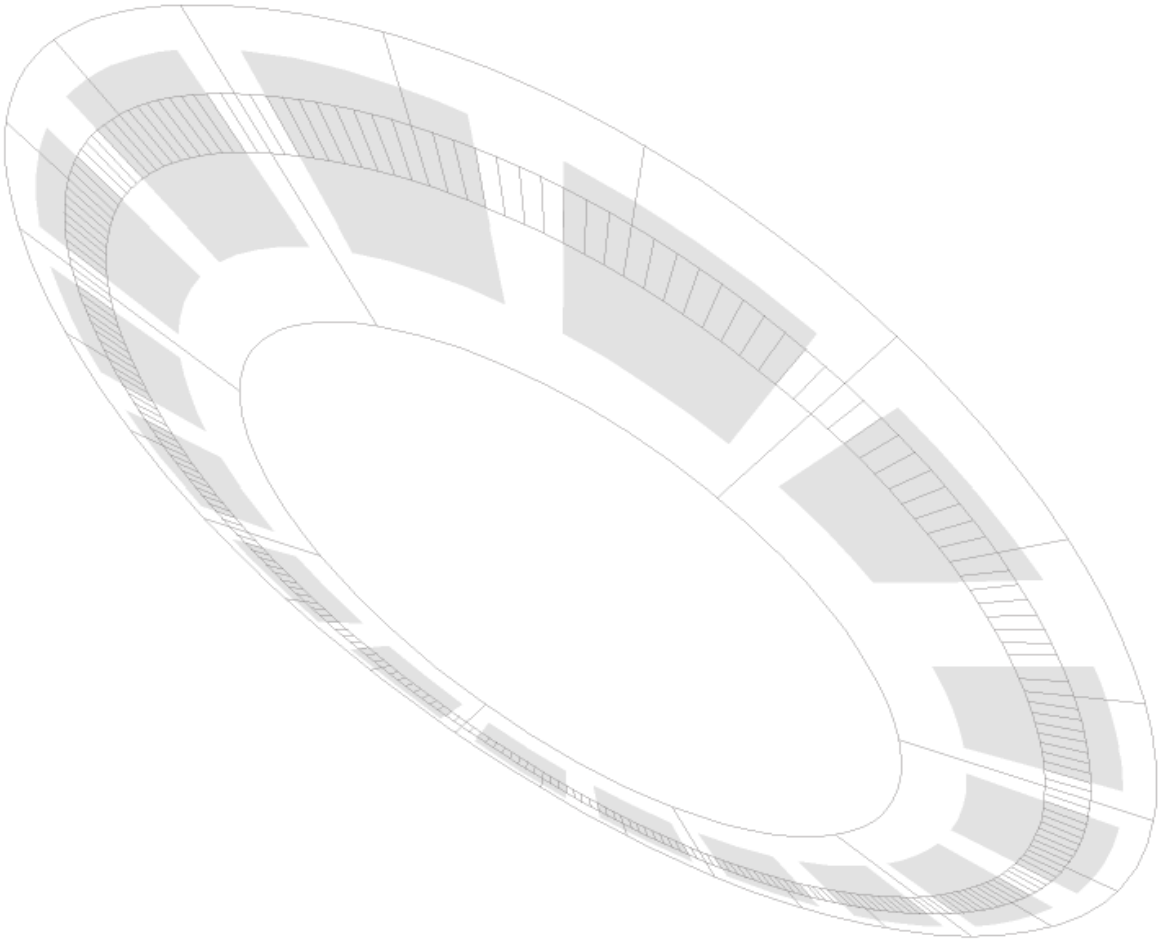
The preference packages are favouribly priced measurement systems, consting of

Z09125=A=0000	9125 Conductivity Single channel transmitter (without relay)
	alternatively
Z09125=A=0004	9125 Conductivity Single channel transmitter with 4 relay-board
	and
Z08398=A=5000	Inductive conductivity sensor with 5 m connecton cable, k = 2.35, 0 to 2000 mS/cm, made of PEEK, Pt100 Temperature sensor and 1" thread
Z08398=A=6615	Immersion pipe with sliding flange, DN 50, PP, length 1.5 m

Note: All packages are supplied without Calibration solutions
For suitable Calibration solution please consult the chapter Consumables

Electrochemistry

Analytical Solutions for Dissolved Oxygen Measurement in Process



Electrochemistry Dissolved Oxygen

General overview

MONEC 9182

2 wire technology

si792

si792X

4 wire technology

si794D

si794D tr

Cable fixed length or Top connector	10 m cable	X m fixed cable	VP6 plug	VP6 plug
Cable with top connector 3 m cable 5 m cable 10 m cable 20 m cable		-	- LZY079 **(EEX)** LZY353 LZY354	- LZY079 **(EEX)** LZY353 LZY354
Dissolved Oxygen sensors **&** **Temperature sensors**				
Sensor model	9182	OxySens	OxyFerm	OxyGold
Part No.	Z09182=A=0000 (Kit to order)	LZY078 5m LZY458 10m (non Eex)	LZY075	LZY072

Measuring range				
Dissolved Oxygen	0 ... 2000 µg/l	40 µg/l ... 40 mg/l	10 µg/l ... 40 mg/l	1 µg/l ... 40 mg/l
sensor type	amperometric Clark sensor	amperometric Clark sensor	amperometric Clark sensor	amperometric Clark sensor
cable connection	Top connector	integral cable	VP6 plug	VP6 plug
Temperature				
sensor type	Pt100 inbuilt	NTC22kΩ inbuilt	NTC22kΩ inbuilt	NTC22kΩ inbuilt
Measuring range	0 ... +45°C	0 ... +60°C	0 ... +130°C	0 ... +130°C
compensation range	0 ... +45°C			
Material				
Electrode shaft		SS Mat. 1.4435 PEEK	SS Mat. 1.4435	SS Mat. 1.4435 Gold
Electrode material		Silver-platinum combination	Silver-platinum combination	Silver-platinum combination
Process connection	¼" NPT	Pg 13.5	Pg 13.5	Pg 13.5
T_{max}		0 ... 60°C	0 ... 130°C	0 ... 130°C
P_{max}	atmospheric	0 ... 4 bar	0 ... 4 bar	0 ... 12 bar
Flow rate	4 ... 10 l/h	≥ 0.03 m/s	≥ 0.03 m/s	≥ 0.1 m/s
Response time		T_{98} = 60 sec max. at 25°C, from air to nitrogen		
typical installation	Bypass using Flow Cell Z09078=A=2000	Immersion or Bypass	Inline or Bypass	Inline or Bypass
Application	High purity water, e.g. Boiler water, condensate	typical: water and waste water applications	low carbonated beverage and chemical applications, CIP / SIP	ultra-pure water, non- or low-carbonated beverages and chemical industries; CIP / SIP
Notes		disposable, maintenance free D.O. sensor	comes with Mat. Cert. 3.1B; replacable cathode UpSide Down Mounting possible using special electrolyte, e.g. for almost empty tanks	comes with Mat. Cert. 3.1B; replacable cathode
max cable length				20 m 5m for EEX
Certification				
EEX		II 1/2G EEx ia IIC T4/T5/T6 using si792x D		
EEX Note		cable length will be limited to 5 m max.		

Pure Water	**X**			
Potable Water		**X**	**X**	**X**
Food & Beverage			**X**	**X**
In-process			**X**	**X**

Waste Water				
Neutralisation				
Industrial influent				
Municipal influent				
Aeration		**X**		
Digester				
Effluent		**X**		
In process		**X**		

Fish Farming		**X**		

USC5000/6000/7000
or dircetly to PLC

sc60

sc100

sc1000

10 m fixed cable	10 m fixed cable
	
EVITA Oxy	EVITA Oxy
085G406X.XX.001	085G407X.XX.001

10 m fixed cable	X m fixed cable
	
5740 sc	LDO
LXV425.99.00001	LXV416.99.000X1

0 ... 50 mg/l model dependant	
amperometric Clark sensor	amperometric Clark sensor
integral cable	integral cable
Pt1000 inbuilt	Pt1000 inbuilt
0 ... +40°C	0 ... +40°C
0 ... +40°C	0 ... +40°C
-	-
Gold / Silver	Gold / Silver
Ball-float mouting	Immersion mounting
40°C	40°C
n.a.	n.a.
> 2-3 cm/sec	> 2-3 cm/sec
Ball-float mouting	Immersion mounting
typical: water and waste water applications	typical: water and waste water applications; fish farming
	special fish farming model
10 or 50 m cable	
not applicable	not applicable
	x

0 ... 40 mg/l	0 ... 20 mg/l
amperometric Clark sensor	Luminescent Technology
integral cable	integral cable
NTC30kΩ inbuilt	NTC30kΩ inbuilt
0 ... +50°C	0 ... +50°C
0 ... +50°C	0 ... +50°C
NORYL	NORYL, SS316, Mat. 1.4401
Cathode: Ni-Cr Anode: Lead	- (optical)
1" NPT	1⅞" NPT
50°C	50°C
10 bar max (resp. 107 m depth)	
> 2-3 cm/s	independant
T_{90} = 120 sec	T_{90} <40 sec
Typical: Immersion mounting; inline or bypass using appropriate mounting assemblies	
typical: water and waste water applications	typical: water and waste water applications; fish farming
	special sea water resistant cable available
extendable to 410 m total	
not applicable	not applicable
	(X)
	x

Dissolved Oxygen

LDO - Luminescent Dissolved Oxygen sensor (DataSheet DOC053.52.03203)

LDO (Luminescent Dissolved Oxygen)
is based on an optical technique and measures the interval between the excitation of luminescent material by a pulse of light and the resultant emission of luminescence. The interval depends on the oxygen present.
The method is independent of all types of interference and thus has none of the disadvantages of conventional electrochemical methods.

Practical advantages.
The optical measurement principle guarantees extremely precise and reliable measured values over a long period of time. The LDO probe does not need to be calibrated, nor are there any membranes or electrolyte to replenish.
The laborious replacement of worn parts is also a thing of the past.
All that remains is the easily effected annual replacement of the sensor cap.

Controller compatibility

sc100

sc1000

Technical Data

Subject to change without notice

	LDO
Designation	Dissolved Oxygen sensor, luminescence-time detection technology calibration-free, H2S-resistant
T-sensor	NTC30kΩ integrated
Measuring range	
Dissolved Oxygen	0.1 - 20 mg/l (ppm), 0 - 200% Saturation
Temperature	0 ... 50 °C
Measuring accuracy	
Oxygen	± 0.1 mg/l @ DO <1 mg/l; ± 0.2 mg/l @ DO >1 mg/l
Temperature	± 0.2°C
Reproducability	± 0.5% of Measuring Range
Sensitivity	± 0.5% of Measuring Range
Resolution	0.01 mg/l, 0.01 ppm, 0.01 % saturation
Response time T_{90}	< 40 sec at 20°C
Compensation	
Temperature	Automatic or manual
Pressure	Automatic or manual
Salinity	manual
Calibration	factory precalibrated
Calibration/Verification	Air Calibration: one point, 100% water saturated air; Sample Calibration: comparison to standard instrument, or comparison to Winkler Titration method
Process connection	1⅞" NPT thread
Installation style	Immersion style using pole or chain mounting; Inline or Bypass using appropriate assembly
Min. Flow rate	not required
Max. sample pressure	Submersible to 107 m (350 ft)/1050 kPa (150 psi)
Wetted Material	
Sensor housing	NORYL, SS 1.4401 (316)
O-Ring	Viton
Membrane	Polypropylene
Sensor head	Noryl, Viton
Cable strain relief	Nylon
Weight	1.4 kg (3 lb, 2 oz.)
Dimensions	60 x 290 mm (2⅜ x 11.5 inch) (Ø x L)
Sensor cable	10 m, with encapsulated IP 68 connector, extendable using sc cables
Controller compatibility	sc 100 or sc1000 controller
Warranty	2 years for probe 2 years for sensor cap (typical application)

Dissolved Oxygen

LDO - Luminescent Dissolved Oxygen sensor (DataSheet DOC053.52.03203)

Part No.	Designation
LXV416.99.00XX1	**Lange LDO** Dissolved Oxygen Sensor; without sc controller

L	X	V	4	1	6	.	9	9	.	0	0	X	X	1	

Language / Country Code Selection *please refer to Appendix E for further info*

Cable length & Warranty Option

LDO sensor with 10m cable (Standard)	0	0
LDO sensor with 10m cable + extended Warranty to 5 years	W	0

Special configurations[1]

LDO sensor with 30m cable	0	3
LDO sensor with 30m cable + extended Warranty to 5 years	W	3
LDO sensor with 50m cable	0	1
LDO sensor with 50m cable + extended Warranty to 5 years	W	1
LDO sensor with 100m cable	0	2
LDO sensor with 100m cable + extended Warranty to 5 years	W	2

Note:

Standard delivery comprises
LDO Dissolved Oyxgen sensor with appropriate cable length, 1 Sensor cap with gasket and manual.
[1] Delivery time for special sensor cable length will be appr. 8 ... 12 weeks; please contact HACH LANGE.
sc Digital Controller, and sc connection/extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m (using sc digital extension cables).
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box 5867000 (not suitable for sc1000) is required.
The maximum cable length is limited to 410m in total.
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Consumables & Replacements

5791100	Replacement Sensor cap including 1 gasket
LZX857	Gasket for sensor cap (set of 2), made of Neoprene

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Optional accessories

LZH125	LDO Protection-/Calibration Cap, made of EPDM Please refer to LZH125 InfoSheet for further informations
6184750	LDO Sensor Guard to avaoid mechanical demage of sensor cap in harsh environment for e.g. for fish farming application

Dissolved Oxygen

LDO - Automatic Cleaning Accessories

Part No.	Designation
6190250	LDO - Air blast head kit (compressor and air hose are not supplied with kit) please refer to DOC306.53.00802 for detailled informations

HOAB - High Output Airblast

6	8	6	0	X	0	3	.	9	9	.	0	0	0	1	

Power supply option

230 VAC **1**
115 VAC **0**

Language / Country Code Selection *please refer to Appendix E for further info*

The following items are included as standard components of the self-cleaning kit:
• Tubing, 7.6 m (25 ft), • Tie wraps, • HOAB compressor with mounting hardware
• Relay Barrier

HOAB Wearing Parts

LZX030	Air filter for inlet air tube for dusty environment

For further informations please refer to the chapter Sample preparation -> HOAB

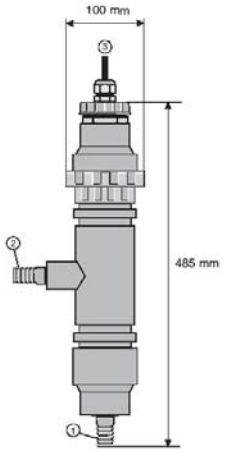
Dissolved Oxygen

LDO - Luminescent Dissolved Oxygen sensor (DataSheet DOC053.52.03203)

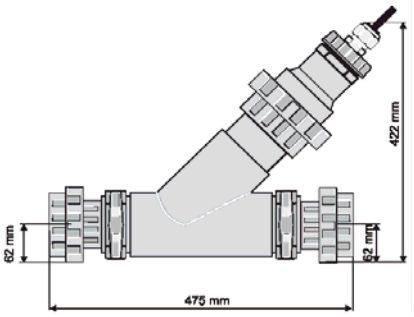
Part No. **Designation**

LDO Bypass and Inline installation Mounting Hardware

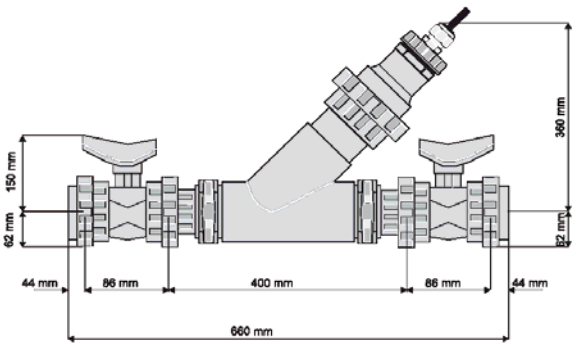
P/N	LZH052	LZH076	LZH077
Installation	Bypass Vertical	Inline Horizontal	Inline retractable Horizontal
DataSheet	DOC053.52.00098	DOC053.52.00142	DOC053.52.00142
Material	PVC	PVC	PVC
Dimension	100mm x 485mm (Ø x L)	475 x 422 mm (L x H)	660 x 360 mm (L x H)
	please refer to DataSheet for details		
T max	0 ... 45°C	0 ... 45°C	0 ... 45°C
p max	5 bar	5 bar	5 bar
Flow max	2 l/min	2 l/min	2 l/min
Process connection	20...22mm Ø tubing	G 2", Inside thread	G 2", Inside thread



LZH052



LZH076



LZH077

Dissolved Oxygen

5740 sc Clark sensor (DataSheet: DOC053.52.03254)

5740 sc
is a digital galvanic oxygen sensor with characteristics way above the standard in its class. Procurement and operating costs are significantly lower for this sensor than for the usual amperometric systems.

The sensor has been designed with a nickel-lead cell with a large, cylindrical membrane. This arrangement and the robust design ensure long service life, easy sensor cleaning and very reliable measured values. The sensor is therefore excellently suited to measurements in municipal and industrial wastewater.

In summary: a sensor with an excellent price-performance ratio.

Controller compatibility

sc60/100

sc1000

Technical Data

Subject to change without notice

	5740 sc
Designation	Dissolved Oxygen "Clark-style" sensor, Galvanic principle with integrated Membran Leakage Detection
T-sensor	integrated NTC30kΩ
Measuring range	
Dissolved Oxygen	0 - 40 mg/l (ppm), 0 - 200% Saturation
Temperature	0 ... 50 °C
Measuring accuracy	
Oxygen	± 2% of Measuring Range
Temperature	± 0.2°C
Reproducability	± 0.5% of Measuring Range
Sensitivity	± 0.05% of Measuring Range
Resolution	<10 mg/l: ±0.01 mg/l (ppm); ± 0.1 % saturation >10 mg/l: 0.1 mg/l (ppm); ±0.1 % saturation
Response time T_{90}	120 sec @ 20°C
Compensation	
Temperature	Automatic or manual
Pressure	Automatic or manual
Salinity	manual
Calibration	Automatic (air/sample)
Process connection	1"NPT thread
Installation style	Immersion style using pole or chain mounting
Min. Flow rate	> 2-3 cm/sec
Max. sample pressure	10 bar absolut
Wetted Material	
Sensor housing	Noryl
O-Ring	Viton
Membrane	Polypropylene
Sensor head	Noryl, Viton
Cable strain relief	Nylon
Electrode Material	Cathode: Nickel-Chromium Anode: Lead
Membrane Thickness	40 µm
Weight	~ 0.26 kg
Dimensions	44 mm x 203 mm (Ø x L)
Sensor cable	10 m, with encapsulated IP 68 connector, extendable using sc cables
Speciality	Integrated Membran Leakage Detection
Controller compatibility	sc controller series

Dissolved Oxygen

5740 sc Clark sensor (DataSheet: DOC053.52.03254)

Part No.	Designation
LXV425.99.00001	**5740 sc** Digital Galvanic DO Sensor, w/o sc controller

L	X	V	4	2	5	.	9	9	.	0	0	0	0	1

Language / Country Code Selection *please refer to Appendix E for further info*

Note: The sensor comes with a replaceable cartrige
(with a factory installed, semi-permeable membrane), protector, 12 disposable calibration bags for highly accurate "Saturated Air Method" with integral 10 m cable terminated with connector for the sc digital controllers.
sc Digital Controller, and sc connection/extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m (using sc digital extension cables).
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box 5867000 (not suitable for sc1000) is required.
The maximum cable length is limited to 410m in total.
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Consumables & Replacements

LZX772	5740 sc Digital Galvanic DO Sensor Replacement Cartridge
276M1210	Replacement Calibration Bags (package of 12 for "in air" calibration use only)

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Optional accessories

Air Blast Cleaning System for 5740 sc
Self-contained Air Blast Cleaning System consists of CPVC washer head with 7.6 m (25 ft) tubing for air delivery, quick-disconnect tube fitting, and compressor in NEMA 4X enclosure.

6136100	Air Blast Cleaning system for 5740 sc, 115 VAC operation
6136200	Air Blast Cleaning System for 5740 sc, 230 VAC operation
6130500	Washer Head for Air Blast Cleaning System for 5740 sc

Flow-through Union Mounting Hardware for 5740 sc
Only for use with union mount style sensor; consists of a PVC 2-inch "Y" tee with socket-weld connections, and 2-inch union.

6136300	Flow-through Union Mounting Hardware (e.g. for drinking water applications)

OXYGEN, Dissolved

EVITA Oxy (DataSheet DOC023.52.00076)

The Hach LANGE **EVITA OXY** Transmitter performs with less than 30 minutes of maintenance a year. The factory "all-inclusive" sensor contains electrolyte, membranes and electrodes.
There is no need for regeneration — simply replace the sensor every two years and it's done after 5 minutes.

Unique self-cleaning design — the spherical form and the "fins" ensure that contaminants will not stick to the sensor.

Immersed cleaning systems are ! Wipe the sensor down three times per year during normal calibration to ensure optimal performance.

Automatic Calibration "Tilt-Cal"
Calibration is done automatically by simply tilting the transmitter.
It takes 5 minutes, and typically 3-4 times a year.

Controller compatibility

Direct PLC connection

USC series

Technical Data

Subject to change without notice

	EVITA OXY 4150 			**EVITA OXY 4150** 
Designation	Dissolved Oxygen "Clark-style" sensor with integrated Membran Leakage Detection, 2-wire on current loop powered, for DO measurement in water/waste water			
T-sensor	Pt1000 inbuilt			
Sensor style	Ball-float style			Immersion probe style
Measuring range				
Dissolved Oxygen	0 to 50 mg/l, 0 to 500% (configurable, depending on used Oxy sensor)			
Temperature	0 to 40°C			
Reproducability				
Response time T_{90}	depending on Membrane thickness in use			
	7 s	25 µm:	Measuring range:	0 - 2.0 ppm
	22 s	50 µm:	Measuring range:	0.1 - 10 ppm
	110 s	125 µm:	Measuring range:	2.0 - 50 ppm
Compensation				
Temperature	40°C			
Calibration	"Tilt-Cal" - AutoCalibration in air			
Process connection				
Required Flow rate	> 2-3 cm/sec			
Max. sample pressure	1 m			submersible up to 10 m
Sensor cable	10 m cable as Standard, 2 x 0.75 mm^2 shielded			
Controller compatibility	Direct connection to SCADA/PLC or with USC5000/6000/7000			
Outputs	0/4 ... 20 mA HART® communication superposed on current output			
Power requirements	12-30 VDC, 720 mVA (max)			
Operation Temperature				
Enclosure rating	IP 68 (1 m); NEMA 6P (3')			IP 68 (10 m); NEMA 6P (3')
Weight	2.7 kg (6 lb)			1 kg (2.2 lb)
Dimensions	240 mm Ø (9.6")			50 mm x 180 mm (2.0" x 7.2"') Ø x L
Warranty	1 year			

OXYGEN, Dissolved

EVITA Oxy - ball float style (DataSheet DOC023.52.00076)

Part No. **Designation**

EVITA Oxy, Sytem Package 3 — 0 8 5 G 4 0 0 X . 5 2 . 0 0 1

DO Measuring range option (w/o Signal Converter)

0 ... 3 mg/l	2
0 ... 5 mg/l	3
0 ... 10 mg/l	4
0 ... 15 mg/l	5
0 ... 20 mg/l	6

Language / Country Code Selectior *please refer to Appendix E for further info*

Manual in GB language	5 2

Note: Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 3
w/o USC, for direct connection to PLC/SCADA respectively as extension kit , comprises
OXY 4100 oxygen transmitter (085G406X.52.001), OXY 1100 oxygen sensor (085G00XX),
Mounting bracket (085G4085) and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

EVITA Oxy, Sytem Package 1 with USC6000 — 0 8 5 G 4 0 0 0 . 5 2 . 0 0 1

DO Measuring range Option

0 ... 20 mg/l	0

Language / Country Code Selectior *please refer to Appendix E for further info*

Manual in GB language	5 2

Note: Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 1 comprises
1 x USC6000 Signal Converter, Field housing IP67, 85-264 VAC 50/60 Hz (085G4140.52.001),
2 x 0/4 - 20 mA output with digital HART®, 3 relays SPST, Integrated pressure sensor,
Suitable for optional TMS module
1 x OXY 4100 oxygen transmitter, ball float style (085G4064.52.001),
1 x OXY 1100 oxygen sensor, Measuring range 0...20 mg/l (085G0022),
1 x Mounting bracket (085G4085) and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

EVITA Oxy, Sytem Package 2 with USC5000 — 0 8 5 G 4 0 0 1 . 5 2 . 0 0 1

DO Measuring range Option

0 ... 20 mg/l	1

Language / Country Code Selectior *please refer to Appendix E for further info*

Manual in GB language	5 2

Note: Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 2 comprises
1 x USC5000 Signal Converter, Field housing IP67, 85-264 VAC 50/60 Hz (085G4145.52.001),
1 x 0/4 - 20 mA output with digital HART®, No relais, Integrated pressure sensor,
1 x OXY 4100 oxygen transmitter, ball float style (085G4064.52.001),
1 x OXY 1100 oxygen sensor, Measuring range 0...20 mg/l (085G0022),
1 x Mounting bracket (085G4085) and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

OXYGEN, Dissolved

EVITA Oxy - immersion style (DataSheet DOC023.52.00076)

Part No. **Designation**

EVITA Oxy, Sytem Package 1A with USC6000

0	8	5	G	4	0	0	8	.	5	2	.	0	0	1

DO Measuring range Option

0 ... 20 mg/l **8**

Language / Country Code Selectior *please refer to Appendix E for further info*

Manual in GB language **5 2**

Note: Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 1A comprises
1 x USC6000 Signal Converter, Field housing IP67, 85-264 VAC 50/60 Hz (085G4140.52.001),
2 x 0/4 - 20 mA output with digital HART®, 3 relays SPST, Integrated pressure sensor,
Suitable for optional TMS module
1 x OXY 4150 oxygen transmitter, probe-style (085G4074.52.001),
1 x OXY 1100 oxygen sensor, Measuring range 0...20 mg/l (085G0022),
1 x Mounting bracket (085G4085), Adaptor 50 mm pipe to 1¼" thread (085G3325)
and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

EVITA Oxy, Sytem Package 2A with USC5000

0	8	5	G	4	0	0	9	.	5	2	.	0	0	1

DO Measuring range Option

0 ... 20 mg/l **9**

Language / Country Code Selectior *please refer to Appendix E for further info*

Manual in GB language **5 2**

Note: Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 2 comprises
1 x USC5000 Signal Converter, Field housing IP67, 85-264 VAC 50/60 Hz (085G4145.52.001),
1 x 0/4 - 20 mA output with digital HART®, No relais, Integrated pressure sensor,
1 x OXY 4150 oxygen transmitter, probe-style (085G4074.52.001),
1 x OXY 1100 oxygen sensor, Measuring range 0...20 mg/l (085G0022),
1 x Mounting bracket (085G4085), Adaptor 50 mm pipe to 1¼" thread (085G3325)
and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

Note: Preference packages for Fish-farming applications, please contact HACH LANGE.

OXYGEN, Dissolved

EVITA Oxy - Common accessories (DataSheet DOC023.52.00076)

Part No. **Designation**

EVITA Oxy 41X0 Transmitter w/o sensor **0 8 5 G 4 0 X X . 5 2 . 0 0 1**

Measuring range option

4100 Transmitter (ball-float style) with 10 m cable

0 ... 3 mg/l	**6 0**
0 ... 5 mg/l	**6 1**
0 ... 10 mg/l	**6 2**
0 ... 15 mg/l	**6 3**
0 ... 20 mg/l	**6 4**
0 ... 30 mg/l	**6 5**
0 ... 100%	**6 6**

4100 Transmitter with 50 m cable

0 ... 20 mg/l	**6 9**

4150 Transmitter (probe style) with 10 m cable

0 ... 3 mg/l	**7 0**
0 ... 5 mg/l	**7 1**
0 ... 10 mg/l	**7 2**
0 ... 15 mg/l	**7 3**
0 ... 20 mg/l	**7 4**
0 ... 30 mg/l	**7 5**
0 ... 100%	**7 6**

4150 Transmitter with 50 m cable

0 ... 20 mg/l	**7 9**

Language / Country Code Selection *please refer to Appendix E for further info*

Manual in GB language	**5 2**

Note:
OXY 4100 oxygen transmitter (Ball float style)
4-10 mA current output with digital HART;
sensor (085G40XX) is not included and must be ordered separately!
OXY 4150 oxygen transmitter (Probe style)
4-10 mA current output with digital HART;
sensor (085G40XX) and adapter (085G3325) are not included and must be ordered separately!
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

Oxy 1100 Dissolved Oxygen sensor **0 8 5 G 0 0 X X**

Membrane Thickness / Measuring range **Packaging design**

Measuring range 0.002 - 2 ppm Dissolved Oxygen

25µm Membrane, 0.002 - 2 ppm DO	pk/1	**2 1**
25µm Membrane, 0.002 - 2 ppm DO	pk/5	**2 4**
25µm Membrane, 0.002 - 2 ppm DO	pk/10	**2 5**

Measuring range 0.1 - 10 ppm Dissolved Oxygen

50µm Membrane, 0.1 - 10 ppm DO	pk/1	**2 2**
50µm Membrane, 0.1 - 10 ppm DO	pk/5	**2 6**
50µm Membrane, 0.1 - 10 ppm DO	pk/10	**2 7**

Measuring range 2 - 50 ppm Dissolved Oxygen

125µm Membrane, 2.0 - 50 ppm DO	pk/1	**2 3**
125µm Membrane, 2.0 - 50 ppm DO	pk/5	**2 9**
125µm Membrane, 2.0 - 50 ppm DO	pk/10	**3 0**

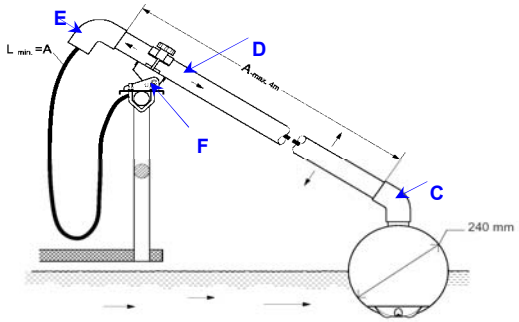
Note:
The OXY 1100 Membrane Cartridges come ready to use.
Pre-assembled anode, cathode, electrolyte, and membrane in a foil pack.
The standard 50µm cartridge can last 2 years!
All are available individually or in packages of 5 or 10 pieces.

192LX0220 Silica fat MS4 conductive, 100 g

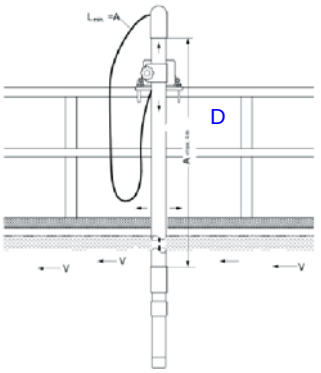
OXYGEN, Dissolved

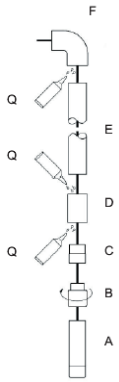
EVITA Oxy - Common accessories (DataSheet DOC023.52.00076)

Part No.	Designation	
	Mounting assembly for EVITA Oxy 4100 ball-float style	Part in Picture
191L8651	2.5 m tube & bend, made of PVC, 50 mm Ø (D)	D
191L8654	4.0 m tube & bend, made of PVC, 50 mm Ø (D)	D
191L8652	45° tube elbow, PVC, 50 mm Ø (C)	C
191L8653	90° tube elbow, PVC, 50 mm Ø (E)	E
085G4085	Mounting bracket for 1½" to 50 mm PVC pipe (AISI 316)	F



	Mounting assembly for EVITA Oxy 4150 probe style	
085G4085	Mounting bracket for 1½" to 50 mm PVC pipe (AISI 316)	
191L8651	2.5 m tube & bend, made of PVC, 50 mm Ø (D)	D
191L8654	4.0 m tube & bend, made of PVC, 50 mm Ø (D)	D
085G3325	Adaptor 50 mm pipe to 1¼" thread (supplied with preference packages) alternatively	
081B0028	Union fitting for 50mm pipes and 1¼" thread	
191L8653	90° tube elbow, PVC, 50 mm Ø (E)	E





A: OXY 4150/3150; diameter 50 mm

B: adaptor with 1¼" pipe thread (085G3325) or union with diameter 50 mm (081B0028); is supplied with system packages 1A and 2A

C: adaptor with 1½" and 50 mm outside diameter (081B0027); is supplied with system packages 1A and 2A

D: PVC or ABS socket; inside diameter: 50 mm or 1½"; supplied by customer

E: PVC or ABS tube; 50 mm or 1½"; supplied by customer

F: 90° PVC or ABS elbow; inside diameter: 50 mm or 1½"; supplied by customer

Q: PVC or ABS adhesive; supplied by customer

085G4081	Cable bracket for OXY models 4150 and 3150 for cable suspension Part B must be customer supplied.	

OXYGEN, Dissolved

OXISTAT T 9182 (DataSheet TE9182revD)

Dissolved oxygen analyzer designed for measurement in high purity water with automatic temperature compensation, e.g. in boiler water and condensate. Controller suitable for wall, pipe or control panel mounting.

- ➔ User–friendly menu–based programming
- ➔ Easy to install
- ➔ Long–life membranes pre-mounted on retaining caps to suppress any delicate membrane handling
- ➔ Two–point calibration: zero & slope
- ➔ Fast calibration procedure: from ppm level (air) to process ppb values in less than 15 minutes!
- ➔ Two smart analog outputs (measurement/temperature) with automatic recognition of the analyser status
- ➔ Four relays for high/low limits, system error and timer

Technical Data

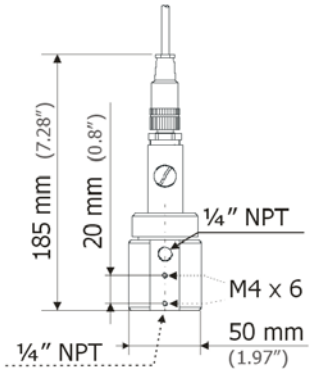
Subject to change without notice

	9182 T
Designation	Measuring system for online monitoring of DO in high purity water and condensates
Measuring principle	amperometric (Clark Cell)
T-sensor	integrated PT100
Measuring range	
Dissolved Oxygen	0 ... 2000 µg/l (ppb), ((0–9999 ppb when calibrating in air))
Temperature	0 ... 45°C1
Reproducability	± 0.5 ppb or ± 5% (whichever is greater)
Sensitivity	± 0.5% of Measuring Range
Resolution	0.01 mg/l, 0.01 ppm, 0.01 % saturation
Response time T_{90}	< 30 sec For step change 1–40 ppb
Compensation	
Temperature	Automatic in the range of 0 ... 45°C
Pressure	Automatic or manual
Salinity	manual
Calibration	2-point (Zero + slope) Zero: Electrically or with oxygen free water Slope: in air or process using a laboratory reference value
Process connection	Bypass Installation with atmospheric outlet
Inlet	¼" NPT (4/6 mm ID/OD stainless steel tubing recommended)
Outlet (Drain)	¼" NPT (6/8 mm ID/OD tubing recommended)
Required Flow rate	4 ... 10 l/h
Max. sample pressure	Outlet at atmospheric pressure
Wetted Material	
Electrodes	Gold cathode, Silver anode
O-Ring	Viton
Membrane	PFA (Perfluoroalkoxy)
Sensor head	Noryl, Viton
Sensor body	Noryl
Flow–through cell	SS 316L
Sensor cable	10 m
Controller compatibility	MONEC 9100
Outputs	2 x 0/4–20 mA fully programmable, 800 Ohms load max. - 1 x measurement (linear or dual range) and 1 x for the temperature (linear), or - two measurements (linear or dual range) 4 relays (min/max., system alarm, timer) optional RS485, ProfiBus DP
Power requirements	90...265 VAC, 50/60 Hz, ~25VA low Voltage version on request
Operation Temperature	-20 ... +60°C
Enclosure rating	IP65, NEMA 4 (optional NEMA4X)
Weight	10 kg
Dimensions	
Controller	144 x 144 x 155 mm (W x H x D)
Flow–through cell	50 x 185 x 46 mm (W x H x D) with installed electrode
Warranty	2 years for the controller

OXYGEN, Dissolved

OXISTAT T 9182 (DataSheet TE9182revD)

Part No.	Designation
Z09182=A=0000	OXISTAT T 9182 consisting of: Transmitter, Dissolved Oxygen Measuring probe, Flow through cell (SS316L), 10 m cable Start–up / 2 year operation kit: electrolyte, calibration cap, filling syringe and 4 premounted membranes for ppb range analysis.
	Consumables (suitable for 2 years operation under normal conditions)
Z09185=A=3500	DO membranes (ppb); premounted, made of PFA, pk/4
Z09181=A=3600	KBr Filling solution, 100ml bottle
	Spare Parts & Replacements
Z09182=A=1200	Calibration cap
Z09078=A=2000	Flow through cell, made of SS316L
Z09182=A=1000	Oxygen electrode (ppb) without probe body
Z09078=C=1010	Probe body oxygen ppb, made of NORYL
Z09180=A=8010	Connection cable 10m
Z221=191=082	9182 Instruction manual in English



Dissolved Oxygen sensors

Ø 12 mm Sensors and Accessories - Specifications

Controller compatibility

si792/792X/794

SIPAN 32/32X / 34

Technical Data

Subject to change without notice

	OxyGold G	OxyFerm	OxySens
			
Field of applications:	ultra-pure water, non- or low-carbonated beverages and chemical industries; steam sterilizable; with 3.1b certificate	low carbonated beverage and chemical applications, steam sterilization, autoclavation and CIP; with 3.1b certificate	waste water and water, e.g. fish farming
Measuring range depending on controller	1µg/l ... 40mg/l	10µg/l ... 40 mg/l	40µg/l ... 40mg/l
T_{max}	0 ... 130°C	0 ... 130°C	0 ... 60°C
p_{max}	0 ... 12 bar	0.5 ... 4 bar	0 ... 4 bar
Response time T98	< 60 sec	< 60 sec	< 60 sec
General Information			
Polarisation Voltage	670 ± 50mV	670 ± 50mV	670 ± 50mV
Temperature sensor	NTC 22 KOhm integrated	NTC 22 KOhm integrated	NTC 22 KOhm integrated
Min. required flow rate	> 0.1 m/s	> 0.02 m/s	> 0.02 m/s
Drift	< 1% / week	< 2% / week	< 2% / week
Special Information		UpSide Down Mounting possible using special electrolyte gel, e.g. for almost empty tanks	maintenance-free DO sensor; no change of membrane or electrolyte required
Cable	VP plug connector LZY079 5m, LZY353 10m LZY354 20m	cable VP plug LZY079 5m, LZY353 10m LZY354 20m	LZY078 5m fixed and sealed LZY458 10m fixed and sealed
Process connection	PG13.5 thread	PG13.5 thread	PG13.5 thread
Typical Installation	Inline or Bypass	Inline or Bypass	Immersion, Inline or Bypass
Electrode Shaft Ø	12 mm Ø	12 mm Ø	12 mm Ø
Mounting length	120 mm	120 mm	120 mm
Protection class acc. EN 60529	IP68	IP68	IP68
Sensor body material	SS316 Mat 1.4435 and Gold	SS316 Mat. 1.4435	SS 316 Mat. 1.4435 and PEEK
Membrane material	Optiflow		
Sealings	FDA-EPDM, Silicon	Silicon, Viton	Silicon, NBR O-Ring
EEx protection	II 1/2G Eex ia II c T4/T5/T6 in conjunction with si792x D EC-Type Examination Certificate No: TÜV 03 ATEX 7005X; ATEX-Certificate: CE0035 maximum permissible cable length: 5 m		
weight	0.2 kg		
Controller compatibility	si792, si792x, si794 SIPAN 32/32x	si792, si792x, si794 SIPAN 32/32X/34	si792, si792x, si794 SIPAN 32/32X/34

Note: For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Dissolved Oxygen sensors

Ø 12 mm Sensors and Accessories - Specifications

Part No.	Designation
LZY072	**OxyGold G** Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, VP6 top connector (IP68) with integrated 22kOhm NTC Temperature sensor, Eex-Label: II 1/2G EEx IA II C T4/T5/T6, ATEX No: TUV 03 ATEX 7005X Measuring range: 2 µg/l ... 40 mg/l, up to 12 bar and 0 ... 130°C, suitable for ultra-pure water, non- or low-carbonated beverages and chemical industries. steam sterilizable, comes with Material Certificate 3.1B made of SS316L Mat. 1.4435, Gold; Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP
LZY075	**OxyFerm** Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, VP6 top connector (IP68) with integrated 22kOhm NTC Temperature sensor, Eex-Label: II 1/2G EEx IA II C T4/T5/T6, ATEX No: TUV 03 ATEX 7005X Measuring range: 10 µg/l ... 40 mg/l, up to 4 bar and 0 ... 130°C, suitable for beverage (low carbonated media) and chemical industries steam sterilization, autoclavation and CIP, comes with Material Certificate 3.1B made of SS316L Mat. 1.4435; Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP
LZY078	**OxySens** Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, 5 m integral cable (IP68) with integrated 22kOhm NTC Temperature sensor, Eex-Label: II 1/2G EEx IA II C T4/T5/T6, ATEX No: TUV 03 ATEX 7005X Measuring range: 40 µg/l ... 40 mg/l, up to 4 bar and 0 ... 60°C, maintenance-free disposable gneral purpose sensor suitable for water, waste water, fish farming application made of SS316L Mat. 1.4435, PEEK Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP
LZY458	**OxySens** Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, 10 m integral cable (IP68) with integrated 22kOhm NTC Temperature sensor, Measuring range: 40 µg/l ... 40 mg/l, up to 4 bar and 0 ... 60°C, maintenance-free disposable gneral purpose sensor; suitable for water, waste water, fish farming application made of SS316L Mat. 1.4435, PEEK Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP

Sensor connection cables, VP plug style

LZY079	Connection cable for sensors with VP plug connector, 5m	for non-Ex application only
LZY353	Connection cable for sensors with VP plug connector, 10m	for non-Ex application only
LZY354	Connection cable for sensors with VP plug connector, 20m	

Sensor accessories & Consumables

for OxyGold sensors

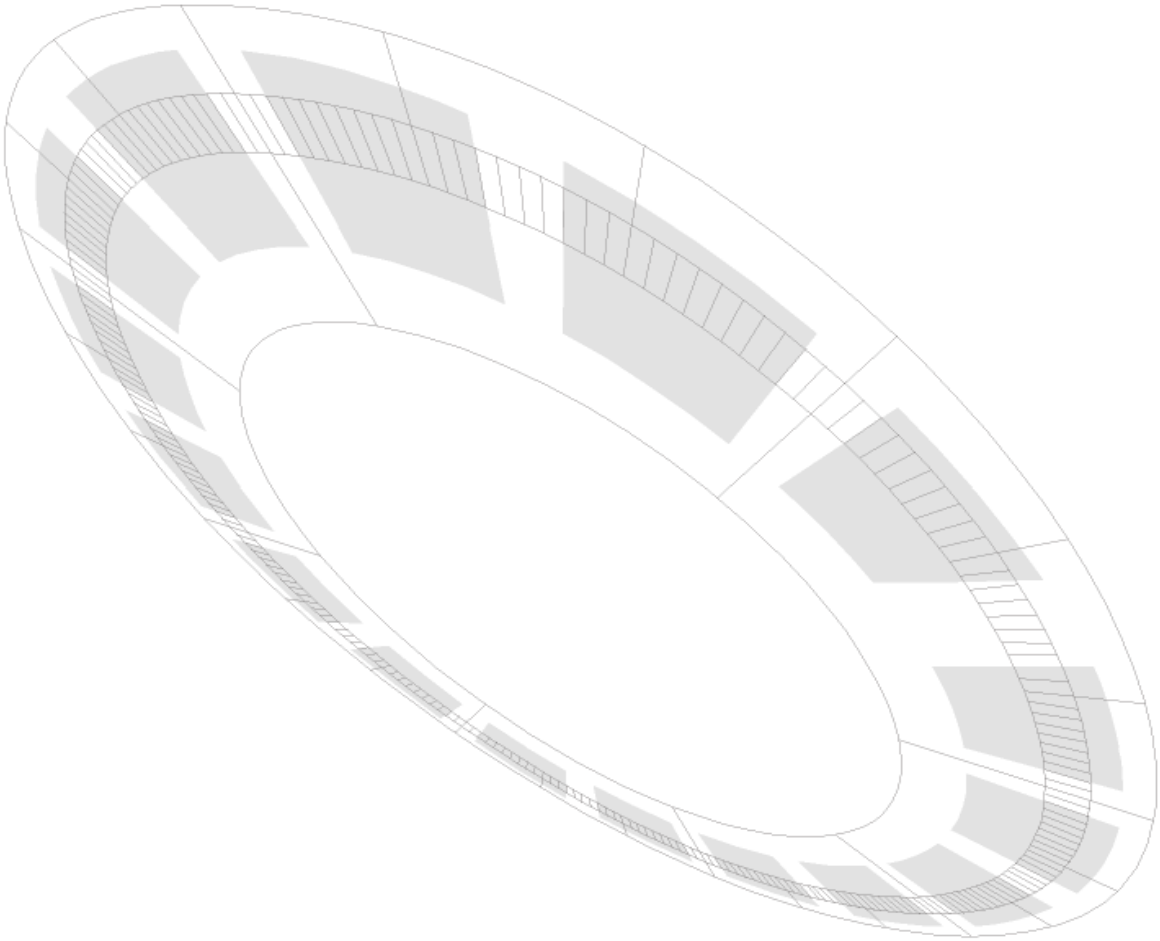
LZY073	Membrane Replacement Kit for OxyGold D.O. sensors consting of: 3 membrane heads, 3 O-rings (EDPM)
LZY074	OxyLyte G - Filling solution for OxyGOLD sensor series, 50 ml
LZY081	Polarisation Module "G" for D.O. sensor models OxyGOLD G and OxyFERM, pk/1 not suitable for OxyGold B, because of different Polarisation Voltage

for OxyFerm sensors

LZY076	Membrane Replacement Kit for OxyFerm D.O. sensors including 3 Membrane heads, 3 O-rings (EDPM), Electrolyte filling solution 20ml, 1 pipette
LZY077	OxyLyte - Filling solution for OxyFerm sensor, 50 ml
LZY081	Polarisation Module "G" for D.O. sensor models OxyGOLD G and OxyFERM, pk/1

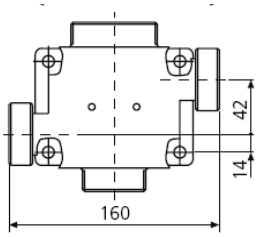
Mounting Assemblies

for Electrochemical sensors



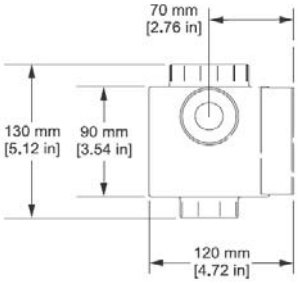
Mounting assemblies, model LZU215

Flow-through Mounting Assemblies for E-Chem sensors (DataSheet DOC273.98.90079)



Thread connection,
DN25, 180° staggered,

with connection for optional
cleaning system



- ➔ easy installation
- ➔ flexibilty due to variety of adaptors
- ➔ for use with PG13.5, ¾" and 1" sensors

- ➔ available in PP-H
  - ➔ PP-H: 90°C max at 1.5 bar
    max 6 bar @ 40°C

- ➔ optional cleaning system
- ➔ optional calibration cup

Sensor adapters ➔

3 x Pg 13.5

1 x ¾"
for 3700 series

1 x ¾"
for 8350 series

1 x 1"
for pHD series

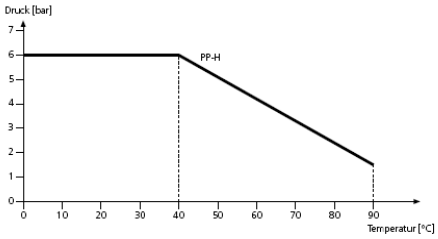
Optional accessories ➔

Cleaning system
LZU215.99.60000

Calibration cup
LZU215.99.70000

Protection cap
LZU215.99.30000

Pressure / Temperature resistivity



Mounting assemblies, model LZU215

Flow-through Mounting Assemblies for E-Chem sensors (DataSheet DOC273.98.90079)

Part No. **Designation**

Flow-Thru armature, made of PP-H L Z U 2 1 5 . 9 9 . 1 X X 2 X

(p_{max} 6 bar @ 40°C; 1,5 bar @ 90°C); 180° staggered flow direction,
pre-configured for optional upgrading cleaning tool, Viton sealing o-rings

Material

PP-H	T max @ p max	6 bar @ 40°C; 1.5 bar @ 90°C	1

Sensor adapter option

1 x Pg 13.5 sensors	1
¾" int. thread for 8350 pH/ORP sensor series	D
¾" int. thread for 37XX Inductive Conductivity sensor series	E
1" int. thread for pHD sensors	G

Process connection option

DN25 coupling		1
G1/4"	Standard item	2

Inlet/Outlet Design option

Inlet/Outlet 180° staggered	prepared for optional cleaning system	2

Head assembly

none	in conjunction with ¾" and 1" sensor adapters	0
Standard Protection Cap	in conjunction with Pg 13.5 sensor adapter only	1

Note: LZY215.99.1X22X are standard items and have short delivery time.
Other item configuration have a delivery time of ~ 6-8 weeks.

Optional Accessories

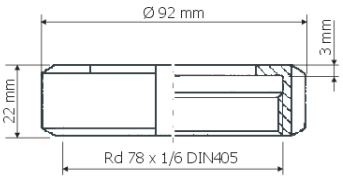
LZU215.99.50000	Process connection 1 - DN25 coupling
LZU215.99.60000	Cleaning nozzle, made of PP
LZU215.99.70000	Calibration cup
LZU215.99.41000	Sensor adapter for LZU215, 3 x Pg 13.5, made of PP
LZU215.99.42000	Sensor adapter for LZU215, 1 x ¾" for 8350, made of PP
LZU215.99.43000	Sensor adapter for LZU215, 1 x ¾" for 37xx, made of PP
LZU215.99.44000	Sensor adapter for LZU215, 1 x 1" für pHD sc, made of PP

Replacements

LZU215.99.80000	Sealing kit, made of EPDM
LZU215.99.85000	Sealing kit, made of Viton (FKM)
LZU215.99.30000	Protection cap, for LZU215/220

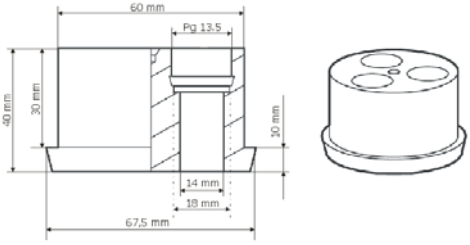
Mounting assemblies

Flow-through Mounting Assemblies E-Chem sensors



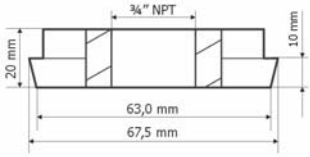
LZY041

Pg13.5

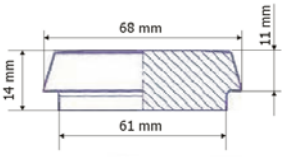


C74451A1789-B1/-B2/-B3

¾"



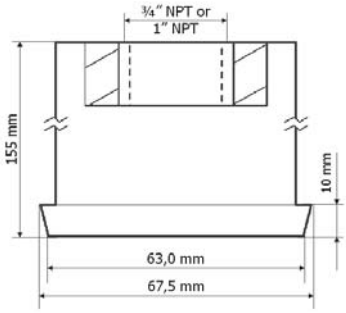
LZH122



optional

LZY543

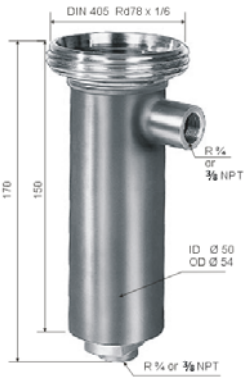
¾" or 1"



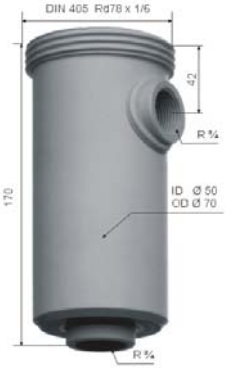
LZH116 / LZH117

¾"

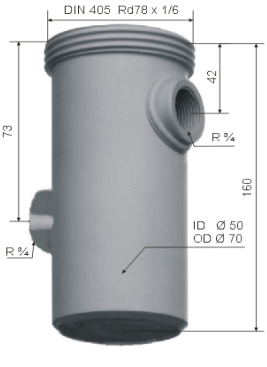
LZY409



LZY032 / LZY034



LZY038 / LZY039



LZY040

C74451A1789A3

Mounting assemblies

Flow-through Mounting Assemblies E-Chem sensors

Designation	**Flow fitting for bypass installtion of E-Chem sensors**					
HACH LANGE P/N	LZY032	LZY034	LZY038	LZY039	C74451A1789A3	LZY040
Process connection	⅜" NPT	G ¾"	G ¾"	G ¾"	⅜" NPT	G ¾"
	90° staggered					180° staggered
Material	Stainless Steel Mat 1.4401		PP	PVDF	PP	
Gasket	made of Viton					
Temperature T_{max}	160°C		90°C	130°C	90°C	90°C
p_{max} @ T_{max}	16bar / 160°C 25bar / 20°C		6bar / 20°C 0.2bar / 90°C	6bar / 20°C 1bar / 130°C	1.5bar / 20°C 0.2bar / 90°C	6bar / 20°C 0.2bar / 90°C
Dimensions	please refer to technical drawings					
Weight	~ 1.5 kg		~ 0.25 kg		~ 1.5 kg	~ 0.25 kg
Flow rate	recommended flow rate: 0.1 … 0.5 l/min (max. 10 l/min)					

Designation	**Electrode holders for armatures**						
HACH LANGE P/N	C74451A1789 &			LZH116	LZH117	LZH122	LZY409
HACH LANGE P/N	B1	B2	B3				
Process connection model option	Electrode holder with conical flange for use with Bypass flow fittings or welding connector						
	for 3 electrodes Ø12 x 120 mm			for 1 x pHD electrode	for 1 x 8350 ¾" electrode	for 1 x 372X ¾" electrodes	for 1 x 3400 ¾" electrodes
Electrode thread type	Pg 13.5 thread			1" NPT	¾" NPT	¾" NPT	¾" NPT
Material	PP	SS Mat. 1.4401	PVDF	PP			SS Mat. 1.4401
Temperature T_{max}	90°C	140°C	100°C	80°C			140°C
p_{max} @ T_{max}	6bar / 20°C 4bar / 90°C	10bar / 140°C	6bar / 20°C 4bar / 90°C	6 bar / 20°C atmospheric pressure / 80°C			10bar / 140°C
Dimensions	see drawing (DataSheet DOC053.52.90101)						
Weight	~ 0.1 kg	~ 0.5 kg	~ 0.1 kg	~ 0.1 kg			~ 0.7 kg

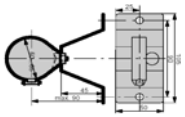
372X electrodes = HACH LANGE 3700 Inductive Condctivity sensor series, convertible style model option

Mounting assemblies

Flow-through Mounting Assemblies for E-Chem sensors

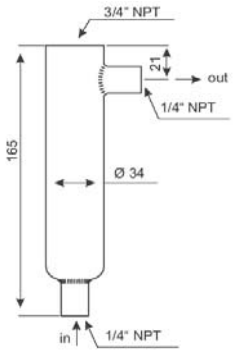
Part No.	Designation	
	Flow through armatures for bypass installations	
LZY032	Flow fitting for bypass installation, DN50, made of Stainless steel, Mat. No. 1.4401 Process connection ⅜" NPT, 90° staggered, including 1 Viton gasket	*Note 1*
LZY034	Flow fitting for bypass installation, DN50, made of Stainless steel, Mat. No. 1.4401 Process connection G ¾", 90° staggered, including 1 Viton gasket	*Note 1*
LZY038	Flow fitting for bypass installation, DN50, made of Polypropylene (PP) Process connection G ¾", 90° staggered, including 1 Viton gasket	*Note 1*
LZY039	Flow fitting for bypass installation, DN50, made of polyvinylidene fluoride (PVDF) Process connection G ¾", 90° staggered, including 1 Viton gasket	*Note 1*
C74451A1789A3	Flow fitting for bypass installation, DN50, made of Polypropylene (PP) Process connection ⅜" NPT, 90° staggered, including 1 Viton gasket and union nut made of PP	*Note 2*
LZY040	Flow fitting for bypass installation, DN50, made of Polypropylene (PP) Process connection G ¾", 180° staggered, including 1 Viton gasket	*Note 1*

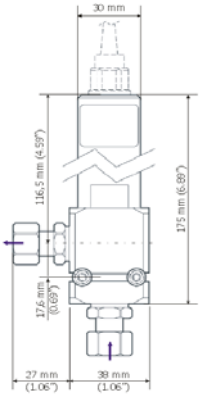
Note:
1 Electrode holder and union nut must be ordered separately
2 Electrode holder must be ordered separately

	Electrode holders and accessories	
C74451A1789B2	Electrode holder for installation of 3 sensors, Pg 13.5; made of Stainless steel, Mat. No. 1.4401 including Stainless steel union nut	
C74451A1789B3	Electrode holder for installation of 3 sensors, Pg 13.5; made of polyvinylidene fluoride (PVDF) including Stainless steel union nut	
C74451A1789B1	Electrode holder for installation of 3 sensors, Pg 13.5; made of Polypropylene (PP)	
LZH117	Electrodeholder for 1 x ¾" pH/ORP sensors, model 8350 and 8351, ; made of Polypropylene (PP)	
LZH122	Electrodeholder for 1 x 372X convertible style Conductivity sensors; made of Polypropylene (PP)	
LZH116	Electrodeholder for 1 x 1" pHD pH/ORP sensors; made of Polypropylene (PP)	
LZY041	Union nut, DN 50, made of Stainless steel, Mat. 1.4301	
LZY409	Electrodeholder for 1 x ¾" Conductivity sensors, model 83XX and 34XX, made of SS316L for connection of sensors Z3831X=A=0000 to flow-thru fiiting LZY032 and LZY034 incl. stainless steel adapter, DN 50 DIN flat sealing ring, sensor sealing (O-ring 30x2 mm), DN50 union nut	
	Mounting accessories	
C74451A1789D1	Mounting set for mounting flow fitting mounting to wall or panel including mounting bracket, hose clamp for 50...65 mm Ø and small parts	
	Optional accessories	
LZY252	Hook key spanner, made of Stainless steel, Mat. 1.4301, for union nut LZY041	
LZY543	Solid end cap, DN50, made of Stainless steel, Mat. 1.4301, pk/1	
	Replacements	
LZY042	Standard gasket, made of Viton, pk/5 for flow through armatures and welding fittings with DN 50 conical flange process connection	
C74451A1789D2	Set of small parts, pk/1 consisting of 3 screw connectors incl. Adjusting screws, blind plugs and o-rings	

Mounting assemblies

Flow-through Mounting Assemblies for E-Chem sensors continued





Technical Data
Subject to change without notice

	Flow-through Mounting Assemblies	
	Z08318=A=0001	**LZY080**
Designation	Flow through fitting, made of Stainless Steel 316L, for bypass installations	
Sensor connection	¾" FNPT	Pg13.5 thread
Material		
Wetted material	SS316L Mat 1.4404	SS 316L Mat. 1.4435
Gasket	EDPM	EDPM
Process connection	¼" FNPT sample in and outlet	Swagelock 10 mm
T_{max} operation	150°C	130°C
Pressure p_{max} @ T_{max}	25 bar at 150°C	16 bar at 130°C
Recommended sensors	¾" NPT, e.g. 3400, 831X sensors	Ø12 x 120 mm Electrodes
Dimension	please refer to technical drawings	
Weight	~ 0,3 kg	~ 1.2 kg

EDPM ethylene propylene diene M-class rubber
Please obtain electrode pressure limitations

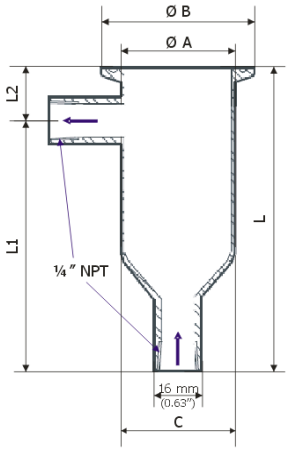
Part No.	**Designation**
Z08318=A=0001	Flow through fitting for bypass installation, ¾" sensor connection, made of SS316L, Mat. No. 1.4401 Process connection ¼" FNPT, max. 25bar @ 150°C
LZY080	Flow through fitting for bypass installation, for Ø12x120mm Electrodes with Pg13.5 sensor connection made of SS316L Mat. 1.4435, suitable up to 16 bar, 130°C, process connection 10 mm swagelok

Optional Accessories

LZY109	Solid End Plug, SS 316, for sensor adapter connection ¾" NPT thread Total length 31 mm, max. Temp. 150°C, max. pressure 10 bar

Mounting assemblies

Flow-through Mounting Assemblies for "Sanitary style" E-Chem sensors



	Flange Design	A	B	C	Recommended sensors
Z08394=A=8150	1.5"	38 mm (1.5")	50,5 mm	38 mm	8394 / 3494 sc (1.5")
Z08394=A=8200	2.0"	51 mm (2.0")	64 mm	51 mm	8394 / 3494 sc (2.0")
Z08398=A=8200	2.0"	51 mm (2.0")	64 mm	70 mm	8398.2, 3700, 3700 sc, pHD

Technical Data

Subject to change without notice

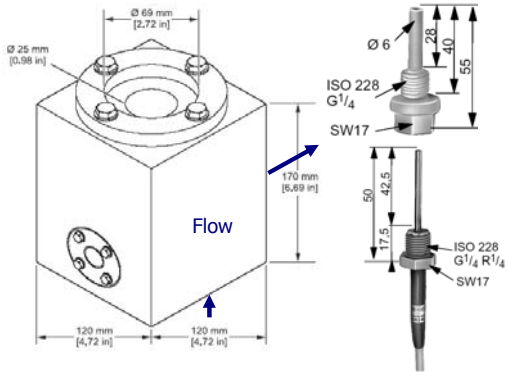
	"Sanitary style" Flow-through Mounting Assemblies	
	Z08394=A=8150	**Z08394=A=8200**
Designation	Flow through fitting for 1.5" or 2.0" "Sanitary style" sensors typically used in pharmaceutical industries, as well as in chemical, cosmetic and Food & Beverage industries	
Sensor connection	sanitary design fitting according ISO 2852	
	1.5" (38 mm)	2.0" (51 mm)
Material		
Wetted material	Stainless steel Mat. 1.4404, Ra < 0.4 µm	
Gasket	EDPM	
Process connection	¼" FNPT sample in and outlet	
T_{max} operation	150°C	
Pressure p_{max} @ T_{max}	25 bar at 150°C (362.5 psi) at 302°F)	
minimum insertion depth	38.25 mm	
Recommended sensors	sensors with 1.5" respectively 2" Sanitary flange design, e.g. 8394 sensors	
Dimension	please refer to technical drawings	
Weight	~ 0.5 kg	~ 0.6 kg

EDPM ethylene propylene diene M-class rubber
VITON Viton is a fluoropolymer elastomer, a registered trademark of DuPont Performance Elastomers

Part No.	Designation
Z08394=A=8150	Flow-thru Kit, 1.5" Sanitary design, made of SS316L Includes Flow-through assembly, 1.5" Sanitary design, 1.5" heavy-duty clamp and EPDM compound gasket. suitable for 8394 / 3494 sc 1.5" flanged sensors
Z08394=A=8200	Flow-thru Kit, 2.0" Sanitary design, made of SS316L Includes Flow-through assembly, 2.0" Sanitary design, 2.0" heavy-duty clamp and EPDM compound gasket. suitable for 8394 / 3494 sc 2.0" flanged sensors
Z08398=A=8200	Flow-thru Kit, 2.0" Sanitary design, made of SS316L Includes Flow-through assembly, 2.0" Sanitary design, 2.0" heavy-duty clamp and EPDM compound gasket. suitable for 8398.2, 3700, 3700 sc, pHD sensors
	Spare Parts
Z429=500=380	Gasket, made of EDPM, for 1.5" clamp fastening
Z429=500=510	Gasket, made of EDPM, for 2.0" clamp fastening

Mounting assemblies

Flow-through Mounting Assembly for 2200 sensors (DataSheet DOC053.72.90100)



- ➔ Flow through fitting for agressive media in bypass installations
  - ➔ typically used for concentration measurement of acids and lyes
  - ➔ compatible with 7MA22008BF & 7MA22008EB sensors
- ➔ high durability
  - ➔ solid material and design made of PTFE (Polytetrafluoroethylene) reinforced with 25% glass-fiber
  - ➔ resistant to high concentrated sulfuric acid and oleum
  - ➔ 4 bar @ 120°C, 6 bar @ 20°C

Technical Data
Subject to change without notice

	7MA85008AB
Designation	Flow through fitting for agressive media in bypass installations
Material	
Wetted material	PTFE (Polytetrafluoroethylene) reinforced with 25% glass-fiber
Gasket	VITON
Process connection	DN25 4-hole flange
Installation style	Bypass
Flow rate	0.1 … 0.5 l/min recommended (max. 10 l/min)
T_{max} operation	120°C
Pressure p_{max} @ T_{max}	4 bar @ 120°C, 6 bar @ 20°C
Recommended sensors	7MA22008BF / 7MA22008EB Inductive Conductivity sensors
Dimension	please refer to technical drawings
Weight	~ 5 kg

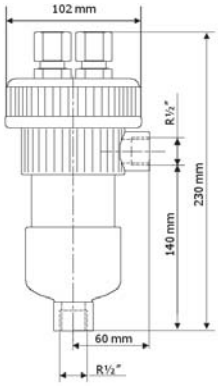
Part No.	**Designation**
	Mounting Assembly
7MA85008AB	Flow-thru fitting for bypass applications, made of , PTFE/GF 25 for 2200 series Inductive Conductivity sensors with conical flange design

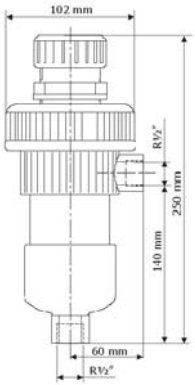
Note: Protection tube C79451A3302B6 is essential for operation and must be ordered separately!!

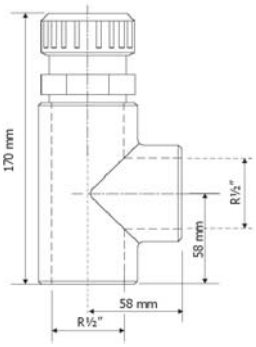
	Accessories
C79451A3302B6	Thermometer protective tube, PTFE (Teflon) for 7MA85008AA
	Optional accessories
7MA85008AA	Pt100 Temperature sensor, made of Steinless Steel, 5 m fixed cable

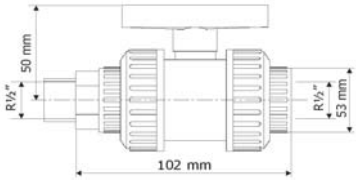
Mounting assemblies

Basic Flow-through Mounting Assemblies









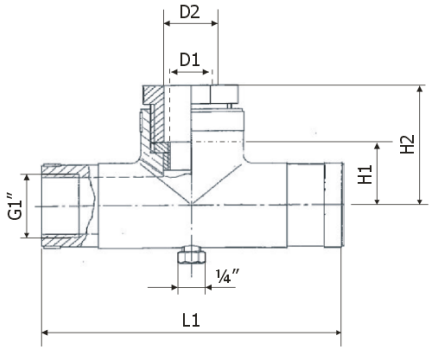
Part No.	Designation
LZX497	DSDF3 Flow-fitting for bypass installation; ½" process connection transparent section for visual flow check; holds 1 Standard sensor with Ø12mm using adapter ADPH10 made of PVC, 5 bar max, 60°C max
LZY509	DSDF2 Redesign Flow-fitting for bypass installation; ½" process connection transparent section for visual flow check; holds up to 3 sensor with Pg13.5 thread; complete incl. 3 blind plugs made of PVC, 5 bar max, 60°C max
LZX498	IN 10P - Inline armature for bypass installation; ½" process connection holds 1 Standard sensor with Ø12 x 120 mm using adapter ADPH10
LZX499	AV10 Shut-off valve, R½" process connection
	Optional accessories
LZX484	ADPH12 Electrode adapter for Ø12 x 120 mm electrodes, made of PVC

Example for AV10 and DSDF3

Example for AV10 and IN10P

Mounting assemblies

Flow-through/inline Mounting Assemblies for E-Chem sensors



Technical Data

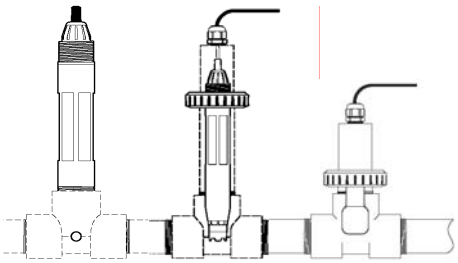
Subject to change without notice

	Flow-Through / Inlinine threaded Fittings with rinsing connector		
	LZH 114	**LZH115**	**LZH120**
Designation			
Material			
Wetted material	PVC (Polyvinylenechloride)		
Electrodeholder	n.a.	SS 316 Ti, Mat. 14571	SS 316 Ti, Mat. 14571
Gasket	EPDM (ethylene propylene diene M-class rubber)		
Sensor connection	1" NPT	¾" NPT	Pg13.5
Rinsing connection	¼" NPT		
Process connection	G 1"		
T_{max} operation	50°C		
Pressure p_{max} @ T_{max}	5 bar at 40°C / 2 bar at 50°C		
Recommended sensors	pHD Differential sensors	8350 / 8351 sensor series	Ø12 x 120 mm electrodes
Dimension	see drawing		
L1	180 mm	160 mm	n.a.
H1 / H2	42 mm / 75 mm	33 mm / 63 mm	?? mm / 126 mm
D1 / D2	1 " / 34 mm	¾" / 28 mm	¾" / 13 mm
Weight	0.5 kg	0.35 kg	0.5 kg

Part No.	**Designation**
	Flow-through G1" threaded assemblies
	made of PVC, process connection G1", with thread union, rinsing nozzle (4/6 mm ID/OD), hose not included
LZH120	Flow-thru tee, for Ø12 x 120 mm sensors with Pg13.5 thread
LZH115	Flow-thru tee for sensors with ¾" thread, e.g. sensor 8350/8351 models
LZH114	Flow-thru tee for sensors with 1" thread, e.g. pHD sensors
	Optional accessories
Z151575,00006	Hose, made of PE (low density), ND 4/6 mm (ID/OD), per metre
Z08544=A=0001	8544.1 Electrovalve 220VAC, brass adapter G ⅜" - ND 4/6 mm (ID/OD), IP65
Z150453,06611	cable, 2 wires, shielded, per metre
	Further Flow-Through tees, specially designated for 8350/8351 sensors
	For 8350.0 sensor, please use LZH115
Z08350=A=9500	PVC DN40 tee for 8350/8351 probes with thread union, rinsing nozzle connection (⅛"), p_{max} = 10 bar
Z08350=A=9510	Kit with 2-hose connections (1" NPT), PVC

Mounting assemblies

Flow-through/inline Mounting Assemblies for pHD and 3700 sensors



Picture A Picture B Picture C

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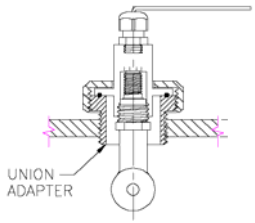

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Technical Data

Subject to change without notice

	Flow-through / Inline Mounting Assemblies		
Designation	Mounting access units for pHD Differential or 3700 convertible style Conductivity sensors		
Process connection	1", 1.5" or 2.0" threaded access units depending on used sensor and mounting style		
Material	CPVC	SS316	PVDF
T_{max} operation	100°C	150°C	130°C
Pressure p_{max} @ T_{max}	10 bar at 20°C 3.4 bar at 100°C	13.5 bar at 25°C 13.5 bar at 150°C	6 bar at 20°C 1 bar at 130°C
Recommended sensors			
1.0" access units	analog or digital convertible style pHD Differential pH or ORP sensors		
1.5" access units	analog or digital convertible style pHD Differential pH or ORP sensors / Union Mounting style		
2.0" access units	analog or digital convertible style 3700 inductive Conductivity sensors		
Dimension	please refer to technical drawings		
Weight	depending on model		

EDPM ethylene propylene diene M-class rubber

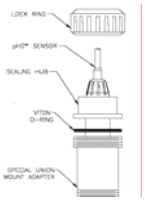
Please obtain electrode pressure limitations

Note: Pressure rating is limited either by mounting assembly material or sensor material.

Mounting assemblies

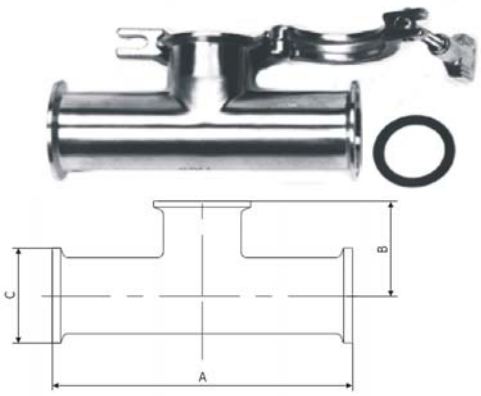
Flow-through/inline Mounting Assemblies for pHD and 3700 sensors

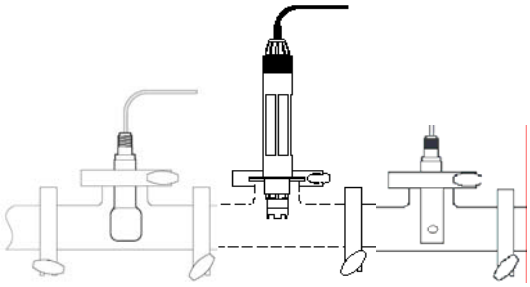
Part No.	Designation
	Basic flow through tee mounting assembly for pHD sensors
MH334N4NZ	Inline Flow-Through Assembly, for pHD/pHD sc sensors "Convertible style" sensors Includes 1.0" FNPT threaded pipe tee, made of CPVC.
MH314N4MZ	Flow-thru tee 1" for pHD/pHD sc sensors "convertible style"; made of SS 316 Includes 1.0" FNPT threaded pipe tee, made of SS316.
	Union Mount Assembly for pHD Differential pH/ORP and 3700 convertible style sensors
MH538N3NZ	Inline Flow-Through Assembly, Union Mount style, for 3700 Conductivity "Convertible style" sensors Includes 2" all ends FNPT threaded pipe tee, made of CPVC and union adapter.
MH518N3NZ	Inline Flow-Through Assembly, Union Mount style, for 3700 Conductivity "Convertible style" sensors Includes 2" all ends FNPT threaded pipe tee, made of SS316 and union adapter.
MH568N3NZ	Inline Flow-Through Assembly, Union Mount style, for 3700 Conductivity "Convertible style" sensors Includes 2" all ends FNPT threaded pipe tee, made of PVDF and union adapter.
6131300	Inline Flow-Through Assembly, Union Mount style, for pHD/pHD sc "Convertible style" sensors Includes 1.5" all ends FNPT threaded pipe tee, made of CPVC, Viton o-ring and union adapter.
6131400	Inline Flow-Through Assembly, Union Mount style, for pHD/pHD sc "Convertible style" sensors Includes 1.5" all ends FNPT threaded pipe tee, made of SS316, Viton o-ring and union adapter.
	Spare Parts
5H1233	Viton O-Ring (Replacement for 6131300 / 6131400 Inline Flow-through assemblies)
60F2021-001	CPVC Sealing Hub, Replacement for 6131300
60F2021-002	316 SS Sealing Hub, Replacement for 6131400
	Union Mount adapters for 3700 convertible style sensor series The 3700 convertible style sensor may be mounted in any standard 2" FNPT threaded pipe tee, weldolet or pipe saddle by using a special GLI union-mount adapter
MH538M3NZ	Union adapter (without tee), for 2" FNPT threaded access units, made of CPVC
MH568M3NZ	Union adapter (without tee), for 2" FNPT threaded access units, made of PVDF
MH518M3NZ	Union adapter (without tee), for 2" FNPT threaded access units, made of SS316



Mounting assemblies

"Sanitary style" Flow-through/inline Mounting Assemblies





Picture 1 Picture 2 Picture 3

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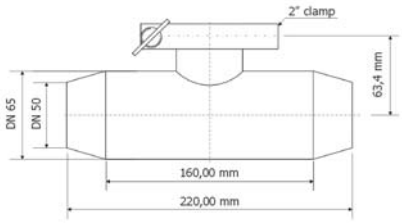
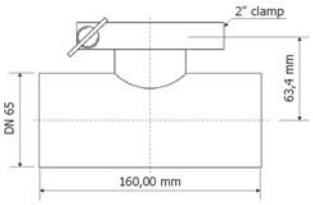
All Ends Tri-Clamp® "Sanitary style" inline Mounting Assemblies, made of SS316L

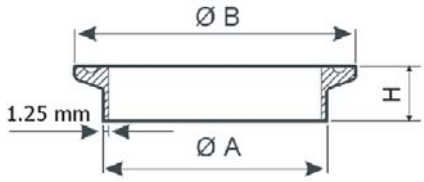
	Process connection C	A	B	Recommended sensor
MH018S8SZ	2.0"	189 mm (7.0")	57,2 mm (2.25")	e.g. for 3700, pHD and 3494 sensors
9H1310	2.0"	189 mm (7.0")	88,9 mm (3.50")	e.g. for 3455 and PC / RC sensors
9H1388	1.5"	140 mm (5.5")	69,9 mm (2.75")	e.g. for 3455 sensor k=0.05





Tri-Clamp® "Sanitary style" butt weld Tee, inline Mounting Assemblies, made of SS316L, according DIN 11851

	Process connection C	Mounting length	sensor connection	Recommended sensor
Z08398=A=7000	DN50	220 mm	2" flanged	e.g. 8398.2 sensors
Z08398=A=7500	DN65	160 mm	2" flanged	e.g. 8398.2 sensors



	Flange Design	A	B	H	Recommended sensor
Z08394=A=0380	1.5"	38 mm (1.5")	50.5 mm	13 mm	for 3494 and 3455 sensor k=0.05
Z08394=A=0510	2.0"	51 mm (2.0")	64.0 mm	13 mm	for 3400, 3494, 3700, pHD sensors
Z08398=A=0510	2.0"	51 mm (2.0")	64.0 mm	21.5 mm	typically for 8398.2 sensors

Mounting assemblies

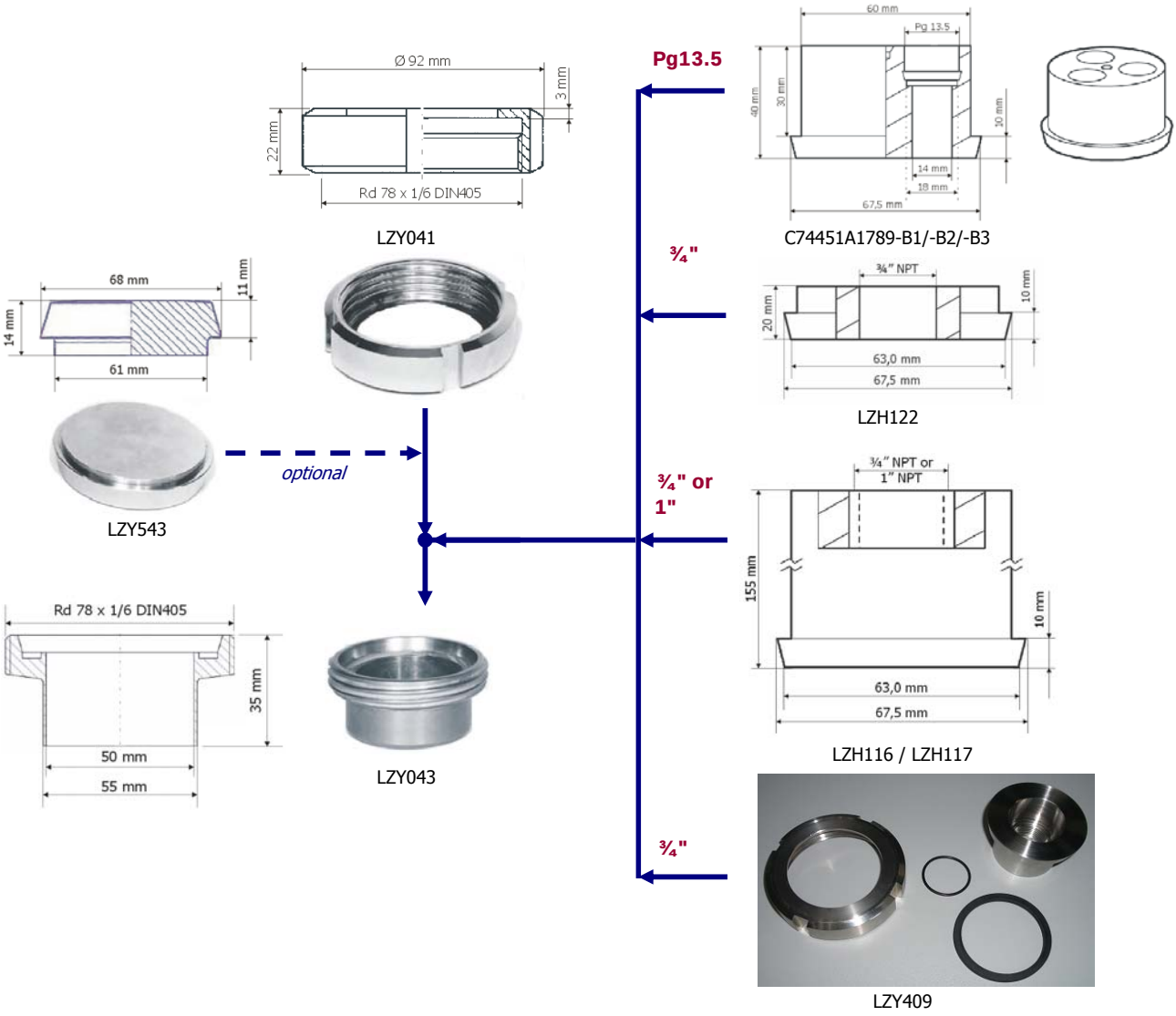
"Sanitary style" Flow-through/inline Mounting Assemblies

Part No.	Designation
MH018S8SZ	2" *Sanitary style* inline Mounting Assembly Kit, All Ends Tri-Clamp®, made of Stainless steel 316L Includes 2" tee Sanitary tee, made SS316L, 2" heavy-duty clamp, special cap and EPDM compound gasket. for 370X Inductive conductivity sensors, pHD and 3494 sensors
Z08398=A=7000	2" *Sanitary style* inline Mounting Assembly Kit, DN50 Process connection, made of Stainless steel 316L Includes DN50 - 2" tee Sanitary tee, made SS316L, 2" heavy-duty clamp, EPDM compound gasket. Typically for sensors: 8398.2, or other suitable sensors
Z08398=A=7500	2" *Sanitary style* inline Mounting Assembly Kit, DN65 Process connection, made of Stainless steel 316L Includes DN65 - 2" tee Sanitary tee, made SS316L, 2" heavy-duty clamp, EPDM compound gasket. Typically for sensors: 8398.2, or other suitable sensors
	Further Sanitary tees
9H1388	1.5" Sanitary tee, All Ends Tri-Clamp®, made of Stainless steel 316L (for 3455 and PC / RC sensors)
9H1310	2.0" Sanitary tee, All Ends Tri-Clamp®, made of Stainless steel 316L (for for 3455 sensor k=0.05)
	Note: Tee only; appropriate clamp, gasket and cap must be ordered seperately
	Spare Parts
9H1132	Sanitary clamp, 2.0", heavy duty, made of SS304, pk/1
9H1382	Sanitary clamp, 1.5", heavy duty, made of SS304, pk/1
70F1037-003	Special Cap (for 3700 inductive conductivity sensor "Sanitary style")
70F1037-004	Special Cap (for pHD sensor "Sanitary style")
9H1327	Gasket, made of EDPM, for 2.0" clamp fastening
9H1384	Gasket, made of Viton, for 2.0" clamp fastening
9H1381	Gasket, made of EDPM, for 1.5" clamp fastening
9H1383	Gasket, made of Viton, for 1.5" clamp fastening
	"Sanitary style" - Welding ferrule kits
Z08394=A=0380	Welding ferrule Kit, *Sanitary style* 1.5", incl. clamp and EPDM gasket, made of Stainless steel SS316L max. 10bar @ 150°C max. 25bar @ 100°C, made of SS 316L
Z08394=A=0510	Welding ferrule Kit, *Sanitary style* 2.0", incl. clamp and EPDM gasket, made of Stainless steel SS316L max. 10bar @ 150°C max. 25bar @ 100°C, made of SS 316L
Z08394=A=0510	Welding ferrule Kit, Sanitary style 2.0", incl. clamp and EPDM gasket, made of Stainless steel SS316L max. 10bar @ 150°C max. 25bar @ 100°C, made of SS 316L
	Spare Parts
Z429=500=380	Gasket, made of EDPM, for 1.5" clamp fastening
Z429=500=510	Gasket, made of EDPM, for 2.0" clamp fastening
Z581=000=510	2" Triclamp, SS316L, replecement
Z581=100=510	Welding ferrule, SS316L, 2" Sanitary sensor connection

Mounting assemblies

Welding sockets for pipe or tank installation using DN50 conical flange sensors or adapters

Part No. **Designation**



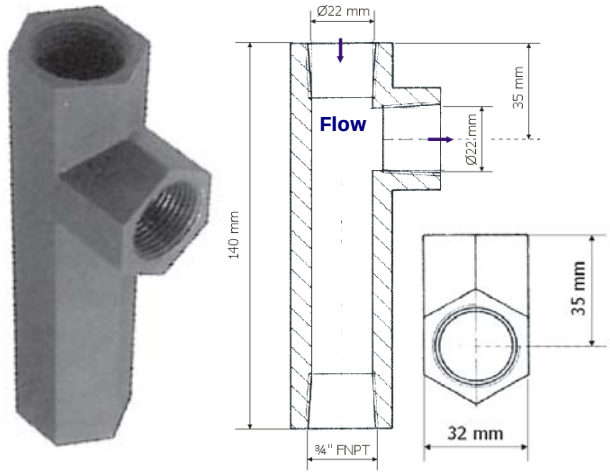
Mounting assemblies

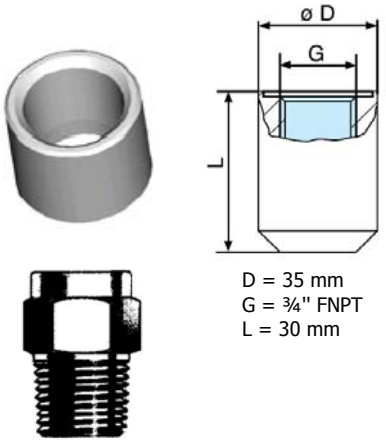
Welding sockets for DN50 conical flange sensors or adapters

Part No.	Designation
LZY043	Welding connector, DN50, made of SS304 Mat. 1.4301, with 1 gasket (Viton) sensor mounting using union nut (union nut not included in delivery)
LZY041	Union nut, DN 50, made of SS304, Mat. 1.4301, pk/1
	Optional adapters
LZH117	Electrodeholder for 1 x ¾" pH/ORP sensors, model 8350 and 8351, ; made of Polypropylene (PP)
LZH122	Electrodeholder for 1 x 372X convertible style Conductivity sensors; made of Polypropylene (PP)
LZH116	Electrodeholder for 1 x 1" pHD pH/ORP sensors; made of Polypropylene (PP)
LZY041	Union nut, DN 50, made of Stainless steel, Mat. 1.4301
LZY409	Electrodeholder for 1 x ¾" Conductivity sensors, model 83XX and 34XX, made of SS316L for connection of sensors Z3831X=A=0000 to flow-thru fiiting LZY032 and LZY034 incl. stainless steel adapter, DN 50 DIN flat sealing ring, sensor sealing (O-ring 30x2 mm), DN50 union nut
C74451A1789B2	Electrode holder for installation of 3 sensors, Pg 13.5; made of Stainless steel, Mat. No. 1.4401 including Stainless steel union nut limitations for use in pipes: please obtain mounting length of sensor
	Optional accessories
LZY543	Solid end cap, DN50, made of sS304, Mat. 1.4301, pk/1
LZY252	Hook key spanner, made of Stainless steel, Mat. 1.4301, for union nut LZY041
	Replacements
LZY042	Standard gasket, made of Viton, pk/5 for flow through armatures and welding fittings with DN 50 conical flange process connection

Mounting assemblies

Flow-through/inline Mounting Assemblies for ¾" threaded sensor models 3400 sc, 831X



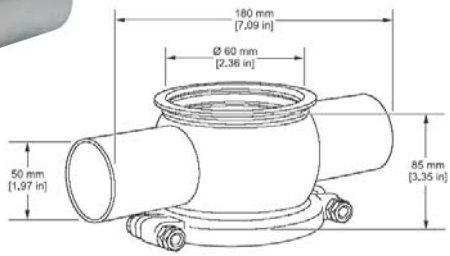


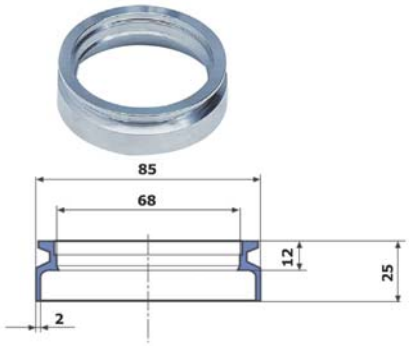
D = 35 mm
G = ¾" FNPT
L = 30 mm

Part No.	Designation
Z08313=A=0001	Flow-through chamber for 3400/831X probe series, made of PVC ¾" sensor connection, Process connection (¾" NPT) max. 2bar @ 60°C, 10bar @ 25°C
LZY108	Welding ferrule for 3400/831X probe series, ¾" NPT sensor thread, 35mm x 30 mm OD, made of SS 316L max. 10bar @ 150°C
	Optional accessories
LZY109	Solid end plug, ¾" NPT, made of SS 316 Total length 31 mm, max. Temp. 150°C, max. pressure 10 bar

Mounting assemblies

Varivent® Inline Access units (DataSheet DOC053.53.90098)





LZY085

LZY083

LZY089

Technical Data

Subject to change without notice

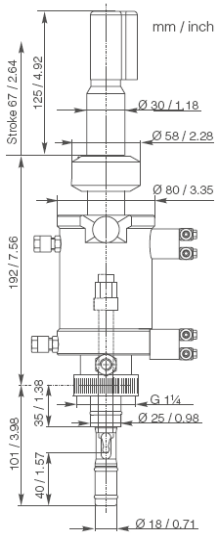
	Varivent Inline access units	
	LZY084 Varivent flow fitting	**LZY086 Varivent welding connector**
Designation	Varivent® Inline Access units, typically used for pocket-free installations in Food & Beverage industries, as well as in chemical, pharmaceutical and cosmetic industries	
Material		
Wetted material	Stainless steel Mat. 1.4404	
Gasket	VITON	
Process connection	Installation in DN50 pipes	weld on tank or pipes
Flow rate	0.1 … 0.5 l/min recommended (max. 10 l/min)	
T_{max} operation	135°C with EPDM gaskets 200°C with Viton gaskets	
Pressure p_{max} @ T_{max}	16 bar	
Recommended sensors	7MA22008CB	
Recommended sensors	TSS sensors will require ≥ DN65	
Dimension	please refer to technical drawings	
Weight	~ 2 kg	~ 0,85 kg

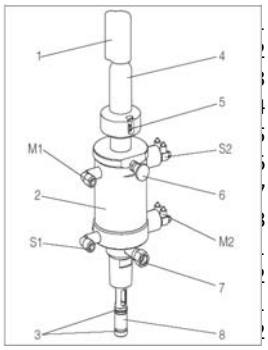
EDPM ethylene propylene diene M-class rubber
VITON Viton is a fluoropolymer elastomer, a registered trademark of DuPont Performance Elastomers

Part No.	**Designation**
LZY084	VARIVENT flow-thru fitting, DN50, for connection to pipes, made of SS 316L Mat. 1.4404 Complete system consisting of: Varivent Inline flow fitting DN50, LZY089, LZY083, LZY087
LZY086	VARIVENT welding connector, DN50, for connection to tanks or pipes, made of SS 316L Mat.1.4404 Complete system consisting of: Varivent welding connector DN50, and LZY089, LZY083, LZY087
	Spare Parts
LZY089	Solid end cap for DN50 Varivent access unit, made of SS 316L Mat. SS 1.4404
LZY083	Varivent clamping ring, made of SS 316L Mat. SS 1.4404, incl. screws and nuts
LZY085	Varivent Sealing ring, made of SS 316L Mat. SS 1.4404
LZY087	EPDM gasket, for Varivent fittings, pk/5 for up to 135°C
LZY088	Viton gasket, for Varivent fittings, pk/25 for up to 200°C

Mounting assemblies

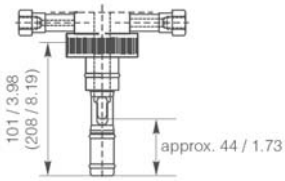
Retractable Assembly for pH/ORP Pg 13.5 sensors (DataSheet DOC053.52.90094)





1 Splash prtection cap
2 Assembly housing
3 Seals in contact with medium
4 Retractable pipe
5 Potential matching
6 Stop bold
7 Rinse connecting (optional)
8 Sensor guide
Pneumatics "Measuring position"
Limit position switch "Measuring position"
Pneumatics "Service position"
Limit position switch "Service position"

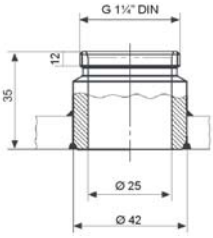
Process connection



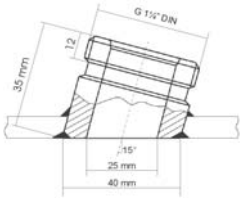
- ➔ for in-tank or in-pipe (≥ DN80) installations
- ➔ retractable without stopping the process
- ➔ easy installation
- ➔ optional flushing connections or pneumatic drive for process automatisation
- ➔ for use with Gel filled pH/ORP sensors
  - ➔ Pg13.5, 12 mm Ø x 120 mm
- ➔ made of SS316L / DIN 1.4404 and Viton
  - ➔ up to 130°C, 6 bar max.
- ➔ available with or without inspection certificate 3.1 acc. to EN10204

➔ **Process connection option**

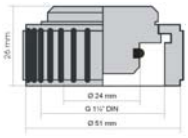
Welding connector, straight



Welding connector, 15° angled



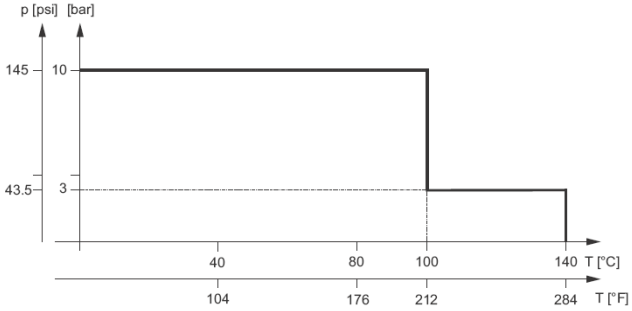
Solid End cap with union nut G 1¼"



Compressed air Requirements:

- air pressure of 4 to 8 bar (58 to 116 psi)
- air must be filtered (40µm) and be free of water and oil
- no continuous air consumption
- minimum nominal diameter of the air lines: 4mm (0.16")

Pressure / Temperature resistivity Diagram for SS316L / DIN1.4404 model



Mounting assemblies

Retractable Assembly for pH/ORP Pg 13.5 sensors (DataSheet DOC053.52.90094)

Part No.	Designation	L Z Y X X X
LZYXXX	Retractable fitting for inline installation and for mounting on vessels, made of SS316L / DIN 1.4404 / Viton (FPM), mounting with union nut thread G1¼", for 12 mm Ø x 120-mm gel-filled pH/ORP sensors with Pg 13.5 threat	

model options	
with material certificate 3.1 acc. EN10204	
Standard model (without flushing connections or pneumatic drice)	4 2 5
with 2 flushing connections	4 2 6
with 2 flushing connections and pneumatic drive[2]	4 2 7
without material certificate	
Standard model (without flushing connections or pneumatic drice)	2 3 6
with 2 flushing connections	2 3 7
with 2 flushing connections and pneumatic drive[2]	2 3 8

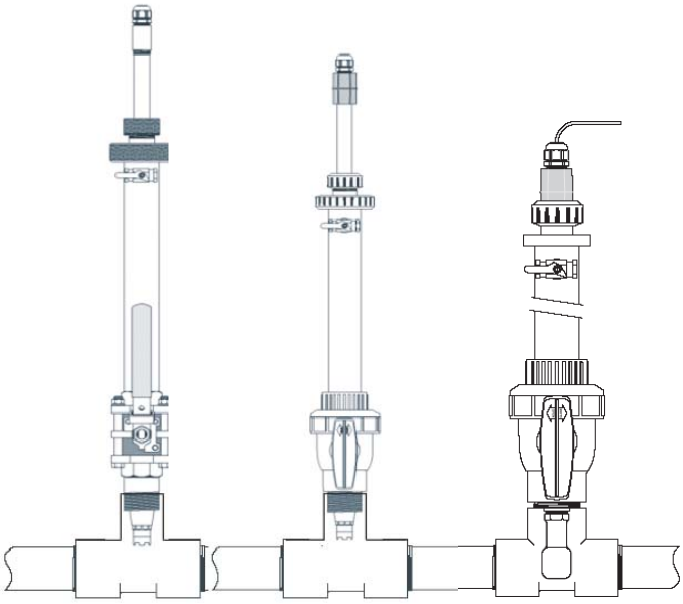
[2] Pneumatic drive recommended for process pressure > 3 bar.

Part No.	Designation	L Z Y ? ? ?
LZY???	Welding connectors & seals, made of SS316 / DIN 1.4571	

options	
with material certificate 3.1 acc. EN10204	
Welding type connector, straight, G1¼" threat	4 2 3
Welding type connector, 15° angled, G1¼" threat	4 2 4
Solid end cap with union nut G1¼"	4 2 2
without material certificate	
Welding type connector, straight, G1¼" threat	2 3 4
Welding type connector, 15° angled, G1¼" threat	2 3 5
Solid end cap with union nut G1¼"	2 3 3

Mounting assemblies

Retractable Mounting Assemblies for pHD pH/ORP and 3700 Conductivity sensors



Picture 1 Picture 2 Picture 3

Technical Data

Subject to change without notice

Designation	Insertion retractable Mouting hardware with ball valve assembly for use with pHD differential pH / ORP sensors or 3700 Conductivity sensors
Material	
Wetted material	CPVC or Stainless Steel 316 depending on model
Gasket	Viton
Process connection	
for pHD sensors	1.5" NPT thread
for 3700 sensors	2.0" NPT thread
Installation style	Insertion retractable on pipe or vessels
sensor insertion depth	
pHD sensors	factory setting: 114 mm (4.5"); can be shortend to 25 mm (1")
3700 sensors	please contact HACH LANGE
Pressure p_{max} @ T_{max}	for pHD sensor series: up to 8 bar with air/water assist for pHD sensors for 3700 sensor series: Pmax = 3.5 bar @ 90°C (CPVC); 5.5 bar @ 95°C (SS)
Support connections	¼" NPT connector for air or water assist to remove the assembly from pressurized pipes
Recommended sensors	analog or differential pHD pH or ORP sensors, respectively 3700 Conductivity sensors
Dimension	please refer to technical drawings respectively contact HACH LANGE
for pHD sensors	
length in inserted pos.	746 mm (29.4")
length in removed pos.	1467 mm (57.75")
for 3700 sensors	
length in inserted pos.	686 mm (27")
length in removed pos.	1232 mm (48.5")
Weight	
CPVC assembly	~ 2.5 kg
SS316 assembly	~ 9.5 kg

Note: 1.5" NPT welding flange must be customer supplied

Mounting assemblies

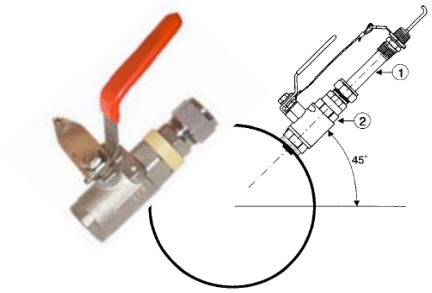
Retractable Mounting Assemblies for pHD pH/ORP and 3700 Conductivity sensors

Part No.	Designation	
	Mounting assemblies for Digital pHD Differential pH/ORP sensors series	
5646300	Retractable fitting for inline installation and for mounting on vessels, made of CPVC mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" digital pHD Differential pH or ORP "convertible style" sensors	Picture 2
5646350	Retractable fitting for inline installation and for mounting on vessels, made of SS 316 mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" digital pHD Differential pH or ORP "convertible style" sensors	Picture 1
	Mounting assemblies for Analog pHD Differential pH/ORP sensors series	
5646400	Retractable fitting for inline installation and for mounting on vessels, made of CPVC mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" analog pHD Differential pH or ORP "convertible style" sensors	Picture 2
5646450	Retractable fitting for inline installation and for mounting on vessels, made of SS 316 mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" analog pHD Differential pH or ORP "convertible style" sensors	Picture 1
	Mounting assemblies for Analog / Digital 3700 convertible style sensors series	
MH138M9NZ	Retractable fitting for inline installation and for mounting on vessels, made of CPVC mounting on 2.0" threaded tee or welding flange (customer supplied) for Analog / Differential 3700 convertible style sensors series	Picture 3
MH118M9NZ	Retractable fitting for inline installation and for mounting on vessels, made of SS 316 mounting on 2.0" threaded tee or welding flange (customer supplied) for Analog / Differential 3700 convertible style sensors series	Picture 3

Mounting assemblies

Retractable Mounting Assemblies for pHpulp and pHret pH sensors

These inline armatures are designed for tanks or pipes and permits easy electrode retraction and replacement (Ø 12 respectively 22 mm) without having to stop the process.
The electrodes must have a stainless steel shaft with least 200 mm shaft length.



Technical Data

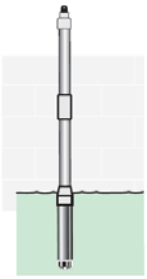
Subject to change without notice

	Ø 12mm sensors	Ø 22mm sensors
Designation	Insertion retractable Mouting hardware with ball valve assembly for use with pHret or pHpulp pH sensors	
Material		
Wetted material	SS 316 Ti, Mat. 1.4571	
Gasket	Noryl	PVDF depending on model
Process connection	½"	1"
Installation style	Insertion retractable on pipe or vessels	
T_{max} operation	100°C	100°C
Pressure p_{max} @ T_{max}	10 bar at 100°C	10 bar at 100°C
Recommended sensors	LZX477 pHret pH sensor	LZX475 pHpulp pH sensor
Weight		
LZX465	0.50 kg	
LZX467	1.35 kg	

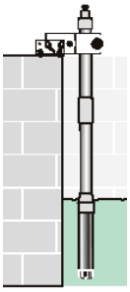
Part No.	Designation
LZX465	Retractable fitting for inline installation and for mounting on vessels, made of Stainless steel for electrodes with SS shaft, 12mmØ, e.g. PHRET (LZX477) made of SS/Noryl, up to 10 bar, 100°C, connection ½"
LZX467	Retractable fitting for inline installation and for mounting on vessels, made of Stainless steel for electrodes with SS shaft, 22mmØ, e.g. PHPULP (LZX475) made of SS/PVDF, up to 10 bar, 100°C, connection 1"

Mounting assemblies

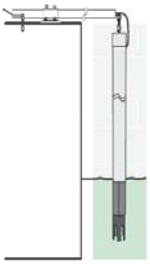
Immersion assemblies for Digital E-Chem sensors (LDO & S sc & sc sensors)



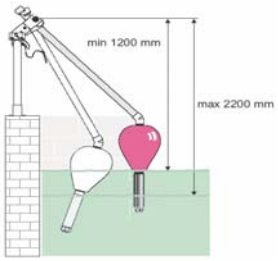
DOC053.52.00016
DOC053.52.00017



DOC053.52.00020
DOC053.52.00021



DOC053.52.00018
DOC053.52.00019



Part No.	Designation
LXV914.99.XXX00	Mounting Assemblies for Digital E-Chem sensors, Immersion style

L	Z	X	9	1	4	.	9	9	.	X	X	X	0	0

Language / Country Code Selection *please refer to Appendix E for further info*

Mounting Hardware Style

Single Immersion Pole (pole only)	**0**
Chain Mounting Kit	**1**
Pole Mounting Kit	**3**
Ball Float Mounting Kit (only in CPVC available)	**4**

Material

Stainless Steel (SS316)	**1**
Plastic (PVC)	**2**

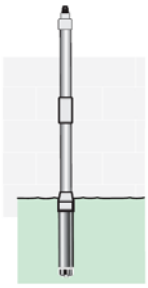
Immersion Sensor Style

LDO sensor	**1**
Other E-Chem Immersion sensors	**2**

Mounting assemblies

Immersion assemblies for Digital E-Chem sensors (DataSheet DOC053.98.03262)

Part No.	Designation
LZX914.99.0XX00	Single Immersion Pole, 2.3 m length



L Z X 9 1 4 . 9 9 . 0 X X 0 0

Language / Country Code Selection *please refer to Appendix E for further info*

Material & Sensor adapter option

LDO sensor

Mounting assembly made of PVC	2 1
Mounting assembly made of SS316, Mat. 1.4571	1 1

Other E-Chem sensors

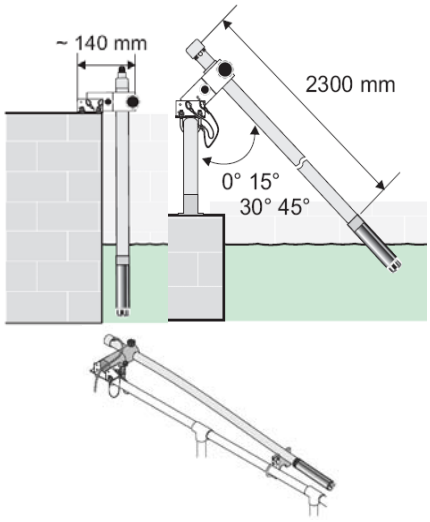
Mounting assembly made of PVC	2 2
Mounting assembly made of SS316, Mat. 1.4571	1 2

Note: Assembly consists of a single Pole, 2300 mm long, made of SS316, Mat. 1.4571 (34 mm Ø) or PVC (48 mm Ø). No mounting accessories are including.

LZX914.99.01200	Single Immersion Pole Kit for 1" threaded sensors, like pHD S sc/pHD sc; made of SS316, Mat. 1.4571 total length 2300 mm, 34mm Ø consisting of 2 x 1150 mm pipes, 2 x 1" Pipe Coupling (LZY003), 1 x Screw cap for 1" pipe (LZY047)
LZX914.99.02200	Single Immersion Pole Kit for 1" threaded sensors, like pHD S sc/pHD sc; made of CPVC total length 2300 mm, 48mm Ø consisting of 1 x 2300 mm pipe, 1 x Screw cap + Grommet for 1" pipe (LZX942), 1 x Adapter 1⅞" - 1", CPVC (LZY276)
LZX914.99.01200	Single Immersion Pole Kit for LDO sensor, made of SS316, Mat. 1.4571 total length 2300 mm, 34mm Ø consisting of 2 x 1150 mm pipes, 1 x 1" Pipe Coupling (LZY003), 1 x Screw cap for 1" pipe (LZY047) 1 x Adapter 1⅞" - 1" NPT, SS316 (LZX769), 1 x Flat gasket for LDO (LZX864)
LZX914.99.02100	Single Immersion Pole Kit for LDO sensor, made of CPVC total length 2300 mm, 48mm Ø consisting of 1 x 2300 mm pipe, 1 x Screw cap + Grommet for 1" pipe (LZX942), 1 x Flat gasket for LDO (LZX864)

Mounting assemblies

Immersion assemblies for Digital E-Chem sensors (DataSheet DOC053.98.03262)



Pole mount kit for simply installation of E- Chem sensors on the basin rim (railing or concrete wall). Easy access to sensor due to swiveling bracket, immersion depth adjustable.

- available in CPVC or Stainless Steel 316, Mat. 1.4571
- pipe length 2300 mm, immersion depth adjustable
- adaptable for mounting on wall or to rails (max Ø 2")
- for use in tanks or open cahnnels, typically for installations with high velocity
- for 1200 S sc, pHD S sc, pHD sc, 3798 sc, 5740 sc, LDO

Part No.	Designation
LZX914.99.3XX00	Pole Mounting Assembly Kit

L Z X 9 1 4 . 9 9 . 3 X X 0 0

Language / Country Code Selection *please refer to Appendix E for further info*

Sensor / Material option

for LDO sensor

Mounting assembly made of PVC	2 1
Mounting assembly made of SS316, Mat. 1.4571	1 1

for 1" E-Chem sensors

Mounting assembly made of PVC	2 2
Mounting assembly made of SS316, Mat. 1.4571	1 2

Note:

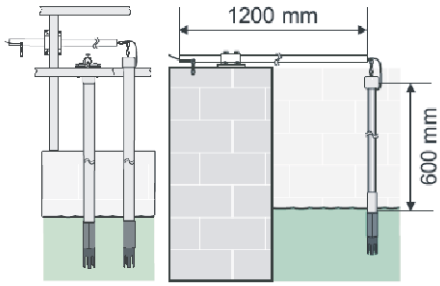
The complete Assembly Kit consists of the single immersion pole kit LZX914.99.0XX00 with 2300 mm long pipe, made of respective material available in SS316, Mat. 1.4571 (34 mm Ø) or PVC (48 mm Ø)
+ unique swivel/pivot/pipe clamp and service support assembly
+ mounting accessories for wall or rim mounting

Optional accessories

LZX856	Extension kit, 1150 mm, made of SS316, Mat. 1.4571, for LZX914.99.31X00 only

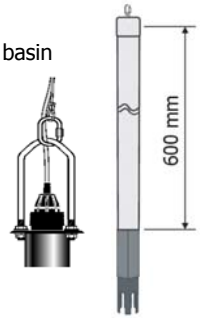
Mounting assemblies

Immersion assemblies for Digital E-Chem sensors (DataSheet DOC053.98.03262)



Chain mount kit for simply installation of E-Chem sensors on the basin rim (railing or concrete wall). Immersion depth adjustable.

- available in CPVC or Stainless Steel 316, Mat. 1.4571
- 5 m long chain
- adaptable for mounting on wall or to rails (max Ø 2")
- typically used in tanks or open channels with low velocity
- for 1200 S sc, pHD S sc, pHD sc, 3798 sc, 5740 sc, LDO



Part No.	Designation
LZX914.99.XXX00	Chain Mounting Assembly Kits

L	Z	X	9	1	4	.	9	9	.	X	X	X	0	0

Language / Country Code Selection *please refer to Appendix E for further info*

Sensor / Material option

for LDO sensor

Mounting assembly Kit, made of PVC	**1**	**2**	**1**
Mounting assembly Kit, made of SS316, Mat. 1.4571	**1**	**1**	**1**

Sensor Mounting Upgrade Kit for LDO

Upgrade Kit for existing chain mounting assembly, made of PVC	**2**	**2**	**1**
Upgrade Kit for existing chain mounting assembly, made of SS316, Mat. 1.4571	**2**	**1**	**1**

for 1" E-Chem sensors

Mounting assembly Kit, made of PVC	**1**	**2**	**2**
Mounting assembly Kit, made of SS316, Mat. 1.4571	**1**	**1**	**2**

Note:

The sensor mounting / upgrade kit consists of a 0.6 m pole, made of respective material, 1 x 1.5" screw cap, 1 LDO sensor adapter made of respective material and 1 grommet + 1 flat gasket (LZX864)

The complete Assembly Kit consists of the sensor mounting / upgrade kit + 1.2 m pole, Mounting plate all made of Stainless Steel 316, Mat 1.4571 and mounting accessories, + 5 m chain made of CPVC or Stainless Steel 316, Mat 1.4571 depending on selected configuration

Optional accessories

LZX959	Bail, made of Stainless Steel with nuts and washer (without chain) to be used with the sensors LXV426, LXV427 and LXV428 (1200S sc, pHD S sc & 3798 S sc) in combination with already existing chain mount hardware!

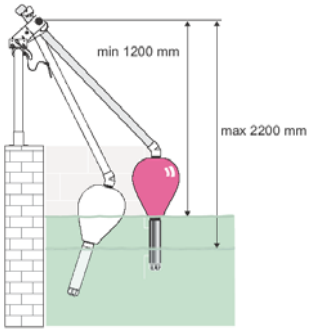
LZY232	Chain, 5 m, made of Stainless Steel 316, Mat. 1.4571
LZX891	Chain, 5 m, made of PVC

Chain Mounting Kit, 3700 "convertible style" Conductivity sensors, made of CPVC
please order the follwoing items below

LZX914.99.12100	Chain Mounting Kit for LDO sensors, consists of a stainless steel boom and chain
LZH070	Adapter 1½" - ¾" ID, for probes with ¾" NPT thread, l = 60mm; made of PP (Tmax=80°C)

Mounting assemblies

Ball float assemblies for Digital E-Chem sensors (DataSheet DOC053.98.03262)



Ball float kit for simply installation of Lange E-Chem sensor on the basin rim (railing or concrete wall)

- available in CPVC
- pipe length 2300 mm, immersion depth adjustable
- adaptable for mounting on wall or to rails (max Ø 2")
- for use in tanks or open channels with variable water levels
- for 1200 S sc, pHD S sc, pHD sc, 3798 sc, 5740 sc, LDO

Part No.	Designation
LZX914.99.42X00	Ball float Mounting Assemblies

L Z X 9 1 4 . 9 9 . 4 X X 0 0

Language / Country Code Selection *please refer to Appendix E for further info*

Sensor / Material option

for LDO sensor

Mounting assembly made of PVC **2 1**

for 1" E-Chem sensors

Mounting assembly made of PVC **2 2**

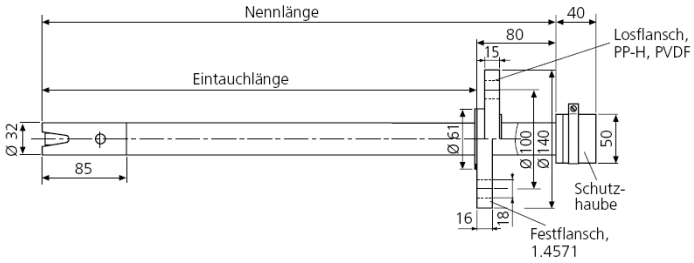
Note:

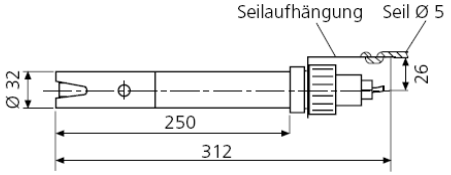
The ball float assembly Kit consists of
1 x 47mm Ø, 2300 mm long pipe 1" NPT threaded and ball float, made of CPVC
+ unique swivel/pivot/pipe clamp and service support assembly
+ mounting accessories for wall or rim mounting

The assembly kit for LDO includes in addition 1 x Adapter 1⅞" - 1", CPVC (LZY276)

Mounting assemblies, model LZU230

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90081)





- ➔ easy installation
- ➔ reliable measurement
- ➔ for use with PG13.5, 120 mm Standard electrodes

- ➔ available in PP-H and Stainless steel
  - ➔ PP-H: 90°C max at atmospheric
    max 1 bar @ 30°C
  - ➔ SS316, Mat. 1.4571
    max 6 bar @ 135°C

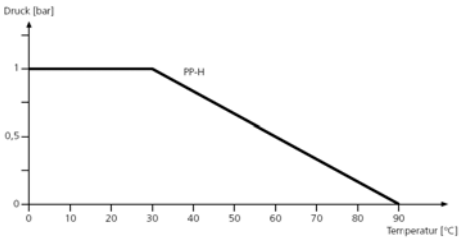
Sensor adapter ➔

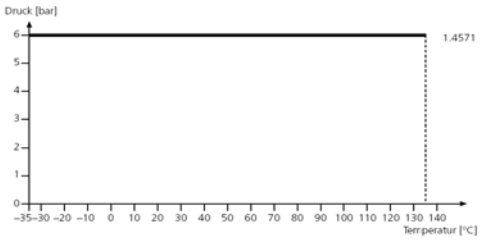
Process connection option

Flange DN65 ➔

Caternary suspension ➔

Pressure / Temperature resistivity





Mounting assemblies, model LZU230

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90081)

Part No. **Designation**

Immersion Mounting Armature L Z U 2 3 0 . 9 9 . 1 1 X X X

available in different immersion lengths
Body material made of PP-H, Gasket made of Viton (FPM)

Material

PP-H	pmax @ tmax: 90°C @ atmospheric, 1 bar @ 30°C	1

Sensor adapter option

1 x Pg 13.5 sensors		1

Process connection option

Flange (loose) DN 65 PN 16		7
Catenary suspension	only in conjunction with cable gland and 250 mm nominal length	4

Nominal length

250 mm	only in conjunction with catenary suspension	1
500 mm	only in conjunction with loose flange option	2
1000 mm	only in conjunction with loose flange option	3
1500 mm	only in conjunction with loose flange option	4

Head assembly

3 cable glands		2

Note: LZY230.99.11412 and LZU230.99.11732 are standard items and have short delivery time.
Other item configurations have a delivery time of ~ 6 - 8 weeks.

Immersion Mounting Armature L Z U 2 3 0 . 9 9 . 3 1 X X X

Body material made of Stainless Steel, Gasket made of Viton (FPM)

Material

Stainless Steel, Mat 1.4571	pmax @ tmax: 135°C @ 6 bar	3

Sensor adapter option

1 x Pg 13.5 sensors		1

Process connection option

Flange fixed DN 65 PN 16 (Mat. 1.4571)		7
Catenary suspension	only in conjunction with cable gland and 250 mm nominal length	4

Nominal length

250 mm	only in conjunction with catenary suspension	1
500 mm	only in conjunction with loose flange option	2
1000 mm	only in conjunction with loose flange option	3
1500 mm	only in conjunction with loose flange option	4

Head assembly

3 cable glands		2

Note: LZY230.99.31412 is standard item and has short delivery time.
Other item configurations have a delivery time of ~ 6 - 8 weeks.

Mounting assemblies, model LZU230

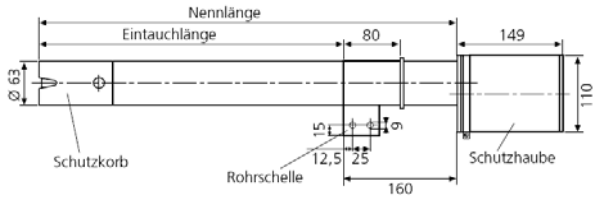
Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90081)

Part No.	Designation
	Optional Accessories
LZU230.99.41000	Sensor adapter for LZU230, 1 x Pg 13.5, made of PP
LZU230.99.42000	Sensor adapter for LZU230, 1 x Pg 13.5, made of Stainless steel, Mat. 1.4571
	Replacements
LZU230.99.50000	Sealing kit for LZU230, EPDM
LZU230.99.55000	Sealing kit for LZU230, VITON (FKM)
LZU230.99.31000	Electrode protector, for LZU230, made of PP-H
LZU230.99.32000	Electrode protector, for LZU230, made of Stainless steel, Mat. 1.4571

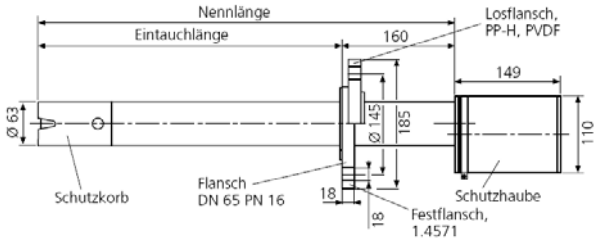
Mounting assemblies, model LZU220

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90080)

Rohrschelle



Flansch DN 65 PN 16



- ➔ easy installation
- ➔ individually adaptable
- ➔ variable immersion lengths availble
- ➔ for use with PG13.5, ¾" and 1" sensors
- ➔ available in PP-H and Stainless steel
  - ➔ PP-H: 90°C max at atmospheric pressure
    max 1 bar @ 30°C
  - ➔ PVDF: 120°C at atmospheric pressure
    max 1 bar @ 50°C

➔ **Sensor adapter**

3 x Pg 13.5

1 x ¾" internal thread

1 x 1" internal thread

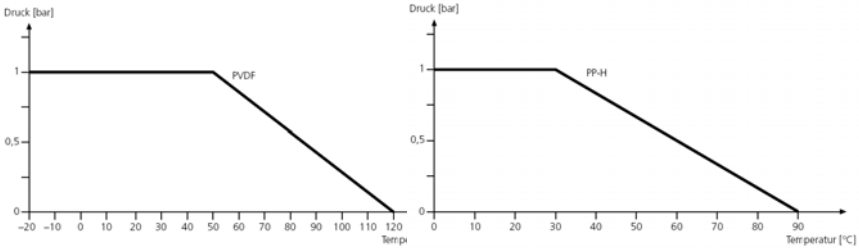
➔ **Process connection option**

Flange DN65

Pipe clamp

Caternary suspension

Pressure / Temperature resistivity



Mounting assemblies, model LZU220

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90080)

Part No. **Designation**

Immersion Mounting Armature L Z U 2 2 0 . 9 9 . X X X X X

Body material made of PP-H, Gasket made of Viton (FPM)

Material

PP-H	pmax @ tmax: (0 bar @ 90°C, 1 bar @ 30°C)	1

Sensor adapter option

1 x Pg 13.5 sensors	1
¾" internal thread for 8350 pH/ORP sensor series	D
¾" internal thread for 37XX Inductive Conductivity sensor series	E
1" internal thread for pHD sensors	G

Process connection option

Pipe clamp		2
Flange (loose) DN 65 PN 16		3
Catenary suspension	only in conjunction with cable gland and 250 mm nominal length	4

Nominal length

260 mm	only in conjunction with catenary suspension & cable glands option	1
500 mm	only in conjunction with pipe clamp or flange in combination with protection cap option	2
1000 mm	only in conjunction with pipe clamp or flange in combination with protection cap option	3
1500 mm	only in conjunction with pipe clamp or flange in combination with protection cap option	4

Head assembly

Standard Protection Cap	1
3 cable glands	3

Note: LZY220.99.1X331 and LZU220.99.11413 are standard items and have short delivery time.
Other item configurations have a delivery time of ~ 6 - 8 weeks.

Immersion Mounting Armature L Z U 2 2 0 . 9 9 . X X X X X

Body material made of PVDF, Gasket made of Viton (FPM)

Material

PVDF	pmax @ tmax: (0 bar @ 120°C, 1 bar @ 50°C)	2

Price adder

Sensor adapter option

1 x Pg 13.5 sensors	1
¾" internal thread for 8350 pH/ORP sensor series	D
¾" internal thread for 37XX Inductive Conductivity sensor series	E
1" internal thread for pHD sensors	G

Process connection option

Pipe clamp		2
Flange (loose) DN 65 PN 16		3
Catenary suspension	only in conjunction with cable gland and 260 mm nominal length	4

Nominal length

260 mm	only in conjunction with catenary suspension & cable glands option	1
500 mm	only in conjunction with pipe clamp or flange in combination with protection cap option	2
1000 mm	only in conjunction with pipe clamp or flange in combination with protection cap option	3
1500 mm	only in conjunction with pipe clamp or flange in combination with protection cap option	4

Head assembly

Standard Protection Cap	1
3 cable glands	3

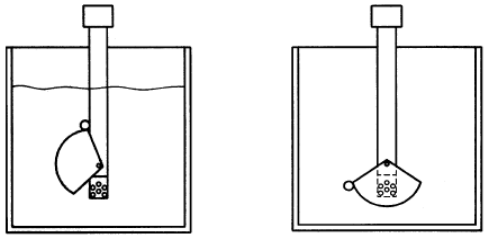
Note: LZY220.99.21331 is standard item and has short delivery time.
Other item configurations have a delivery time of ~ 6 - 8 weeks.

Mounting assemblies, model LZU220

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90080)

Part No.	Designation
	Optional Accessories
LZU220.99.50000	Sensor adapter 3 x Pg 13.5 with 3 cleaning nozzles, made of PP-H
LZU220.99.55000	Sensor adapter 3 x Pg 13.5 with 3 cleaning nozzles, made of PVDF
LZU220.99.60000	Wetting cup, made of PP-H
LZU220.99.65000	Wetting cup, made of PVDF
LZU220.99.41000	Sensor adapter 3 x Pg 13.5, made of PP-H
LZU220.99.45000	Sensor adapter 3 x Pg 13.5, made of PVDF
LZU220.99.42000	Sensor adapter 1 x ¾",for 8350 sensors, made of PP-H
LZU220.99.46000	Sensor adapter 1 x ¾",for 8350 sensors, made of PVDF
LZU220.99.43000	Sensor adapter 1 x ¾" for 37xx sensors, made of PP-H
LZU220.99.47000	Sensor adapter 1 x ¾" for 37xx sensors, made of PVDF
LZU220.99.44000	Sensor adapter 1 x 1" for pHD sc sensors, made of PP-H
LZU220.99.48000	Sensor adapter 1 x 1" for pHD sc sensors, made of PVDF
	Replacements
LZU220.99.70000	Sealing kit, EPDM
LZU220.99.75000	Sealing kit, VITON (FKM)
LZU215.99.30000	Protection cap, for LZU215/220
LZU220.99.31000	Electrode protector, for LZU220, made of PP-H
LZU220.99.32000	Electrode protector, for LZU220, made of PVDF
LZU220.99.33000	Electrode protector for 37xx sensors, made of PP-H
LZU220.99.34000	Electrode protector for 37xx sensors, made of PVDF

functional principle of wetting cup

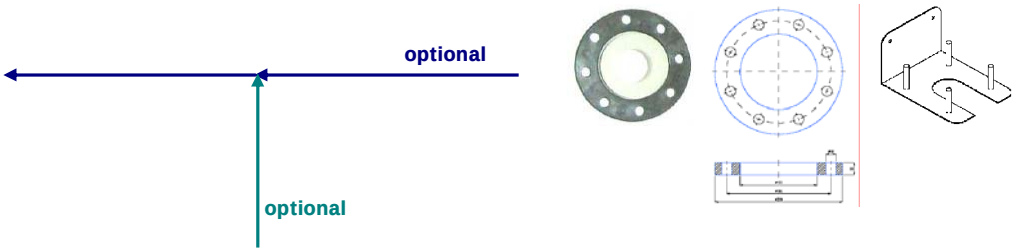


Mounting assemblies

Immersion assembly for E-Chem sensors (DataSheet DOC053.52.00479)

Universal Mounting Assembly designed for for Immersion Application in water, wastewater and process water sectors

- made of PP (Polypropylene)
- DN50 design available with 1500 mm and 2000 mm pipe length
- various options for maximum flexibility
- adjustable immersion depth by use of optional sliding flange
- for use in tanks or open channels
- for electrodes with DN50 conical flange, PG13.5, ¾" or 1" threaded sensor connection



Part No.	Designation
	Universal Immersion Mounting assembly DN50 x 1000/1500 mm, for open and closed vessels; made of PP including 2 ASV clips for wall mounting; union nut for DN50 conical flanged sensors and EPDM gasket
LZH066	Immersion assembly with 1000 mm pipe length
LZH082	Immersion assembly with 1500 mm pipe length
	Optional accessories
LZH065	Sliding flange with clamping cone DN100, for DN50 immersion assemblies, made of PP
LZH085	Bracket for wall mounting of LZH65
LZX891	Mounting Chain, made of PVC, length: 5m, Ø = 6mm
LZH067	Socket with 3 x Pg13.5 thread takes up to 3 electrode with appropriate connection, including 2 dummy plugs
LZH068	Socket with ¾" thread, for 1 x 8350/8351 or 3700 "convertible style" sensor series
LZH083	Socket with 1" thread, for 1 x 1" pHD pH/ORP "convertible style" sensors
LZH084	Wetting Cup for LZH066/LZH82, for use with Pg 13.5 threaded probes
LZH089	Wetting Cup for LZH066/LZH82, for use with ¾" and 1" threaded probes
Z08350=A=7000	Cleaning system for ¾" threaded probes, for use with 8350 and 8351 pH/ORP probe series

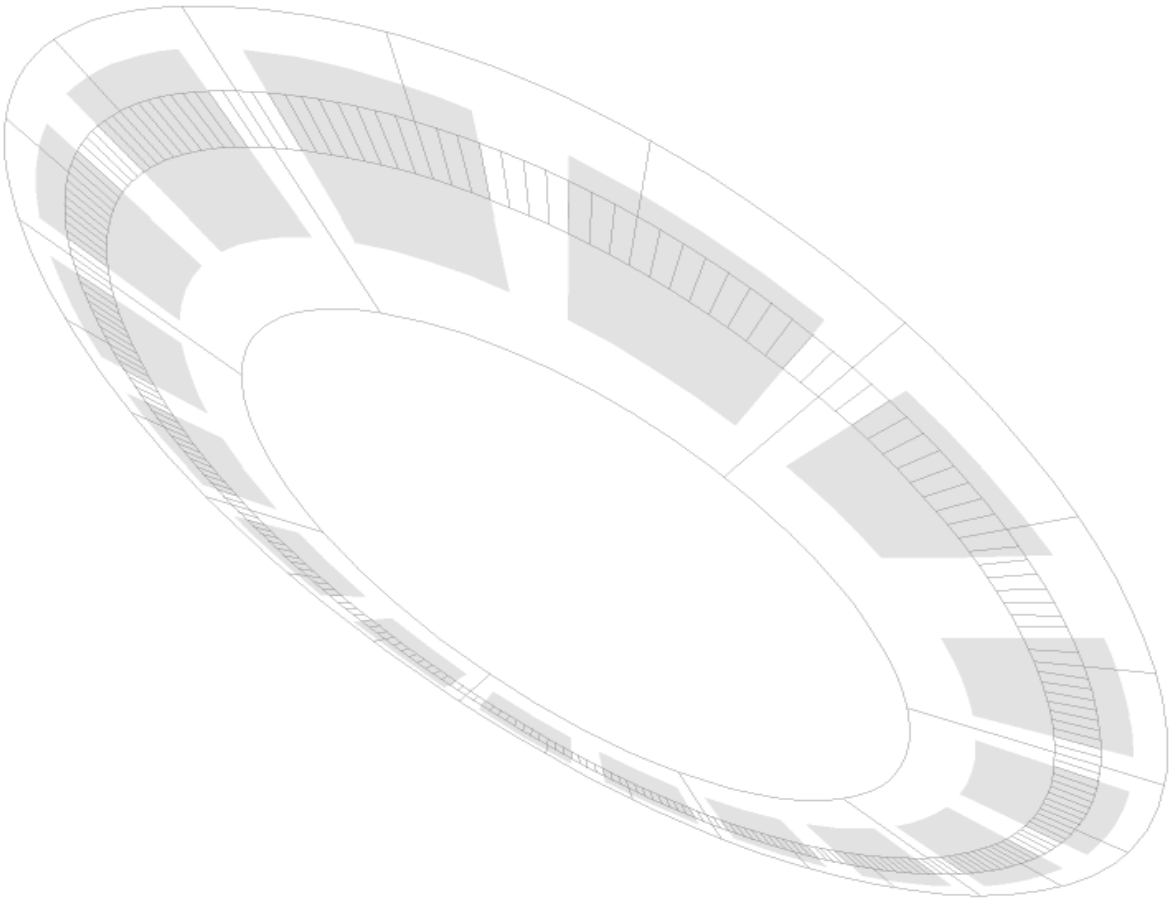
Samplers

Stationary and Portable systems - Intro

HACH LANGE's extensive range of samplers includes portable and stationary systems, using pressure/vacuum or peristaltic technology.
Versatile dispensing units for time, volume, flow and event-based sampling.

All HACH LANGE samplers are ideal for use in sewage treatment and industrial plants, as well as for monitoring surface waters.

Outstanding technical knowledge, excellent quality and a comprehensive range of service packages ensure reliable operation in standard applications as well as under difficult conditions.



Samplers / Pressure-Vacuum Technique

BÜHLER Stationary systems - at a glance

The BÜHLER 4010 is the STANDARD sampler, which covers almost 90% of the demands in routine. Insulated Stainless Steel housing, separated control and sample compartment with lockable door, flexible sampling system options and various bottle configurations are the key characteristics.

The BÜHLER 4110 is similar to 4010, but it is possible to install HACH LANGE SC100 Controllers being equipped with any sc online probe;
Mainly used at wwtp outlet spots- a combination of sampling system and on-line measurement.

The BÜHLER 4210 is a variant of the 4010, but has been designed with integrated water rinsing system for cleaning. Typical application is sampling station for sludge tanker at the inlet of wwtp or sampling of water samples with higher suspended solid concentrations.

The BÜHLER 4410 is based on the 4010 design, but samples are taken continiously
➔ the first filled bottles gets automatically emptied and cleaned before sampling starts again (self-emptying principle).
Main application is outlet monitoring on wwtp where it is not necessary to analyse samples every day.

The BÜHLER1027 is a basic wall-mount sampler using pressure / vacuum technologie. The sampler takes time and flow proportional composite samples. It is suited for easy applications on wastewater treatment plants or industrial wastewater.

Samplers / Pressure-Vacuum Technique

BÜHLER Portable systems - at a glance

In Waste Water Treatment Plants

- for flexible monitoring in every treatment stage
- for use outside the treatment plant

In water authorities

- for discharger control and verification
- for monitoring water sources

In industry

- for environmental self control
- for process control

In laboratories and environmental organisations

- portable application in areas to be monitored

The BÜHLER 1029 comes with unsurpassed flexibility.
Sampler and base are available with main power or rechargeable battery option.
Furthermore it can also be installed as a thermostat-controlled stationary system.

The BÜHLER 1029 portable sampler comes in Stainless Steel housing and is ideally suited for sampling waste waters from treatment plants and industrial processes, as well as for surface water monitoring.

The BÜHLER 1000 comes wit round passive cooling base.
The optional MCERTS bottles can be used to store samples for up to 72 hours at 4 °C without freezing. The BÜHLER 1000 therefore easily satisfies the strict requirements of the British Environment Agency's Monitoring Certification Scheme (MCERTS).

The BÜHLER 2000 combines small dimensions by offering the 24x1L bottle option for glass as well as plastic bottles or 25L composite PE bottle.
All programming features of stationary sampler products are available.

SAMPLER, stationary

BÜHLER 4010 (DataSheet DOC053.72.03120)

Technical Data Subject to change without	**BÜHLER 4010 Stationary Sampler**	
Designation	Stationary Standard Water Sampler in Stainless Steel Enclosure, fulfilling ISO 5667 requirements	
Sampling method	pressure / vacuum principle	
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), flow proportional - CTVV (constant time, variable volume) (optional), external event sampling, manual grab sampling (at any time without interrupting the running program)	
Dosing		
Standard	Vaccum 20 ... 350 ml selectable	
Optionally	Vaccum 20 ... 500 ml, Bypass	
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System	
Hydraulic parameters		
Suction height	max. 8m (at 1013hPa and static medium)	
Suction velocity	>0.5 m/s suction height up to 7.8 m (at 1013hPa); membrane pump power electronically adjustable	
Suction hose	7.5 m PVC hose (12 mm ID), (optional 16mm ID at dosing system CTVV) max. allowed length of suction tube 30 m	
Sample container		
PE bottles	1 x 25 l, 1 x 50 l, 4 x 6 l, 4 x 10 l, 4 x 14 l, 4 x 20 l, 4 x 25 l 24 x 1,0 l, 24 x 2.9 l,	2 x 10 l, 2 x 22 l, 12 x 2.9 l,
Glass bottles	12 x 2 l	24 x 1 l, 24 x 2L
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD	
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT)	
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp	
Programs	6 user defined programs (freely programmable)	
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable	
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration	
Programming options	various	
Program-Start	immediately, at a certain time, at external Signal	
Program-Stopp	Stopp sampling after programm is passed; continous run mode	
Pause-Modus	Pause of sampling program at any time	
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable	
Overfilling protection	1 – 999 samples / bottle; adjustable	
Sampling Intervall	1 min. to 99h 59min in minute-steps	
Interface	RS232	
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door	
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)	
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)	
Refridgeration system	microprocessor controlled refrigeration/heating system with 4 settings, NoFrost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C	
	for bottle option 4x20l, 4x25l, 24x2.9l, 36x1l	for any other configuration
Dimensions	930 x 1400 x 850 mm (W x H x D)	690 x 1290 x 645 mm (W x H x D)
Dimensions with roof up	930 x 2015 x 850 mm (W x H x D)	690 x 1882 x 645 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option	
Power consumption	350 VA (overall)	
Overvoltage protection	all inputs are protected against overvoltage	
Environmental		
Operation	-20 ... +40°C	
Sample Temperature	0 – 40°C	
Weight	~ 100 kg with composite container, higher weight when using several bottles and/or glass bottles	
Communications		
Modbus/Profibus DP	prefigured; communication-adapter optional; (Modbus-/ Profibus- analogue flow signal can not be used for CTVV flow proportional sampling mode)	
Wireless / GSM	Optional (in combination with PC software)	
Certification & Approvals	CE, mCERT	
Wetted materials	PVC, Silikon, PS, PE, EPDM (optional: dosing vessel Glass Duran 50, counterweight SS304)	
Warranty	24 month	

SAMPLER, stationary

BÜHLER 4010 (DataSheet DOC053.72.03120)

Part No.	Designation
BL401X.XX.XXXXX	Stationary Sampler, BÜHLER

B	L	4	0	1	X	.	X	X	.	X	X	X	X	X

Sampler Model

4011 Window in upper door, 7.5 m suction hose (ID Ø12mm) counterweight and 1 relay (collective malfunction)	1
4012 same as 4011, with 4 relays (collective malfunction, program active, Program end, taking sample, interior lighting and RS 232 socket (Sub D9)	2

Country Code Selection 9 9

Sampling System Option

Vacuum, ASF Pump, 350 ml Plastic vessel		2
Vacuum, ASF Pump, 350 ml Glas vessel		1
Vacuum, ASF Pump, 500 ml Glas vessel		5
Flow proportional	(Variable Volume, Constant time sampling mode)	3
Bypass dosing vessel	(Flow through for pressurized pipes)	4
Ceramic Slide 1	(2 bar max)	C
Ceramic Slide 2	(6 bar max)	D

Refridgeration Option

No Fridge, No Heater	0
Fridge and Heater	1
Coated Fridge	2

Bottle/Container Option

Plastic, 1 x 25 L	1
Plastic, 1 x 50 L	8
Plastic, 2 x 10 L	A
Plastic, 2 x 22 L	B
Plastic, 4 x 6 L	9
Plastic, 4 x 10 L	2
Plastic, 4 x 14 L	3
Plastic, 4 x 20 L	G
Plastic, 4 x 25 L	H
Plastic, 12 x 2.9 L	5
Plastic, 24 x 1 L	6
Plastic, 24 x 2.9 L	E
Glass, 12 x 2 L	4
Glass, 24 x 0.9 L	7
Glass, 24 x 2 L	F

Housing Option

made of SS304 (V2A)	1
made of SS304 Epoxy Coated	3
made of SS316 (V4A)	2
made of SS316 Epoxy Coated	4

Power / Plug type Option

230VAC, Bare leads - no plug	0
230VAC, Euro plug	1
230VAC, UK plug	2
115VAC, 50 Hz, UK plug	3
230VAC, Swiss plug	4
115VAC, 50Hz, Bare leads - no plug	6

Notes:

Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.
Flow Through vessel; for pressurized pipes; min required flow 4 ... 20 L/min
For further options, accessories and major spare parts, please refer to the chapter BÜHLER accessories.
KNF pump for suction heights greater > 5m (former dosing option 2) must be ordered separately under BM900687

SAMPLER, stationary

BÜHLER 4110 (DataSheet DOC053.52.00214)

Technical Data Subject to change without	**BÜHLER 4110 Stationary Sampler**	
Designation	Stationary Water Sampler, extendable with up to 2 sc100 universal controllers, in Stainless Steel Enclosure, fulfilling ISO 5667 requirements	
Sampling method	pressure / vacuum principle	
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), flow proportional - CTVV (constant time, variable volume) (optional), external event sampling, manual grab sampling (at any time without interrupting the running program)	
Dosing		
Standard	Vaccum 20 ... 350 ml selectable	
Optionally	Vaccum 20 ... 500 ml, Bypass	
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System	
Hydraulic parameters		
Suction height	max. 8m (at 1013hPa and static medium)	
Suction velocity	>0.5 m/s suction height up to 7.8 m (at 1013hPa); membrane pump power electronically adjustable	
Suction hose	7.5 m PVC hose (12 mm ID), (optional 16mm ID at dosing system CTVV) max. allowed length of suction tube 30 m	
Sample container		
PE bottles	1 x 25 l, 1 x 50 l, 4 x 6 l, 4 x 10 l, 4 x 14 l, 24 x 1,0 l	2 x 10 l, 2 x 22 l, 12 x 2.9 l,
Glass bottles	12 x 2 l	24 x 1 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD	
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT)	
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp	
Programs	6 user defined programs (freely programmable)	
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable	
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration	
Programming options	various	
Program-Start	immediately, at a certain time, at external Signal	
Program-Stopp	Stopp sampling after programm is passed; continous run mode	
Pause-Modus	Pause of sampling program at any time	
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable	
Overfilling protection	1 – 999 samples / bottle; adjustable	
Sampling Intervall	1 min. to 99h 59min in minute-steps	
Interface	RS232	
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door	
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)	
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)	
Refridgeration system	microprocessor controlled refrigeration/heating system with 4 settings, NoFrost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C	
Dimensions	690 x 1490 x 645 mm (W x H x D)	
Dimensions with roof up	690 x 2090 x 645 mm (W x H x D)	
Power requirements	230 VAC / 115 VAC depending on selected power supply option	
Power consumption	350 VA (overall)	
Overvoltage protection	all inputs are protected against overvoltage	
Environmental		
Operation	-20 ... +40°C	
Sample Temperature	0 – 40°C	
Weight	~ 105 kg with composite container, higher weight when using several bottles and/or glass bottles	
Communications		
Modbus/Profibus DP	prefigured; communication-adapter optional; (Modbus-/ Profibus- analogue flow signal can not be used for CTVV flow proportional sampling mode)	
Wireless / GSM	Optional (in combination with PC software)	
Certification & Approvals	CE, mCERT	
Wetted materials	PVC, Silikon, PS, PE, EPDM (optional: dosing vessel Glass Duran 50, counterweight SS304)	
Warranty	24 month	

SAMPLER, stationary

BÜHLER 4110 (DataSheet DOC053.52.00214)

Part No. **Designation**

BL41XX.XX.XXXXX Stationary Sampler, BÜHLER

B	L	4	1	X	X	.	X	X	.	X	X	X	X	X

Controller Option

no controller	(4 holes 96 x 96 mm)	0
1 x sc100 Controller		1
2 x sc100 Controller		2

Sampler Model

41X1 1
Window in upper door, 7.5 m suction hose (ID Ø12mm)
counterweight and 1 relay (collective malfunction)

41X2 2
same as 4011, with 4 relays
(collective malfunction, program active, Program end,
taking sample, interior lighting and RS 232 socket (Sub D9)

Country Code Selection 9 9

Sampling System Option

Vacuum, ASF Pump, 350 ml Plastic vessel		2
Vacuum, ASF Pump, 350 ml Glas vessel		1
Vacuum, ASF Pump, 500 ml Glas vessel		5
Flow proportional	(Variable Volume, Constant time sampling mode)	3
Bypass dosing vessel	(Flow through for pressurized pipes)	4
Ceramic Slide 1 (2 bar max)		C
Ceramic Slide 2 (6 bar max)		D

Refridgeration Option

No Fridge, No Heater	0
Fridge and Heater	1
Coated Fridge	2

Bottle/Container Option

Plastic, 1 x 25 L	1
Plastic, 1 x 50 L	8
Plastic, 2 x 10 L	A
Plastic, 2 x 22 L	B
Plastic, 4 x 6 L	9
Plastic, 4 x 10 L	2
Plastic, 4 x 14 L	3
Plastic, 12 x 2.9 L	5
Plastic, 24 x 1 L	6
Glass, 12 x 2 L	4
Glass, 24 x 0.9 L	7

Housing Option

made of SS304 (V2A)	1
made of SS304 Epoxy Coated	3
made of SS316 (V4A)	2
made of SS316 Epoxy Coated	4

Power / Plug type Option

230VAC, Bare leads - no plug	0
230VAC, Euro plug	1
230VAC, UK plug	2
115VAC, 50 Hz, UK plug	3
230VAC, Swiss plug	4
115VAC, 50Hz, Bare leads - no plug	6

Notes:
Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.
Flow Through vessel; for pressurized pipes; min required flow 4 ... 20 L/min
For further options, accessories and major spare parts, please refer to the chapter BÜHLER accessories.
Probes have to be ordered seperatly (Depending on configuration if sc controller is included)
Examples - generally all SC Probes are connectable; please refer to Tender Documents

SAMPLER, stationary

BÜHLER 4210 (DataSheet DOC063.52.03814)

Technical Data Subject to change without	**BÜHLER 4210 Stationary Sampler**	
Designation	Stationary Water Sampler in Stainless Steel Enclosure, fulfilling ISO 5667 requirements, particularly suitable for faeces applications	
Sampling method	pressure / vacuum principle	
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)	
Dosing		
Standard	Vaccum 20 ... 500 ml selectable	
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System	
Hydraulic parameters		
Suction height	max. 8m (at 1013hPa and static medium)	
Suction velocity	>0.5 m/s suction height up to 7.8 m (at 1013hPa); membrane pump power electronically adjustable	
Suction hose	7.5 m PVC hose (12 mm ID), (optional 16mm ID at dosing system CTVV) max. allowed length of suction tube 30 m	
Sample container		
PE bottles	1 x 25 l, 1 x 50 l, 4 x 14 l, 4 x 20 l, 12 x 1 l, 23 x 1 l	
Glass bottles	12 x 1 l	23 x 1 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD	
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT)	
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp	
Programs	6 user defined programs (freely programmable)	
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable	
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration	
Programming options	various	
Program-Start	immediately, at a certain time, at external Signal	
Program-Stopp	Stopp sampling after programm is passed; continous run mode	
Pause-Modus	Pause of sampling program at any time	
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable	
Overfilling protection	1 – 999 samples / bottle; adjustable	
Sampling Intervall	1 min. to 99h 59min in minute-steps	
Interface	RS232	
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door	
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)	
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)	
Refridgeration system	microprocessor controlled refrigeration/heating system with 4 settings, NoFrost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C	
	for bottle option 4x20l, 23x1l	for any other configuration
Dimensions	930 x 1400 x 850 mm (W x H x D)	690 x 1290 x 645 mm (W x H x D)
Dimensions with roof up	930 x 2015 x 850 mm (W x H x D)	690 x 1882 x 645 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option	
Power consumption	350 VA (overall)	
Overvoltage protection	all inputs are protected against overvoltage	
Environmental		
Operation	-20 ... +40°C	
Sample Temperature	0 – 40°C	
Weight	~ 105 kg with composite container, higher weight when using several bottles and/or glass bottles	
Communications		
Modbus/Profibus DP	prefigured; communication-adapter optional; (Modbus-/ Profibus- analogue flow signal can not be used for CTVV flow proportional sampling mode)	
Wireless / GSM	Optional (in combination with PC software)	
Certification & Approvals	CE, mCERT	
Wetted materials	PVC, Silikon, PS, PE, EPDM (optional: dosing vessel Glass Duran 50, counterweight SS304)	
Warranty	24 month	

SAMPLER, stationary

BÜHLER 4210 (DataSheet DOC063.52.03814)

Part No. **Designation**

BL421X.XX.XXXXX Stationary Sampler, BÜHLER

B	L	4	2	1	X	.	X	X	.	X	X	X	X	X

Sampler Model

4211 1
Window in upper door, 7.5 m suction hose (ID Ø12mm)
counterweight and 1 relay (collective malfunction)

4212 2
same as 4211, with 4 relays
(collective malfunction, program active, Program end,
taking sample, interior lighting and RS 232 socket (Sub D9)

Country Code Selection 9 9

Sampling System Option

Vacuum, ASF Pump, 500 ml Glas vessel 5

Refridgeration Option

No Fridge, No Heater 0
Fridge and Heater 1
Coated Fridge 2

Bottle/Container Option

Plastic, 1 x 25 L 1
Plastic, 4 x 14 L 3
Plastic, 4 x 20 L ..... G
Plastic, 12 x 1 L ..... K
Plastic, 23 x 1 L L

Glass, 12 x 0.9 L ..... J
Glass, 23 x 0.9 L ..... M

Housing Option

made of SS304 (V2A) 1
made of SS304 Epoxy Coated 3

made of SS316 (V4A) 2
made of SS316 Epoxy Coated 4

Power / Plug type Option

230VAC, Bare leads - no plug 0
230VAC, Euro plug 1
230VAC, UK plug 2
115VAC, 50 Hz, UK plug 3
230VAC, Swiss plug 4
115VAC, 50Hz, Bare leads - no plug 6

Notes: Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.

SAMPLER, stationary

BÜHLER 4410 Self-emptying Sampler (DataSheet DOC053.52.03122)

Technical Data Subject to change without	**BÜHLER 4410 Stationary Sampler**	
Designation	Stationary Water Sampler in Stainless Steel Enclosure, fulfilling ISO 5667 requirements; automatic sampling in conjunction with pre-rinsing and self-emptying	
Sampling method	pressure / vacuum principle	
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), flow proportional - CTVV (constant time, variable volume) (optional), external event sampling, manual grab sampling (at any time without interrupting the running program)	
Dosing		
Standard	Vaccum 20 ... 350 ml selectable	
Optionally	Vaccum 20 ... 500 ml, Bypass	
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System	
Hydraulic parameters		
Suction height	max. 8m (at 1013hPa and static medium)	
Suction velocity	>0.5 m/s suction height up to 7.8 m (at 1013hPa); membrane pump power electronically adjustable	
Suction hose	7.5 m PVC hose (12 mm ID), (optional 16mm ID at dosing system CTVV) max. allowed length of suction tube 30 m	
Sample container		
PE bottles	2 x 10 l	4 x 5 l, 4 x 10 l, 24 x 2 l
Glass bottles	12 x 1.6 l	24 x 1 l, 24 x 2L
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD	
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT)	
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp	
Programs	6 user defined programs (freely programmable)	
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable	
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration	
Programming options	various	
Program-Start	immediately, at a certain time, at external Signal	
Program-Stopp	Stopp sampling after programm is passed; continous run mode	
Pause-Modus	Pause of sampling program at any time	
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable	
Overfilling protection	1 – 999 samples / bottle; adjustable	
Sampling Intervall	1 min. to 99h 59min in minute-steps	
Interface	RS232	
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door	
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)	
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)	
Refridgeration system	microprocessor controlled refrigeration/heating system with 4 settings, NoFrost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C	
	for bottle option 4x10l, 24x1l, 24x2l	for any other configuration
Dimensions	800 x 1400 x 850 mm (W x H x D)	690 x 1290 x 645 mm (W x H x D)
Dimensions with roof up	800 x 2175 x 850 mm (W x H x D)	690 x 1882 x 645 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option	
Power consumption	350 VA (overall)	
Overvoltage protection	all inputs are protected against overvoltage	
Environmental		
Operation	-20 ... +40°C	
Sample Temperature	0 – 40°C	
Weight	~ 115 kg with 2x10l PE bottles, higher weight when using several bottles and/or glass bottles	
Communications		
Modbus/Profibus DP	prefigured; communication-adapter optional; (Modbus-/ Profibus- analogue flow signal can not be used for CTVV flow proportional sampling mode)	
Wireless / GSM	Optional (in combination with PC software)	
Certification & Approvals	CE, mCERT	
Wetted materials	PVC, Silikon, PS, PE, EPDM (optional: dosing vessel Glass Duran 50, counterweight SS304)	
Warranty	24 month	

SAMPLER, stationary

BÜHLER 4410 Self-emptying Sampler (DataSheet DOC053.52.03122)

Part No. **Designation**

BL441X.XX.XXXXX Stationary Sampler, BÜHLER

B	L	4	4	1	X	.	X	X	.	X	X	X	X	X

Sampler Model

4411 Window in upper door, 7.5 m suction hose (ID Ø12mm) counterweight and 1 relay (collective malfunction)	1
4412 same as 4011, with 4 relays (collective malfunction, program active, Program end, taking sample, interior lighting and RS 232 socket (Sub D9)	2

Country Code Selection 9 9

Sampling System Option

Vacuum, ASF Pump, 350 ml Plastic vessel	2
Vacuum, ASF Pump, 350 ml Glas vessel	1
Vacuum, ASF Pump, 500 ml Glas vessel	5
Flow proportional (Variable Volume, Constant time sampling mode)	3
Bypass dosing vessel (Flow through for pressurized pipes)	4
Ceramic Slide 1 (2 bar max)	C
Ceramic Slide 2 (6 bar max)	D

Refridgeration Option

No Fridge, No Heater	0
Fridge and Heater	1
Coated Fridge	2

Bottle/Container Option

Plastic, 2 x 10 L	A
Plastic, 4 x 5 L	O
Plastic, 4 x 10 L	2
Plastic, 24 x 2 L PP-H	P
Glass, 12 x 1.6 L	N
Glass, 24 x 1.0 L	7
Glass, 24 x 2 L	F

Housing Option

made of SS304 (V2A)	1
made of SS304 Epoxy Coated	3
made of SS316 (V4A)	2
made of SS316 Epoxy Coated	4

Power / Plug type Option

230VAC, Bare leads - no plug	0
230VAC, Euro plug	1
230VAC, UK plug	2
115VAC, 50 Hz, UK plug	3
230VAC, Swiss plug	4
115VAC, 50Hz, Bare leads - no plug	6

Notes:

Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.
Flow Through vessel; for pressurized pipes; min required flow 4 ... 20 L/min
For further options, accessories and major spare parts, please refer to the chapter BÜHLER accessories.
KNF pump for suction heights greater > 5m (former dosing option 2) must be ordered separately under BM900687

SAMPLER, stationary

BÜHLER 4040Ex (DataSheet DOC053.72.03120)

Technical Data Subject to change without	
	BÜHLER 4040Ex Stationary Sampler - ATEX Zone 2 compliant
Designation	Stationary Water Sampler in Stainless Steel Enclosure, ATEX II 3G EEX nC/R/L IIB T3, fulfilling ISO 5667 requirements
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vaccum 20 ... 350 ml selectable
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 6m (at 1013hPa and static medium)
Suction velocity	>0.5 m/s suction height up to 3 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	7.5 m PVC hose (12 mm ID), (optional 16mm ID at dosing system CTVV) max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 25 l, 1 x 50 l, 4 x 10 l, 4 x 14 l, 12 x 2.9 l,
Glass bottles	12 x 2 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT)
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	6 user defined programs (freely programmable)
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration while obtaining ATEX requirements
Programming options	various
Program-Start	immediately, at a certain time, at external Signal
Program-Stopp	Stopp sampling after programm is passed; continous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Intervall	1 min. to 99h 59min in minute-steps
Interface	none
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)
Refridgeration system	microprocessor controlled refrigeration/heating system with 4 settings, NoFrost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C
Dimensions	690 x 1490 x 645 mm (W x H x D)
Dimensions with roof up	690 x 2090 x 645 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	350 VA (overall)
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	-20 ... +40°C
Sample Temperature	0 – 40°C
Weight	~ 100 kg with composite container, higher weight when using several bottles and/or glass bottles
Communications	on request
Certification & Approvals	CE, ATEX II 3G EEX nC/R/L IIB T3
Wetted materials	PVC, Silikon, PS, PE, EPDM, Duran 50, SS304
Warranty	24 month

SAMPLER, stationary

BÜHLER 4010 (DataSheet DOC053.72.03120)

Part No.	Designation
BL404X.XX.XXXXX	Stationary Sampler, BÜHLER

B	L	4	0	4	X	.	X	X	.	X	X	X	X	X

Sampler Model

4041Ex ..... ATEX II 3G EEX nC/R/L IIB T3 ..... **1**
Window in upper door, 7.5 m suction hose (ID Ø12mm)
counterweight and 1 relay (collective malfunction)

Country Code Selection **9 9**

Sampling System Option

Vacuum, ASF Pump, 350 ml Glas vessel **1**

Refridgeration Option

No Fridge, No Heater **0**
Fridge and Heater **1**
Coated Fridge **2**

Bottle/Container Option

Plastic, 1 x 25 L **1**
Plastic, 1 x 50 L **8**
Plastic, 4 x 10 L **2**
Plastic, 4 x 14 L **3**
Plastic, 12 x 2.9 L **5**
Glass, 12 x 2 L **4**

Housing Option

made of SS304 (V2A) **1**
made of SS304 Epoxy Coated **3**
made of SS316 (V4A) **2**
made of SS316 Epoxy Coated **4**

Power / Plug type Option

230VAC, Bare leads - no plug **0**
115VAC, 50Hz, Bare leads - no plug **6**

Notes: Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.

SAMPLER, Basic

BÜHLER 1027 (DataSheet DOC063.52.03813)

Technical Data Subject to change without notice	**BÜHLER 1027 Basic Stationary Sampler**
Designation	Wall-mounted stationary sampler for composite sampling, fulfilling ISO 5667 requirements optionally combinable with optional refrigerator,
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vaccum 20 ... 350 ml selectable
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 6m (at 1013hPa and static medium) max. 8m with optionally avaialble Membrane pump
Suction velocity	>0.5 m/s suction height up to 5 m (7 m optionally) (at 1013hPa); membrane pump power electronically adjustable
Suction hose	5 m PVC hose (12 mm ID), max. allowed length of suction tube 30 m
Sample container	composite sampling only
PE bottles	1 x 10 l, 1 x 25 l offered as standard or any other container on request
Glass bottles	optionally / on request
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT)
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	6 user defined programs (freely programmable)
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration
Programming options	various
Program-Start	immediately, at a certain time, at external Signal
Program-Stopp	Stopp sampling after programm is passed; continous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Intervall	1 min. to 99h 59min in minute-steps
Interface	RS232
Housing	Styrosun / PC (GF10)
Refridgeration system	not applicable optionally available refridgerator BN1029F0125P recommended
Dimensions	
Sampler	442 x 362 x 222 mm (W x H x D)
Optional fridge P/N BN1029F0125P	500 x 850 x 620 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	25 VA
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	0 ... +45°C
Sample Temperature	0 – 40°C
Weight	10 kg (Wall mount sampler only)
Communications	on request
Modbus/Profibus DP	on request
Wireless / GSM	on request
Certification & Approvals	CE
Wetted materials	PVC, Silikon, PS, PE, EPDM (optional: dosing vessel Glass Duran 50)
Warranty	24 month

SAMPLER, Basic

BÜHLER 1027 (DataSheet DOC063.52.03813)

Part No.	Designation
BL1027.XX.XXXXX	Stationary Sampler, BÜHLER

B L 1 0 2 7 . X X . X X X X X

Sampler Model

1027 Wall Mount Sampler with 5 m suction hose 7

Country Code Selection 9 9

Sampling System Option

Vacuum, ASF Pump, 350 ml Plastic vessel 6

Double head pump for greater suction velocity

Vacuum, Double head Pump, 350 ml Plastic vessel 9

Vacuum, Double head Pump, 350 ml Glass vessel 8

Refridgeration Option

No Fridge (Standard) 0

Kto. incl. Fridge 230VAC/50Hz, EU plug, composite sampling 1

Bottle/Container Option

without bottles 0

Plastic, 1 x 10 L V

Plastic, 1 x 25 L 1

Level Detector Option: (in sampling vessel)

Conductive Level Detector Standard version 1

Conductive/Capacitive Level Detector Industry version 2

Power / Plug type Option

230VAC, Bare leads - no plug 0

230VAC, Euro plug 1

230VAC, UK plug 2

115VAC, 50 Hz, UK plug 3

230VAC, Swiss plug 4

115VAC, 50Hz, Bare leads - no plug 6

Notes:

BL1027 in standard version will be available after face out of the BN1027 (approx. April 09)
Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.

Optional accessories

BM60046	Plastic Bottle, 25 l
BM60342	Plastic Bottle, 50 l
BM50025	Stainless Steel Counterweight (180mm long)
BM900012	Suction hose ½", length 5m, inc. screw connection
BM69304	PVC hose, 12,7 x 20
BM69403	Flat packaging 25 x 15 x 2 EPDM
BM60050	Hose weight ¾" x 13
BN1029F0125P	Refrigerated Compartment for composite Sampling (25 l max.) picture B made of SS, Dimensions: 85 x 50 x 62 cm (H x W x D). for Indoor use only! Adaptor for discontinued Sampler model 1029E0000P not included!

picture B

SAMPLER, portable

BÜHLER 1000 (DataSheet DOC063.52.03829)

Technical Data Subject to change without	**BÜHLER 1000 Portable Sampler**
Designation	Portable Sampler with round shape, fulfilling ISO 5667 requirements, lockable lid optionally available with mCERT compliant cooling base
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vaccum 20 ... 350 ml selectable
Dosing Accuracy	1.3% (at 95% confidence intervall) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 8m (at 1013hPa and static medium)
Suction velocity	>0.5 m/s suction height up to 7 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	Reinforced 5 m PVC tube with intake nozzle (9.5 mm ID), max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 5 l, 1 x 12 l 24 x 0.5 l, 24 x 1 l
Glass bottles	1 x 10 l 12 x 0.25 l, 12 x 1 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 128 x 64 pixel backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, CZ)
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	12 user defined programs (freely programmable)
Outputs	
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 2x digital:(Flow, event)
Programming options	various
Program-Start	immediately, at a certain time, at external Signal, after ending of another program
Program-Stopp	Stopp sampling after programm is passed; continous run mode; at acertain time/date
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 9.999 samples / bottle; adjustable
Sampling Intervall	1 min. to 99h 59min in minute-steps
Interface	RS232
Housing	PE with openable lid and stainless steel retaining clip
Refridgeration system	Optionally mCERTs compliant sample storage in combination with optional special insulated sampler base (10x ice packs included)
Dimensions	
small base	565 x 360 mm H x Ø
medium base	835 x 396 mm H x Ø
big base	820 x 500 mm H x Ø
mCert base	1050 x 500 mm H x Ø
Power requirements	Maintenance-free rechargeable battery, 12 V, 7 Ah, buffer mode
Power consumption	max. 20W approx. 1000 samples per battery charge [determined at 20°C Ambient, 1.5 m Suction height, 1 min. sampling intervall] distributor operation included
Environmental	
Operation	0 ... +45°C
Sample Temperature	0 – 40°C
Weight	~ 11.5 kg with composite container, up to 20 kg when using several bottles and/or glass bottles
Communications	on request
Certification & Approvals	CE, mCERT
Wetted materials	PVC, Silicone, PS, PE, EPDM, Duran 50
Warranty	24 month

SAMPLER, portable

BÜHLER 1000 (DataSheet DOC063.52.03829)

Part No. **Designation**

BL1000.99.11XXX Portable Sampler, BÜHLER

B	L	1	0	0	0	.	9	9	.	1	1	X	X	X

Sampler Model

1000 (New model) 0
7.5 m suction hose (9.6mm ID), counterweight

Country Code Selection 9 9

Sampling System Option

Vacuum, ASF Pump, 350 ml Glas vessel 1

Base Option

passive cooling base ..... (small, medium or big; depending on bottle option) 1

Bottle/Container Option

Plastic, 1 x 5 L	.....	small base	1
Plastic, 1 x 5 L M-Cert	.....	M-Cert compliant base	A
Plastic, 1 x 12 L	.....	medium base	2
Plastic, 24 x 0.5 L	.....	medium base	4
Plastic, 24 x 1.0 L	.....	wide base	5
Glass, 1 x 10 L	.....	big base	7
Glass, 12 x 250 mL	.....	small base	8
Glass, 12 x 1 L	.....	medium base	9

Housing Option

Standard Base, made of PE	.....	non-insulated	1
M-Cert compliant Base, made of PE	.....	in conjunction with bottle option A	4

Power / Plug type Option

Battery powered; w/o battery & charger 1
please order battery (BM1011-1035) and battery charger (BM1011-2135 or BM1011-2131) separately

Notes: Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.

SAMPLER, portable

BÜHLER 1000 (DataSheet DOC063.52.03829)

Part No.	Designation
	Batteries, Chargers, connection cables
BM1011-2135	Battery Charger; 110-240v @ 50/60Hz (Euro plug)
BM1011-2131	Battery Charger;110-240v @ 50/60Hz (UK plug)
BM1011-2109	Auxiliary Power Lead (for use with external battery)
BM900596	Signal cable
	Sample Chambers
BM30004	Dosing vessel - Glass Sample Chamber (20-350ml)
BM69402	Sealing dosing vessel - vessel head (Joint ring for glass sample chamber - quadring)
BM69301	Dosing hose and sample inlet hose at sample chamber (12x2 mm) - lenght 0,3m
BM69302	Silicone hose at valve system (4x1,5 mm) - lenght 0,7m
BM1011-1305	Sample chamber discharge tube (9,5x12 mm)
BM8000-0034	Tube guide for discharge tube (for composite container and 24 x 1 l bottle option)
	Inlet Hoses & Accessories (Filters Not Included)
BM900578	PVC suction hose, length 7,5 m (ID 9,5 mm) with brass sinker weight
BM900595	PVC suction hose, length 7,5 m (ID 9,5 mm) with stainless steel sinker weight
BM8800-0027	PVC suction hose, 30 m reel (ID 9,5 mm)
BM1011-4018	Filter for suction hose
BM1011-0815	Brass sinker weight
BM1011-0907	Stainless steel sinker weight
	Distributors
BM1011-1010	Distributor (compl. with drive, without distributor tube)
BM1011-1331	Key for opening of distributor screw connection
BM1011-1109	Distributor positioning ring / Index Assembly - round black PVC part to fix distributor arm
BM1011-1316	Distributor outlet tube 24x500ml
BM1011-1318	Distributor outlet tube 24x1
BM1011-4011	Ring nut for distributor
BM1011-4010	Hub ring for distributor

SAMPLER, portable

BÜHLER 1000 (DataSheet DOC063.52.03829)

Part No.	Designation
	Bottles, Containers & Accessories
BM1011-5030	Plastic, 500ml (Tall Wedge)
BM1011-5036	Plastic, 1 litre
BM1011-1009	Plastic, 5 litre
BM1011-1071	Plastic, 12 litre
BM1011-0831	Glass, 250ml - Set of 4
BM1011-0832	Glass, 1 litre
BM8000-0077	Glass, 10 litre
	Bottle Support & Accessories
BM1011-1045	Supporting ring for 1 l PE bottle
BM1011-1044	Supporting ring for 500 ml glass bottle
BM1011-1027	Supporting ring for 1 l glass bottle
BM1011-1114	Supporting ring for 10 l glass bottle
BM1011-0818	Ring with little funnels for bottle option 24x500 ml (Bottle Alignment Tray - black funnel)
	Sampler Housings
BM1011-1320	Small Container Module Case (Grey)
BM1011-1321	Medium Container Module Case (24x500ml plastic) (Grey)
BM1011-1322	Large Container Module Case (24x1 litre plastic) (Grey)
BM1011-1323	Adaptor for large container module (24x1litre plastic), (Grey)
BM900604	Insulated lower part (mCERT) 1 x 5 l
	Mounting & Carrying Ancillaries
BM900597	Suspension Harness for BL1000 Medium size Base
BM900659	Suspension Harness for BL1000 24 x 1l and mCERT Base
	Conversion Kits
BM1011-0302	5 Litre Composite Bottle Option *
BM1011-0303	12 Litre Composite Bottle Option +
BM1011-0314	12 x 1 Litre Multi Bottle Option + * (includes Small Container Module Case) + (includes Medium Container Case)
BM900573	Sampler head BL1000, no accu, icludes Controller&vessel, no manual
	MISCELLANEOUS SPARES - BÜHLER 1000 Sampler
BM900571	Complete control unit (housing, keyboard/display, PCB)
BM900553	Valve system (incl. silicone hoses)
BM900572	Pinch valve (motor-driven)
BM60472	Pump maintenance kit consisting of: -Diaphragms -Valve plates -Joints -Distance plates
BM60473	Pump head
BM60428	Diaphragm compressor (double-head pump)
BM1011-0215	Battery support set (Battery Retaining Guy and Tab - 2 off per kit (rubber fixing parts of rech. Battery
BM8100-0066	Adjustable Latch - black platic latch to fix sampler head on base
BM1011-4011	Slotted Screw - black plastic screw to mount the distributor
BM1011-2004	Reed Switch Assembly -
BM1011-4010	Retaining Bush

SAMPLER, portable

BÜHLER 2000 (DataSheet DOCXXX.52.XXXXX)

Technical Data Subject to change without notice	**BÜHLER 2000 Portable Sampler**
Designation	Compact portable water sampler with integrated distributor, fulfilling ISO 5667 requirements
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), flow proportional - CTVV (constant time, variable volume) (optional), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vaccum 20 ... 350 ml selectable
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 6 m (at 1013hPa and static medium)
Suction velocity	>0.5 m/s suction height up to 5 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	7.5 m PVC hose (9.5 mm ID), max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 13 l, 1 x 25 l, 4 x 5 l 16 x 1 l *in combination with ice packs* 24 x 1 l
Glass bottles	not offered
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT)
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	6 user defined programs (freely programmable)
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration
Programming options	various
Program-Start	immediately, at a certain time, at external Signal
Program-Stopp	Stopp sampling after programm is passed; continous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Intervall	1 min. to 99h 59min in minute-steps
Interface	RS232
Housing	PE/PC (GF10)
Refridgeration system	passive isolated sampler base (bottle container (isolation layer 40mm) Option: 10 ice packs (200x10x8mm) in combination with bollte option 16 x 1l
Dimensions	510 x 787 x 468 mm (W x H x D)
Power requirements	12 V/ 10 Ah rechargeable lead battery (maintanance free, closed, leak proof) ; 115VAC or 230VAC using charger and battery in buffer mode; Secondary Voltage 11-14VDC
Power consumption	max. 30 W
Environmental	
Operation	0 ... +45°C
Sample Temperature	0 – 40°C
Weight	22,4 kg with 24x1 l bottle option; (Unit incl. rechargeable battery, without suction tube, bottles empty)
Communications	
Modbus/Profibus DP	on request
Wireless / GSM	on request
Certification & Approvals	CE
Wetted materials	PVC, Silicone, PS, PE, EPDM (optional dosing vessel Glasss: Duran 50)
Warranty	24 month

SAMPLER, portable

BÜHLER 2000 (DataSheet DOCXXX.52.XXXXX)

Part No. **Designation**

BL2000.99.11X9X Portable Sampler, BÜHLER

B	L	2	0	0	0	.	9	9	.	1	1	X	9	X

Sampler Model

2000 (New model) **0**
complete system with 5 m suction hose (9.6mm ID), counterweight;
controller with 1 relay collective malfunction option

Country Code Selection **9 9**

Sampling System Option

Vacuum, ASF Pump, 350 ml Plastic vessel **6**
Vacuum, double head Pump, 350 ml Glas vessel (for suction heights < 5m) **8**

Base Option

Sampler with passive cooling base, ice - cooling - STANDARD..... ..... **3**

Bottle/Container Option

Plastic, 1 x 10 L ..... **V**
Plastic, 1 x 25 L **1**
Plastic, 4 x 5 L ..... **W**
Plastic, 16 x 1 L + 4 ice packs ..... **X**
Plastic, 24 x 1 L **6**
Glass, 24 x 1 L **7**

Refrigerated base/Power supply Option:

no refrigerated base **9**

Power / Plug type Option

Battery powered; incl. Battery **5**
please order battery charger (BM900026 or BM900033) separately

Notes: Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.

SAMPLER, portable

BÜHLER 1029 (DataSheet DOC053.52.03119)

Technical Data Subject to change without notice	**Bühler 1029 portable sampler**
Designation	Portable Sampler consiting of 2 separate modules; removeable sampling device combinable with active or passive cooled bottle base; fulfilling ISO 5667 requirements
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), flow proportional - CTVV (constant time, variable volume) (optional), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vaccum 20 ... 350 ml selectable
Dosing Accuracy	2.8% (at 95% confidence intervall) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 6 m (at 1013hPa and static medium) max. 8 m (at 1013hPa and static medium) using optionally available membrane pump
Suction velocity	>0.5 m/s suction height up to 5 m (optionally 7 m) (at 1013hPa); membrane pump power electronically adjustable
Suction hose	7.5 m PVC hose (12 mm ID), (optional 16mm ID at dosing system CTVV) max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 10 l 2 x 5 l 12 x 1 l 24 x 0.4 l
Glass bottles	12 x 1 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD
	multi-language User Interface, selectable (D, FR, GB, NL, CZ, PL, DK, IT)
Data logger	non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	6 user defined programs (freely programmable)
Outputs	max. 8x digital (depending on sampler configuration); free to define / programmable
Inputs	• 1x analogue: 4-20 mA, optional 0-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 5x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration
Programming options	various
Program-Start	immediately, at a certain time, at external Signal
Program-Stopp	Stopp sampling after programm is passed; continous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Intervall	1 min. to 99h 59min in minute-steps
Interface	RS232
Housing	
Controller	stainless steel (Mat 1.4301 / SS304H) with lockable plastic door
Refridgeration system	optional available Cooling bases, passive or active
Cooling base, passive	insulated passive cooled sampler base in conjunction with ice packs
Cooling base, active	insulated active cooled sampler base (12V/115V/230V)
Dimensions	
Sampler	405 x 400 x 230 mm (W x H x D)
Cooling base, passive	640 x 430 x 350 mm (W x H x D)
Cooling base, active	760 x 535 x 450 mm (W x H x D)
Power requirements	12 VDC / 0.8 A battery-operated (rechargeable battery with 12V/10Ah) or connected to a mains by means of the battery charger (protection category IP 20 or IP 65)
Power consumption	max. 30 W
Overvoltage protection	all inputs are protected against overvoltage (lightning protection)
Environmental	
Operation	0 ... +40°C
Sample Temperature	0 – 40°C
Weight	Sampler: approx. 13 kg (including rechargeable battery), w/o base and bottles
Communications	
Modbus/Profibus DP	not applicable
Wireless / GSM	Optional; on request
Certification & Approvals	CE
Warranty	24 month

SAMPLER, portable

BÜHLER 1029 (DataSheet DOC053.52.03119)

Part No. **Designation**

BN1029.XX.XXXXX Portable Sampler, BÜHLER

B	N	1	0	2	9	.	X	X	.	X	X	X	X	X

Sampler Model

1029 9
complete portable sampler system (pressure/vaccuum system)
otionally available cooling base

Country Code Selection[1] 9 9

Sampler / Sampling System Option

Vacuum, ASF Pump, 350 ml Glass vessel 1
Vacuum, ASF Pump, 500 ml Glass vessel 2
Vacuum, KNF Pump, 350 ml Glass vessel 4
Vacuum, ASF double head Pump, 350 ml Glass vessel 5
Flow proportional, VVCT mode Vacuum, ASF Pump, 350 ml Glass vessel 3
Sampling Base only / no sampler 0

Base/Refridgeration Option

Passive cooling base + Sampler (kit to order) ..... ice-cooling 1
Passive cooling base w/o sampler ..... ice-cooling 2
only in conjunction with sampling system option 0

Refridgerated cooling base + Sampler (kit to order) 3
Refridgerated cooling base w/o Sampler 4
only in conjunction with sampling system option 0

No Base / Sampler only 0

Bottle/Container Option

Plastic, 1 x 10 L 1
Plastic, 2 x 5 L 2
Plastic, 12 x 1 L 4
Plastic, 24 x 0.4 L 3
Glass, 12 x 1 L 5
No bottles 0

Power / Plug type Option for refridgerated Base

Dry Battery for refridgerated cooling base (Battery: Typ Solar) 1
230VAC, Euro plug 2
230VAC, UK plug 3
230VAC, Swiss plug 4
230VAC, Bare leads - no plug 5
No power / no plug (no refridgerated base selected) 0

Power / Plug type Option for Sampling Device

Battery powered (incl. Battery) 1
please order battery charger (BM900026 or BM900033) separately
230VAC, Euro plug 2
230VAC, UK plug 3
230VAC, Swiss plug 4
230VAC, Bare leads - no plug 5
No power / no plug (no sampling system selected) 0

Notes: Please replace the .99. universal Country code by known language codes e.g. .52. .55. .00. etc.

SAMPLER, portable

BÜHLER 1029 (DataSheet DOC053.52.03119)

Part No.	Designation	
	Optional accessories	
BM900171	GSM Modem for BUEHLER sampler (factory installed option only)	
BM69644	Flow Signal Cable - length 10m	
BM900020	Connector Socket RS232 (subD9) at the outside of the Control unit	
BM900021	Serial Interface Cable including connector plug (5 m)	
BM200004	PC Software "Read Data" for communication via RS232 or GSM Modem for WIN 98/NT/XP	
BM900522	Cart for BÜHLER 1029 with active cooling isobox	picture A
BN1029F0125P	Refrigerated Compartment for composite Sampling (25 l max.) made of SS, Dimensions: 85 x 50 x 62 cm (H x W x D). for Indoor use only! Adaptor for discontinued Sampler model 1029E0000P not included!	picture B

picture A

picture B

	Bottles, Containers and Accessories	
BM60081	Plastic Bottle 10 l, including cap	
BM60038	Plastic Bottle 5 l, including cap	
BM60036	Plastic bottle 1 l, without cap	
BM60037	Cap for 1 l Plastic Bottle	
BM60315	Plastic Bottle 0,4 l with cap	
BM30012	Glass Bottle 1 l (Duran) without cap	
BM60144	Cap for Glas Bottle 1.0 L	
BM50025	Counterweight for hose Ø12 ID (SS304, 180mm long)	
BM900065	Strainer basket	
BM60251	Replacement Cooling Accu	
BM900031	Wall Mounting Kit for the sampler head	
BM10211	Solar battery for 1029 refridgerated base, 90Ah	
BM10012	Replacement Battery 12V/10 Ah	
BM900026	Battery Charger, IP20	
BM900033	Battery Charger, IP65	
BM69636	Cable, to charge the removed battery	
BM69692	External Battery Cable, with battery clip and connector - length 2.5m (10')	
BM900493	cable with car plug for 1029 active cooling box	
	Conversion Kits	
BM900525	BÜHLER 1029 Conversion kit - 230VAC/12VDC kit for converting a 1029 with mains supply to battery operation (12VDC)	
BM91020	BÜHLER 1029 Conversion kit - 12VDC/230VAC kit for converting a 1029 with battery option to operation with main supply (240VAC)	

☝ Notes: For further spare parts, please refer to the "Bühler general accessories" or the manual.

BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation	4010	4110	4210	4410	1029	2000	1027	BL10271
	Optional accessories								
BM900687	KNF-pump instead of ASF-pump (for suction heights > 5m)	X	X	X	X				
BM200004	PC Software "Read Data" for communication via RS232 or GSM Modem for WIN 98/NT/XP	X	X	X	X	X	X	X	X
BM900171	GSM Modem for BUEHLER sampler (factory installed option only) PC Software "Read Data" included	X	X	X	X	X	X		X
BM900021	Serial Interface Cable including connector plug, 5 m	X	X	X	X	X	X		X
BM900584	Built-in Option: KNF membrane Pump for suction heights >5m replaces standard compressor ASF Thomas, type DC007	X	X	X	X				
BM900034	Signal output: Message "Distributor"	X	X	X	X				
BM900035	Signal output: Message "Program actives"	X	X	X	X				
BM900036	Signal output: Message "Sampling"	X	X	X	X				
BM900120	Signal output: Message "Program end"	X	X	X	X				
BM900037	Signal output: Message "collective malfunction"	X	X	X	X				
BM900151	Interior lightning	X	X	X	X				
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar Inlet valve for suction tube - external 230V mains required	X	X	X	X				
BM90682	Cascade sampling system for suction height up to 15m * only for clear water applications * possible but requires HACH LANGE's prior approval; please contact HACH LANGE	X	X	X	X				
BM900471	Backup battery with charger for stationary Bühler samplers	X	X	X	X				
BM10156	Main switch built-in housing mounted externally at top compartment	X	X	X	X				
BM10050	Overvoltage protection for Signal input	X	X	X	X				
BM10049	Overvoltage protection for mains (2 pieces required!!!)	X	X	X	X				
BM92139	Upper compartment door without window	X	X	X	X				

BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation		4010	4110	4210	4410	1029	2000	1027	BL10271
	Sample Chambers									
BM30004	Glass Sample Chamber (350ml)		X	X	X	X	X		X	X
BM30005	Glass Sample Chamber (500ml)		X	X	X	X				
BM50008	screwing standard dosing vessel - black plastic ring		X	X	X	X	X		X	X
BM30027	Glass Sample Chamber - bypass dosing vessel		X	X		X				
BM50255	Snap ring for bypass dosing vessel		X	X		X				
BM50251	Screwing ring for bypass dosing vessel		X	X		X				
BM30039	Glass Sample Chamber dosing system flow proportional CTVV for BÜHLER "BLXXXX" instruments only (350ml)		X	X		X				
BM80044	Plastic sample chamber	*New item*	X	X		X		X		X
BM80070	Metering tube for plastic dosing vessel	*New item*	X	X	X	X		X		X
	Bottle Support and Accessories									
BM900681	Tray for 12x bottles (without bottles)	*New item*	X	X						
BM40035	Tray for 24 x bottles (without bottles)	*New*	X	X						
BM40042	Bottle centering Base Plate for 2 x 10 l, 4 x 10 l, 4 x 6.3 l		X	X						
BM900485	built-in option: 2 trays with 6 x 2.9L bottles instead of one tray 12x2.9L (factory installed option only)		X	X						

BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation		4010	4110	4210	4410	1029	2000	1027	BL10271
	Bottles, Containers and Accessories									
BM60315	Plastic Bottle, 0.4 l with cap						X			
BM60036	Plastic Bottle, 1.0 L		X	X	X		X			
BM60037	Cap for Plastic Bottle, 1 L									
BM60034	Plastic, 2.9 Litre Bottle		X	X						
BM60035	Cap for Plastic 2.9 Litre Bottle		X	X						
BM60038	Plastic, 5.0 Litre Bottle, with cap						X	X		
BM60044	Plastic, 6.3 Litre Bottle, with cap		X	X						
BM60045	Plastic, 10 Litre Bottle, with red cap	*(BL4010 bottle option 2x10L PE)*	X	X				X		X
BM60081	Plastic, 10 Litre Bottle, with white cap	*(BL4010 bottle option 4x10l PE)*	X	X			X			X
BM60334	Plastic, 14 Litre Bottle, with cap		X	X	X					
BM60378	Plastic, 20 Litre Bottle/canister, with cap	*New item*	X	X						
BM91327	Plastic, 22 Litre Bottle/canister, with cap		X	X						
BM60046	Plastic, 25 Litre Bottle, with cap		X	X	X					
BM60342	Plastic, 50 Litre Bottle, with cap		X	X						
BM30012	Glass, 1.0 Litre Bottle w/o cap		X	X	X		X			
BM60144	Cap for Glas 1.0 Litre Bottle									
BM30013	Glass, 2 Litre Bottle (DURAN 50 Glas)		X	X						
BM60161	Cap for Glas 2 Litre Bottle									
BM30032	Glass, 1.0 l bottle (DURAN 50 Glass)	*for BN5410 self-emptying sampler only*				X				
BM300016	Glass, 1.6 l bottle (DURAN 50 Glass)	*for BN4410 self-emptying sampler only*				X				
BM30028	Glass, 2.0 l bottle (DURAN 50 Glass)	*for BN5410 self-emptying sampler only*				X				
BM91127	cart with castors for bottle discharge , cart for 4010 bottle tray		X	X						

BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation		4010	4110	4210	4410	1029	2000	1027	BL10271
	Mounting, Inlet Hoses and Accessories									
BM30009	Sampler base for BÜHLER 4X1X, made of SS304, 400x700x410 (H x W x D) please check sampler dimensions beased on selected bottle option		X	X	X	X				
BM30009V4A	Sampler base for BÜHLER 4X1X, made of SS316, 400x700x410 (H x W x D) please check sampler dimensions beased on selected bottle option		X	X	X	X				
BM91111	Sampler base made of SS304, for BL4410: 24 bottles & BL4210 23x1 / 4x20 please check sampler dimensions beased on selected bottle option					X				
BM900017	Stationary Sampler Mounting Kit (4 screws, 4 dowels, 4 washer)		X	X	X	X				
BM900016	Castors (Set of 4) with bolts assembly - SS304		X	X	X	X				
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar Inlet valve for suction tube - external 230V mains required		X	X	X	X				
BM900623	PVC Hose, 5.0 m - Ø10 ID, complete with hose clip [1]							X		
BM900290	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip counterweight[1]		X	X	X	X	X			
BM900300	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip, w/o counterweight[1]		X	X	X	X	X			
BM900291	PVC Hose, 7.5 m - Ø16 ID, complete with hose clip counterweight[2]		X	X	X	X	X			
BM900302	PVC Hose, 7.5 m - Ø16 ID, complete with hose clip, w/o counterweight[2]		X	X	X	X	X			
BM69304	PVC Hose, 30 m roll, Ø12 ID[1]		X	X	X	X	X			
BM50025	Counterweight for hose Ø12 ID (SS304, 180mm long)[1]		X	X	X	X	X			
BM50025V4A	Counterweight for hose Ø12 ID (SS316, 180mm long)[1]		X	X	X	X	X			
BM91678	Counterweight for hose Ø16 ID (SS304, 180mm long)[2]		X	X	X	X	X			
BM900065	Inlet hose strainer basket (only in combination with Counterweight)		X	X	X	X	X			
BM900014	Mounting kit for inlet hose in open channels Extraction unit to mount the suction hose,		X	X	X	X	X			
BM60050	inlet tube spout, 3/4", ID 13mm, straight *(for all glass dosing vessels)*		X	X	X	X	X			X
BM60259	inlet tube spout, 3/4", ID 13mm, 90° angled *(for all plastic dosing vessels)*		X	X		X		X	X	X
BM900105	suction hose protection heater band (length 5m) connection to external 230V mains required		X	X	X	X	X		X	

Notes:
[1] for all samplers with vaccum pump or water switch
[2] for all samplers with flow proportional dosing vessel CTVV

BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation		4010	4110	4210	4410	1029	2000	1027	BL10271
	Distributors and Assemblies									
BM900502	Distibutor Bar, Stainless Steel Assembly complete (4 x 10 l)		X	X						
BM900503	Distibutor Bar, Stainless Steel Assembly complete (4 x 14 l)									
BM900500	Kit, Distibutor Tray Assembly complete (24x1L bottles)	*(incl. Distrbutor + distribution plate)*	X	X						
BM900499	Kit, Distibutor Tray Assembly complete (2x10/4x6,3/12 bottles)	*(incl. Distrbutor + distribution plate)*	X	X						
BM900501	Kit, Distibutor Tray Assembly complete (24x2,9L bottles)	*(incl. Distrbutor + distribution plate)*	X	X						
BM900504	Distibutor Bar, Stainless Steel Assembly complete (2 x 10 l)					X				
BM900505	Distibutor Bar, Stainless Steel Assembly complete (4 x 20 l)		X							
BM900568	Distibutor Bar, Stainless Steel Assembly complete (12 x 1 l)				X					
BM900666	Distibutor Bar, Stainless Steel Assembly complete (4 bottles)				X					
BM900683	Distibutor Bar, Stainless Steel Assembly complete (23x1L)				X					
BM900190	Distibutor drive - active and passive isobox						X			
on request	Distribution plate							X		
BM900609	Distribution vat							X		

BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation	4010	4110	4210	4410	1029	2000	1027	BL1027I
	MISCELLANEOUS SPARES - Bühler 4X1X/1029								
BM900020	Connector Socket RS232 (subD9) at the outside of the Control unit	X	X	X	X	X			
BM60022	ASF Thomas Pump, type DC007	X	X	X	X				
BM60042	Membrane for Thomas Pump	X	X	X	X				
BM60317	KNF Pump	X	X	X	X				
BM60343	maintenance for KNF -1 x Membrane 28731, 2 x Valve 29108, 2 x O-Ring 29107	X	X	X	X				
BM60401	PCB Control Unit (SPIII)	X	X	X	X	X	X	X	X
BM10176	Connector board	X	X	X	X	X	X	X	X
BM900367	housing contoller incl. Keypad, without pcb-board	X	X	X	X				
BM10001	recirculation fan (inside - bottle compartement)	X	X	X	X				
BM10003	exhaust fan (near the fridge)	X	X	X	X				
BM10143	heating element 100W 230 VAC	X	X	X	X				
BM90053	Inlet Pipe Assy for Glass standard dosing vessel	X	X	X	X	X			
BM69301	Silicone Tube (for the chamber 12x2mm) - per metre	X	X	X	X	X			
BM900671	Pinch Valve	X	X	X	X	X			
BM900553	valve system	X	X	X	X				
BM10202	NEW power supply (digital, since Feb 2006) - to replace dig. Power supply	X	X	X	X				
BM900507	NEW power supply with adapter (digital, since Feb 2006) - to replace analogue Power supply	X	X	X	X	X			
BM69401	Seal O'ring, level tube Ø16x4	X	X	X	X	X			
BM69402	Seal chamber Ø81.9x5.33	X	X	X	X	X			
BM69302	silicon hose 4 x 1,5 for valve system - per meter	X	X	X	X				
BM60387	fridge unit 230V AC (SP III)	X	X	X	X				
BM60382	fridge unit 115V AC (SP III)	X	X	X	X				
BM900435	fridge unit 230V AC (SP III) coated version	X	X	X	X				
BM900470	X-Y distributor for BN4010	X	X	X	X				
BM900509	X-Y distributor for BN5010	X	X	X	X				
BM900156	Complete Metering unit 350ml Glass	X	X	X	X				
BM900621	Complete Metering unit 350ml Plastic	X	X	X	X	X	X	X	X





BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation	4010	4110	4210	4410	1029	2000	1027	BL1027I
	MISCELLANEOUS SPARES - Bühler 4X1X/1029 continued								
BM10017	fuse holder BÜHLER SPIII	X	X	X	X				
BM69326	silicone dosing tube 8x2mm, suitable for special low volume dosing vessel	X	X	X	X	X			
BM20032	Throttle for SPIII VAR (CTVV vessel), for small pump tube	X	X	X	X				
BM900236	Bootle compartment door for stationary sampler, 600x650x1290 (H x W x D)	X	X	X	X				
BM900236EPOXY	Bootle compartment door in epoxy coated version for BN4010	X	X	X	X				
BM10217	fuse 5x20 3,15AT, for digital power supply BM10202	X	X	X	X	X			
BM60236	keys for BUHLER sampler handle	X	X	X	X				
BM91379	air filter fold paper								
BM900395	Backup battery for statonary BÜHLER sampler	X	X	X	X				
BM900471	Charger for stationary BÜHLER sampler suitable for BM900395	X	X	X	X				
BM900379	user spares kit BM4010,4110, 5010 with pressure/vacuum system	X	X	X	X				
BM900381	user spares kit BM4010,4110, 5010 with flow through system	X	X	X	X				
BM900620	2nd Membrane pump for flow proportional CTVV sampling systems	X	X	X	X				

Notes: *SPIII: Abbreviation for Stationärer Sampler, Version III*

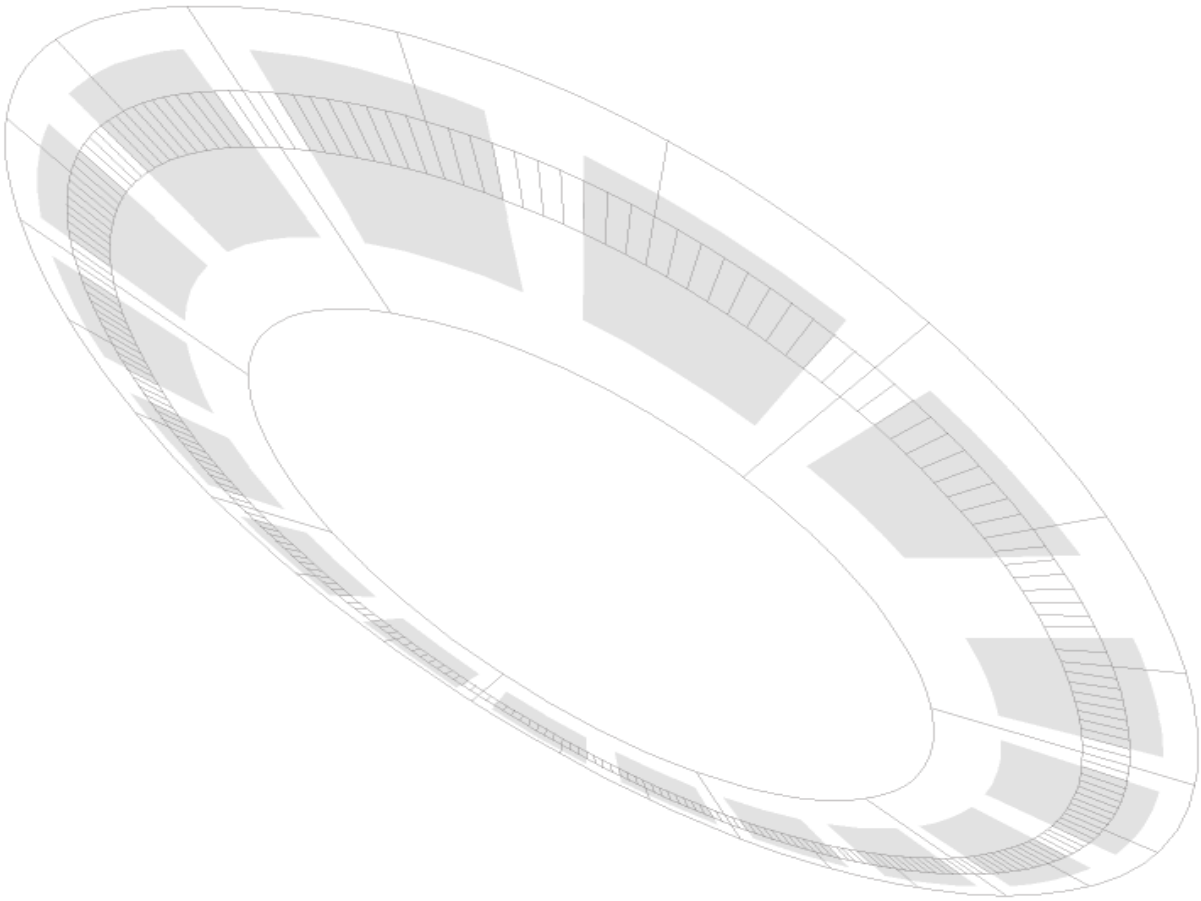
BÜHLER SAMPLER's

Options, Major Spare Parts & Accessories

Part No.	Designation	4010	4110	4210	4410	1029	2000	1027	BL10271
	Special SPARES - BÜHLER 4410								
BM900521	Rinsing unit_441x_2x10LiterPE				X				
BM50407	scape wheel for BÜHLER 5410, 24 bottles				X				
BM900489	Rinsing valve unit BN4410/2x10L and BM5410 24x2L				X				
BM900488	Rinsing valve unit BN5410/SPIII, with 1 magnetic valve				X				
BM10072	contact free sensor for bottle positioning				X				
BM10151	Bottle valve motor				X				
BM10073	Distributor motor				X				
BM900436	Discharge valve, complete				X				
BM50429	Rinsing head				X				
	Special SPARES - BÜHLER 1029								
BM900350	1029 door controller housing with key pad					X			
BM60201	black key for 1029 housing door					X			
BM900027	Fixing Plate					X			
BM900012	Suction Hose with screw connection - length 5m (12mm ID)					X			
BM900525	BÜHLER 1029 Conversion kit - 230VAC/12VDC kit for converting a 1029 with mains supply to battery operation (12VDC)					X			
BM91020	BÜHLER 1029 Conersion kit - 12VDC/230VAC kit for converting a 1029 with battery option to operation with main supply (240VAC)					X			

Sampler, Portable & Stationary

HACH SIGMA - Peristaltic technique



SAMPLER MODEL GUIDE

APPLICATIONS	PORTABLE				REFRIGERATED		ALL-WEATHER	
	SD900 Compact	SD900 Standard	900MAX Compact	900MAX Standard	SD900	900MAX	SD900	900MAX
Wastewater Treatment Plants	*	*	*	*	*	*	*	*
Drinking Water					*	*	*	*
Industrial Water	*	*	*	*	*	*	*	*
Environmental	*	*	*	*				
Collection Systems	*	*	*	*	*	*	*	*
Food and Beverage	*	*	*	*	*	*	*	*
Pulp and Paper	*	*	*	*	*	*	*	*
FEATURES								
Grab Sampling	*	*	*	*	*	*	*	*
Automatic Sampling	*	*	*	*	*	*	*	*
Portable	*	*	*	*				
Stationary Site					*	*	*	*
AC Power					*	*	*	*
Battery Power	*	*	*	*				
All Weather							*	*
Remote Pump			*	*		*		*
Interchangeable Composite and Discrete Sampling	*	*	*	*	*	*	*	*
Pump Tubing Life > 20,000 Cycles	*	*			*		*	
Integral Flow Monitoring			*	*		*		*
pH/Temp ORP			*	*		*		*
DO/Conductivity			*	*		*		*
Rain Gauge			*	*		*		*
4-20 mA Outputs			*	*		*		*
Alarm Relays			*	*		*		*
Flow Proportional Sampling Input	*	*	*	*	*	*	*	*
Analog Inputs			*	*		*	*	*
Remote Programming Capable	*	*			*		*	
Comments			Not available in EU	Not available in EU				Not available in EU

SAMPLER, portable

Sigma Portable pump (DataSheet DOC053.52.03130)

For many sampling applications, the existing samplers are technically too complex, too heavy and too expensive.

For the municipal and industrial sector, the portable peristaltic pump can be the right solution for straightforward application areas.

The device is light, simple to operate, very low cost and requires only very low maintenance.

The portable pump (Cat. No. 3206) uses a peristaltic pump to collect liquid samples from open channels and shallow monitoring wells. The pump is self-priming and able to run dry with a maximum lift of 8 m (27 feet).
The pump is housed in a rugged NEMA 4X, 6 fiberglass housing and is able to withstand temporary submersion.

Technical Data

Subject to change without notice

	SIGMA Portable pump
Suction height	8 m maximum
Sample temperature	0°C to 50°C
Housing	impact resistant plastic
Pump	2 rollers, high-speed peristaltic pump
Pump body	made from impact resistant, corrosion resistant, glass fibre reinforced Delrin
Pump hose	silicone hose with 0.95 cm ID
Controller	the pump can be operated in both directions (purging and sampling)
Power supply	rechargeable battery (6 Ah, 12 Volt, gel electrolyte rechargeable battery) or mains supply (220 Volt, 50 Hz)
Dimensions	35 cm x 13 cm x 18 cm (L x W x D)
Weight	approx. 5.8 kg including rechargeable battery / power supply
Warranty	24 month

Part No.	**Designation**
3206	Portable pump, incl. pump hose and fastening clips for suction hose

Note: Required components to complete the system
- ➔ Composite Sampling (Section 1.1)
- ➔ Power Source/Battery Charger (Section 1.2)
- ➔ Strainers (Section 1.3)
- ➔ Intake Tubing (Section 1.4)

Optional Components
- ➔ Pump Tubing (Section 1.5)

SAMPLER, portable

Sigma Portable pump (DataSheet DOC053.52.03130)

Part No.	Designation
	1.1 Composite Sampling Containers
6559	Container, 2.5 gal Glass with Teflon Lined Cap
1918	Container, 3.0 gal PE with Cap
1367	Container, 4.0 gal PE with Cap
6498	Container, 5.5 gal PE with Cap
6494	Container, 6.0 gal PE with Cap
	1.2 Power Source / Battery Chargers
	AC Power converters
5721400	Power Supply, 230 VAC, with EU/CEE plug
6244600	Power Supply, 230VAC with Italian Plug
6244500	Power Supply, 230VAC with UK Plug
4455100	Power Supply, 100-120VAC, US plug
	Battery
1414	Gel Electrolyte Battery, 12 VDC, 6 Ah
1416	NiCd Battery, 12 VDC, 4 Ah
	Battery chargers for battery model:
913UK	Smart Charger with UK plug (bundle), 90-250 VAC for Gel Electrolyte Battery P/N 1414
913EU	Smart Charger with EURO plug (bundle), 90-250 VAC for Gel Electrolyte Battery P/N 1414
914UK	Smart Charger with UK plug (bundle), 90-250 VAC for NiCd Battery P/N 1416
914EU	Smart Charger with EURO plug (bundle), 90-250 VAC for NiCd Battery P/N 1416
2198	External battery cable, 10 ft.
	1.3 Strainers
	Teflon lined
926	Teflon/Stainless Steel, 5.5" long x 0.875" OD
903	Teflon/Stainless Steel, 11.0" long x 0.875" OD
	Stainless steel
2070	All 316 Stainless Steel, 7.94" long x 1.0" OD
2071	All 316 Stainless Steel, for Shallow Depths, 6.0" long x 0.406" OD
4652	High Velocity and Shallow Depths, 3.9" long x 0.406" OD
	1.4 Intake Tubings
	Vinyl (Note: Requires Connection Kit (P/N 2248))
920	25 ft. ⅜" ID Tubing
923	100 ft. ⅜" ID Tubing
924	500 ft. ⅜" ID Tubing
2248	Connection Kit
	Teflon lined (Note: Requires Connection Kit (P/N 2186 and 3152))
921	10 ft. ⅜" ID Tubing
922	25 ft. ⅜" ID Tubing
925	100 ft. ⅜" ID Tubing
2186	Connection Kit
3152	Connection Kit
	1.5 Pump tubing for peristaltic pump
4600-15	Pump Tubing, Silicone, ⅜" Ø, 15 ft.
4600-50	Pump Tubing, Silicone, ⅜" Ø, 50 ft.
3396	Pump Tube Insert

SAMPLER, portable

SIGMA SD900 (HACH LIT2591)

The Hach **SIGMA SD900** Portable Sampler sets up easily and quickly in the field. Reduced maintenance and reliable results are assured.

The SD900 sampler uses a strong pump draw and spring-loaded rollers to ensure that large particulates will not interfere with sample collection.
A positive displacement peristaltic pump induces flow by squeezing a flexible ⅜" tube.
The spring loaded rollers reduce pump tubing wear and help prevent pump jams.
The typical life time of the pump tubing is 20,000 cycles—compared to only 1,000 cycles
on other samplers.

Technical Data

Subject to change without notice

	HACH Sigma SD900 Portable Sampler
Sampling principle	Peristaltic principle
Suction height	8 m maximum Remote pump option recommended for lifts from 6.7 ... 10.7 m
Sample Pump	High speed peristaltic 4 rollers with spring tension 0.95 ID x 0.16 OD cm (3/8 ID x 5/8 in. OD) pump tube
Pump Enclosure	Rugged, corrosion-resistant polycarbonate door, high impactresistant, rated IP37, polyphenylene sulfide track
Vertical Lift	Minimum 8.5 m (28 ft.) suction head using 29 ft. of 3/8-in. vinyl intake tube at sea level at 20 to 25°C
Sample Transport Velocity	0.9 m/s (2.9 ft./s) at 4.6 m (15 ft.) vertical lift (16 ft. of 3/8-in. vinyl intake tubing at 70°F, at 5000 ft. elevation)
Pump Flow Rate	80 mL/s at 0.91 m (3 ft.) vertical lift in 0.95-cm (3/8-in.) ID intake line
Liquid Sensor	Ultrasonic
Intake Purge	Air purged automatically before and after each sample Duration automatically compensates for varying intake line lengths
Intake Rinse	Intake line optionally rinsed with source liquid prior to each sample; from 1 to 3 rinses
Intake Retries or Fault	Sample collection cycle optionally repeated from 1 to 3 times if sample not obtained on initial attempt
Intake Tubing	9.5 mm (3/8 in.) ID vinyl Teflon® lined polyethylene
Intake Strainers	Choice of Teflon and 316 stainless steel construction or all 316 stainless steel in standard size, high velocity, or low profile for shallow depth applications
Temperature Range	
General use	0 to 50°C (32 to 122°F)
Storage	-30 to 60°C (-22 to 140°F)
Pump/Controller Housing	High impact injection-molded, ABS/PC plastic Submersible, watertight, dust-tight, corrosion- and ice-resistant NEMA 4X, 6, IP67
Sampler Housing	Impact resistant ABS plastic, water-proof, 3-section construction - double-walled base with 2.54 cm (1 in.) insulation - direct ice contact with bottles
Sample container	
Standard Base	Dimension: 50.5 cm x 69.4 cm (Ø x H)
	PE: 24 x 1 l, 8 x 2.3 l, 4 x 3.8 l, 2 x 3.8 l, 1 x 21 l, 1 x 15 l, 1 x 20 l, 1 x 10 l Glass: 24 x 350 ml, 8 x 1.9 l, 4 x 3.8 l, 2 x 3.8 l, 1 x 9.5 l
Compact Base	Dimension: 44.1 cm x 61 cm (Ø x H)
	PE: 24 x 575 ml, 1 x 11.4 l, Glass: 8 x 950 ml, 1 x 9.5 l
Composite Base	Dimension: 50.3 cm x 79.8 cm (Ø x H)
	PE: 1 x 22.7 l
Certification & Approvals	
Controller:	CE
Optional AC Power Supply:	UL/CSA/CE
Optional Battery:	CE

to be continued

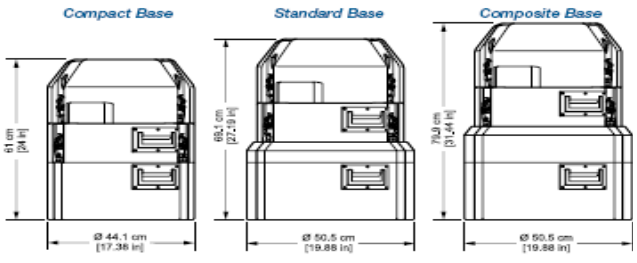
SAMPLER, portable

SIGMA SD900 (LIT2591)

Technical Data
Subject to change without notice

	Sigma SD900 Portable Sampler continued	
Power requirement	12 Vdc supplied by optional A/C power supply or battery Average current with pump running: 2 Vdc	
Internal Battery	Lithium ion battery (maintains real time clock for five years minimum)	
Graphics Display	128 x 64 dot matrix backlit LCD, visible in direct sunlight	
User Interface	Self prompting/menu driven program 13-key embossed keypad including power key, 4 function keys, 8 navigation keys, and LED indication	
Data Logging	Store up to 255 entries in Sample History log including sample time stamp, bottle number, and status of sample (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery)	
Event Log	Includes power on, power fail, firmware updated, pump fault, distributor arm error, low memory battery, low main battery, user on, user off, program started, program resumed, program halted, program completed, grab sample, pump tube change required	
Sampling Pacing Modes	Composite and discrete multiple bottle time, multiple bottle flow, single bottle time, single bottle flow, flow with time over ride, variable interval, user start/stop, and external setpoint	
Program Lock	Access code protection prevents tampering of program and system settings	
Program Delay	Programmable sampler start time/date or programmable number of counts to expire before program can start	
Sampling Features	Multiple Programs: stores up to 3 sampling programs Cascade: for two samplers in combination—the first sampler, at the completion of the program, initiates the second Program Status Display: alerts operator to low main battery, low memory battery, plugged intake, jammed distributor arm, sample collected, and purge failure	
Automatic Shutdown	Multiple Bottle Mode: After complete revolution of distributor arm (unless continuous mode is selected) Composite Mode: After preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container	
Sample Volume Repeatability	± 5% of 200 mL sample volume using uncalibrated liquid detect under defined sampling conditions at 15-ft. vertical lift (16 ft. of 3/8-in. vinyl intake tube configured for single bottle using full bottle shut off at 70°F at 5000 ft. elevation)	
Overload protection	Internal software-protected 6 amp fuse	
Diagnostics	Tests pump, distributor, keypad, LCD, and liquid detect calibration	
Enclosure	NEMA 4X, 6	
Weight	Item	weight in kg
	Standard Base Configurations:	
	with (24) 1-L polyethylene bottles	15
	with (1) 2.5-gal. polyethylene container	14.8
	Compact Base Configurations:	
	with (24) 575-mL polyethylene bottles	12.2
	with (1) 2.5-gal. polyethylene container	12.9
	Composite Base Configurations:	
	with (1) 5.5-gal polyethylene container	15
	Top cover	1.29
	Center section with controller	8.71
	Distributor	0.75
	Compact base	2.47
	Standard base	3.88
	20-L (5.5-gal.) polyethylene bottle without liquid	1.77
	15-L (4-gal.) polyethylene bottle	1.45
	10-L (2.5-gal.) polyethylene bottle	1.32
	(24) 1-L polyethylene bottles with retainer	2.49
	(24) 575-mL (1.2 pint) polyethylene bottles with retainer	1.45
	(12) 950-mL (2 pint) glass bottles with retainer	4.58
Program Languages	English, French, German, Italian, Spanish, Czech, Turkish, Portuguese	
Warranty	24 month	

Notes: **flow proportional sampling**
The SD900 supports digital impulse for flow paced sampling - connectity to flow meter with analogue signal output **on request**



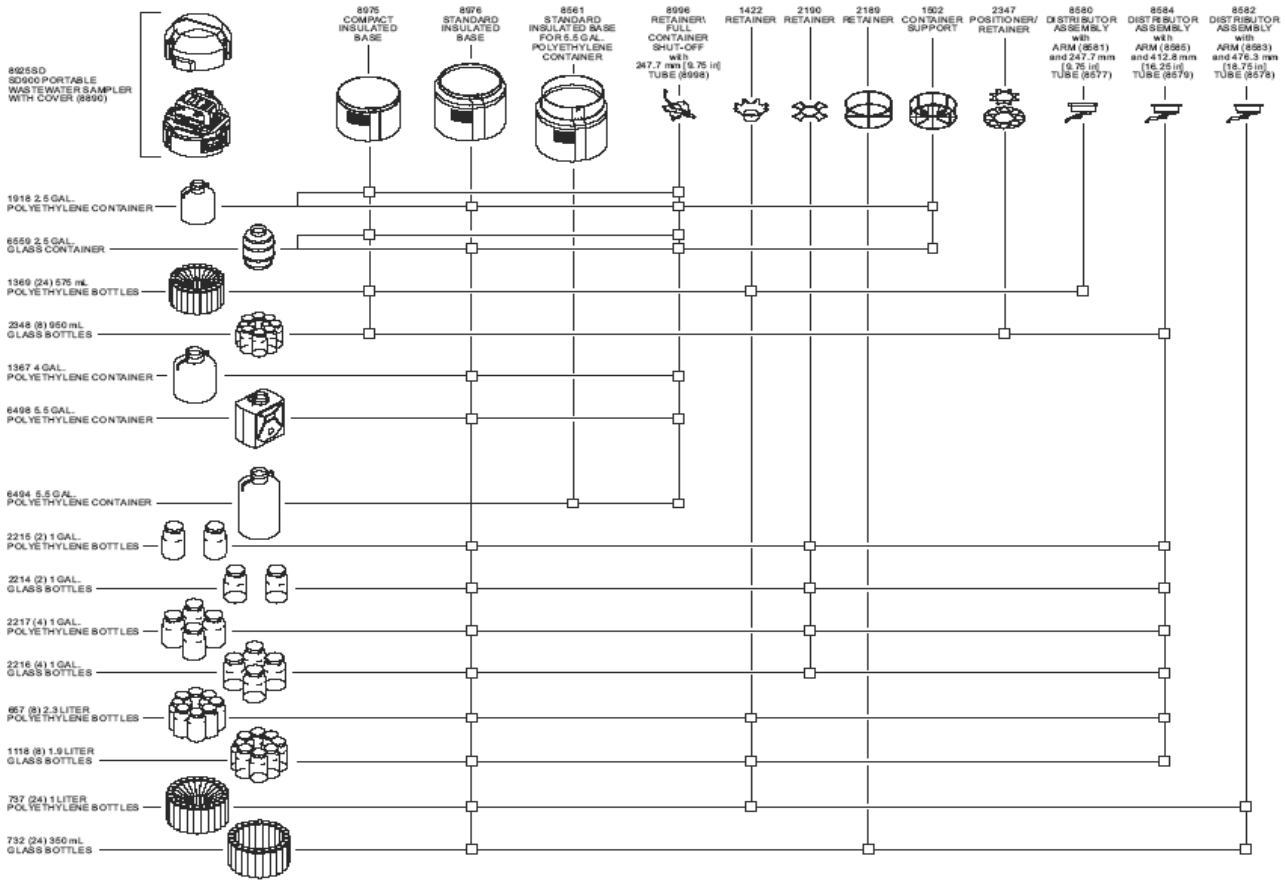
SAMPLER, portable

SIGMA SD900 - Compatibility Chart

Configurator:

Necessary part numbers to change existing bottle/base configuration

Sampler	Bottle Type (1 Gal ≈ 3,8 l)	Base type	Part Number					
			Bottle	Base	Full Bottle Shut-off	Support	Retainer	Distributor
Composite	2.5 Gal Glass	Compact	6559	8975	8996	N/A	N/A	N/A
Composite	2.5 Gal Glass	Standard	6559	8976	8996	1502	N/A	N/A
Composite	3.0 Gal PE	Compact	1918	8975	8996	N/A	N/A	N/A
Composite	3.0 Gal PE	Standard	1918	8976	8996	1502	N/A	N/A
Composite	4.0 Gal PE	Standard	1367	8976	8996	N/A	N/A	N/A
Composite	5.5 Gal PE	Standard	6498	8976	8996	N/A	N/A	N/A
Composite	6.0 Gal PE	Composite	6494	8561	8996	N/A	N/A	N/A
Multiple bottle	24 x 1 l PE	Standard	737	8976	N/A	N/A	1422	8582
Multiple bottle	24 x 350 ml Glass	Standard	732	8976	N/A	N/A	2189	8582
Multiple bottle	24 x 575 ml PE	Compact	1369	8975	N/A	N/A	1422	8580
Multiple bottle	8 x 2.3 l PE	Standard	657	8976	N/A	N/A	1422	8584
Multiple bottle	8 x 1.9 l Glass	Standard	1118	8976	N/A	N/A	1422	8584
Multiple bottle	8 x 950 ml Glass	Compact	2438	8975	N/A	N/A	2347	8584
Multiple bottle	4 x 1 gal PE	Standard	2217	8976	N/A	N/A	2190	8584
Multiple bottle	4 x 1 gal Glass	Standard	2216	8976	N/A	N/A	2190	8584
Multiple bottle	2 x 1 gal PE	Standard	2215	8976	N/A	N/A	2190	8584
Multiple bottle	2 x 1 gal Glass	Standard	2214	8976	N/A	N/A	2190	8584



SAMPLER, portable

SIGMA SD900 - Setup Configurator

Part No. **Designation**

A variety of configurations are possible depending on the needed Sampler system.
Please refer to the instrument manual for further details.
Alternatively contact your HACH LANGE agency or its local representative.

For new setup's, the SD900 Configurator can help you to configure your sampler model.
Please select needed accessories afterwards.

SD900P.99.1XX1X **Portable Sampler HACH SIGMA SD900**

S	D	9	0	0	P	.	9	9	.	1	X	X	1	X

Sampler model option

HACH SD900 portable sampler
includes Controller 900SD (8970SD), Center Section (8922), Lid (8890)

Country Code Selection

Sampling system

Peristaltic pump system 1

Intake tube length option

PVC tubing, 9.5mm ID X 15.9 mm O.D. (3/8" x 5/8") in respective length
plus Teflon/stainless steel strainer Counterweight (P/N 926)

7.5 metre (P/N 920) 1
30 metre (P/N 923) 2

Bottle/Container Options

Plastic, 1 x 10 litre composite in Compact base 1
(Includes Compact Base 8975, Full Bottle Shut Off 8996, 1 x 10L PE bottle 1918)

Plastic, 1 x 15 litre composite in Standard base 2
(Includes Standard Base 8976, Full Bottle Shut Off 8996, 1 x 15L (4.0 gal) PE bottle 1367)

Plastic, 1 x 20 litre composite in Standard base 3
(Includes Standard Base 8976, Full Bottle Shut Off 8996, 1 x 21L (5.5 gal) poly bottle 6498)

Plastic, 2 x 3,8L in Standard base 4
(Includes Standard Base 8976, Distributor Arm 8584, Retainer 2190, 2 x 3.8L PE bottles 2215)

Plastic, 24 x 1 litre in Standard base 5
(Includes Standard Base 8976, Distributor Arm 8582, Retainer 1422, 24 x 1L PE bottles 737)

Plastic, 24 x 575mL in Compact base 6
(Includes Compact Base 8975, Distributor Arm 8580, Retainer 1422, 24x 575mL PE bottles 1369)

Housing

ABS/PC Plastic (NEMA 4X, 6, IP 67) 1

Power Supply option for Sampler

without Power Supply 0

Battery powered, w/o charger modul[2] 1
(incl. 1 x Battery, Gel Electrolyte, 12 VDC, 6 Ah - Lead Acid, with 3 pin connector P/N 8754400)

Power Supply, 230VAC, EU Plug (including P/N 8754500EU) 2
Power Supply, 230VAC, UK Plug (including P/N 8754500UK) 3

SAMPLER, portable

SIGMA SD900 - Components Part I

Part No.	Designation
Section 1.0	**Replacement Sampler Controller model** (coming with english manual)
8970SD	SIGMA SD900 Portable Sampler Controller SD900 Portable controller only
8759400	SD900 Portable Sampler Retro Fit Kit Includes Controller 8970SD, 3 pin adaptor cable 8739400, adaptor plate and hardware for mounting to old SIGMA 900/900 max bases
8925SD	SD900 Portable Sampler with Center Section and Lid Includes Controller 8970SD, Center Section 8922, and Lid 8890
Section 1.1	**Bottle Option**
	Composite Bottles and Accessories
6559	2.5 Gallon (9,46 l) Glass Container, with Teflon Lined Cap[1,2,5]
1918	3.0 Gallon (11,36 l) PE Container with Cap[1,2,5]
1367	4.0 Gallon (15,14 l) PE Container with Cap[2]
6498	5.5 Gallon (20,82 l) PE Container with Cap[2]
6494	6.0 Gallon (22,71 l) PE Container with Cap[4]
	Required accessories for 2.5 and 3 Gallon Containers
1502	Container Support
8996	Retainer/Full Container Shut-off
	Notes: [1]= suitable for compact base [2]= suitable for standard base [4]= suitable for composite base [5]= requires Conatiner Support 1502 & Retainer/Full Container Shut-off (8996)
	Multiple Bottle Sets and Accessories
	PE bottles
737	24 x 1 l PE bottles with Caps
1369	24 x 575 ml PE bottles with Caps
657	8 x 2.3 l PE bottles with Caps
2217	4 x 1 Gallon PE bottles with Caps
2215	2 x 1 Gallon PE bottles with Caps
	Glass bottles
732	24 x 350 ml Glass bottles with Teflon Lined Caps
2348	8 x 950 ml Glass bottles with Teflon Lined Caps
1118	8 x 1.9 l Glass bottles with Teflon Lined Caps
2216	4 x 1 Gallon Glass bottle with Teflon Lined Caps
2214	2 x 1 Gallon Glass bottles with Teflon Lined Caps
	Replacement bottles
	Please contact HACH LANGE
	Bottle Retainers (for multiple bottle sets)
2189	Retainer for 24 x 350 ml glass bottles
1422	Retainer for 8 x glass, 8 x PE, 24 x 575 ml PE and 24 x 1 l PE bottles
2347	Retainer/Positioner for 8 x 950 ml glass bottles
2190	Retainer for 1 gallon glass and 1 gallon PE bottles
	Distributors for Multiple Bottle configurations
8582	Distributor with Arm for 24 bottle, standard base and 12 bottle base
8580	Distributor with Arm for 24 bottle compact base
8584	Distributor with Arm for 2, 4 and 8 bottle standard base and 8 bottle compact base
8583	Distributor Arm only, for 24 bottle standard and 12 bottle bases
8581	Distributor Arm only, for 24 bottle compact base
8585	Distributor Arm only, for 2, 4 and 8 bottle standard base

SAMPLER, portable

SIGMA SD900 - Components Part II

Part No.	Designation
Section 1.2	**Insulated Base / Bottle Tray**
8975	Compact Insulated Base
8976	Standard Insulated Base [1]
8561	Composite Insulated Base for 5 Gallon Glass and 6 Gallon PE Containers
	[1] Container Support P/N 1502 is required if using 2.5 or 3 gallon container in standard base.
Section 1.3	**Power Supply / Battery Chargers** (Not compatible with former Sigma 900 series) Choose between AC power and Battery Power. Battery Power requires a battery charger.
	AC Power Converters
8754500EU	3 Pin, Power Supply, 230VAC, with EU Plug
8754500IL	3 Pin, Power Supply, 230VAC, with Italy Plug
8754500UK	3 Pin, Power Supply, 230VAC, with UK Plug
8754500US	3 Pin, Power Supply, 100-120 VAC, with US plug
	Batteries
8754400	Battery, Gel Electrolyte, 12 VDC, 6 Ah - Lead Acid, with 3 pin connector
	Battery Charger
8753500EU	3 Pin, EU/EEC Universal Smart Charger for use with Lead Acid Battery 8754400
8753500UK	3 Pin, UK Universal Smart Charger for use with Lead Acid Battery 8754400
8753500US	3 Pin, US Universal Smart Charger for use with Lead Acid Battery 8754400
Section 1.4	**Intake Tubing and Strainers** Select tubing and strainer based on your application needs!
	Intaking tubing, made of Vinyl
920	25 ft. Intake Tubing, ⅜" ID, made of Vinyl
923	100 ft. Intake Tubing, ⅜" ID, made of Vinyl
924	500 ft. Intake Tubing, ⅜" ID, made of Vinyl
	Teflon Lined (Requires Connection Kit P/N 2186)
921	10' Teflon Lined Polyethylene Tubing, ⅜" ID
922	25' Teflon Lined Polyethylene Tubing, ⅜" ID
925	100' Teflon Lined Polyethylene Tubing, ⅜" ID
2186	Connector Kit, for Teflon lined PE tubing
	Strainer, made of Teflon/Stainless Steel
926	Strainer, Teflon/SS316, 5.5" long x 0.875" OD
903	Strainer, Teflon/SS316, 11.0" long x 0.875" OD
	Strainer, made of Stainless Steel
2070	Strainer, all 316 Stainless Steel
2071	Strainer, for shallow depth applications, all 316 Stainless Steel
4652	Strainer, for high velocity and shallow depth applications, 3.9" long x 0.406" outer Ø
Section 1.5	**Pump Tubing**
8753800	Pump tube insert, Portable/Refrigerated (Pre cut length; ready to use)
4600-15	Pump Tubing, 15 ft - For 900 and SD900 Series perstaltic samplers — order per 15 ft, each
4600-50	Pump Tubing, 50 ft - For 900 and SD900 Series perstaltic samplers — order per 50 ft, each

SAMPLER, portable

SIGMA SD900 - Components Part III

Part No.	Designation
	Support Software and Accessories
8757500	Kit DB9/7 pin cable, 3 m, + Sample View software (CD-Rom), connects Sampler to PC
8758200	DB9/7pin cable, 3 m, connects Sampler to PC, for use with Sample View software
	"*Sample View*" Software Package (requires RS232 serial cable)
Section 1.7	**Cable and Interfaces**
	Half Cable to connect a Sigma sampler/flow meter to a non-Sigma sampler/flow meter
8756800	7 Pin, Multi Purpose Half Cable, 25 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
8756900	7 Pin, Multi Purpose Half Cable, 10 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
	Full Cable to connect a Sigma sampler to a Sigma flow meter
8757000	7 Pin, Multi Purpose Full Cable, 25 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
8757100	7 Pin, Multi Purpose Full Cable, 10 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
	[1] Note: If cable longer than 10 ft. is needed, please order in addition SE813 cable.
5760600	Universal junction box for 4-20mA input For Flow proportional based sampling driven by analogue flow meter signal
8757300	Cascade Sampling for 25-ft. cable[2] Leading sampler wakes up second sampler upon program completion
Section 2.0	**Accessories / Replacements**
	900 Controller Desiccant Replacement Parts
8755600	Desiccant Cartridge -Desiccant Tube Assy with Grease
	Distributor Arm Only
8563	Only for 24 bottle
8566	Only for 8 bottle
8569	Only for 2 and 4 bottle
	Manuals
DOC026.53.00742	SD900 Portable Sampler Controller User Manual GB
DOC026.77.00742	SD900 Portable Sampler Controller User Manual FRA
DOC026.57.00742	SD900 Portable Sampler Controller User Manual ITA
DOC026.72.00742	SD900 Portable Sampler Controller User Manual GER
DOC026.85.00742	SD900 Portable Sampler Controller User Manual CZ
DOC026.90.00742	SD900 Portable Sampler Controller User Manual POR
DOC026.92.00742	SD900 Portable Sampler Controller User Manual ES
DOC026.94.00742	SD900 Portable Sampler Controller User Manual TRK

SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)

Durable, Heavy Duty Construction tolerating Harsh Environments

The molded ABS/PC exterior of the SD900 controller enclosure is tough.
The controller is tightly sealed for maximum protection from the elements and corrosive environments.
The NEMA 4X, 6, IP67 housing isolates all electro-mechanical components.
The keypad, switches, and display are covered by a waterproof, corrosion-resistant polyester membrane. Sealed connectors and pump shaft further guarantee environmental integrity.
Collected samples are protected and preserved inside the refrigerated base — choose from either vinyl or stainless steel.

Technical Data
Subject to change without notice

	Sigma SD900 Refrigerated
Dimensions	112 cm x 61 cm x 61 cm (44" x 24" x 24") (W x H x D)
Weight:	63.3 kg (140 lb)
Refrigerator power requirements	115 VAC, 60 Hz, 3.3 A (18 locked rotor amps) 230 VAC, 50 Hz, 1.7 A (9 locked rotor amps)
Controller power requirements	115 VAC, 60 Hz, 42 W 230 VAC, 50 Hz, 42 W
Refrigeration system	450 BTU/hr., 120 CFM condenser fan, 3 sided wrap-around plate type evaporator, rigid foam insulation, air sensing thermostat capable of maintaining sample liquid at 4°C (39 °F) in ambient temperatures up to 50°C (120 °F); accurate to 0.8°C (±1.5 °F); magnetic door seal; standard refrigerator cabinet is 22 gauge steel with beige vinyl laminate over-coating (SS304 cabinet optional); refrigeration components and copper plumbing are corrosion protected with phenolic resin conformal coating.
Operating environment	Operating temperature 0–50 °C (32–122 °F). Humidity 0–95% RH installation and pollution degree (II, 2). Altitude 2000 m maximum.
Recovery time	Sampler temperature recovers to 4°C within 5 minutes after the door has been held open for one minute in 24°C (75 °F) ambient environment while in an active cooling cycle.
Cool down time	Air temperature drops from 24°C (75 °F) to 4°C (39 °F) within 20 minutes (typical).
Certifications & Approvals	
Europe	CE - EN / IEC 61010-1 and EN / IEC 60335-2-89 (safety), EN / IEC 61326 (EMC) & CISPR 11 (RF emissions)
North America	cETLus listed -Conforms to UL 61010-1, Certified to CSA C22.2 No. 61010-1 and UL 471 and CSA C22.2 No. 120.
Sample bottle capacity	
Single bottle (Composite)	1 x 21 L (5.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Glass bottle
Multiple bottle	2 x 10 L (2.5 gal) polyethylene and/or 2 x 10 L (2.5 gal) glass bottles 4 x 10 L (2.5 gal) Polyethylene bottles and/or 4 x 10 L (2.5 gal) Glass bottles 8 x 2.3 L (0.6 gal) Polyethylene and/or 8 x 1.9 L (0.5 gal) Glass bottles 24 x 1 L Polyethylene and/or 24 x 350 mL Glass bottles
Intake accessories	
Strainers	SS316 in standard size, high velocity or low profile for shallow depth applications and Teflon®/316 stainless steel in standard size
Sample intake tubing	9.5 mm (3/8") I.D. Vinyl or Teflon®-lined polyethylene

to be continued

SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)

Technical Data
Subject to change without notice

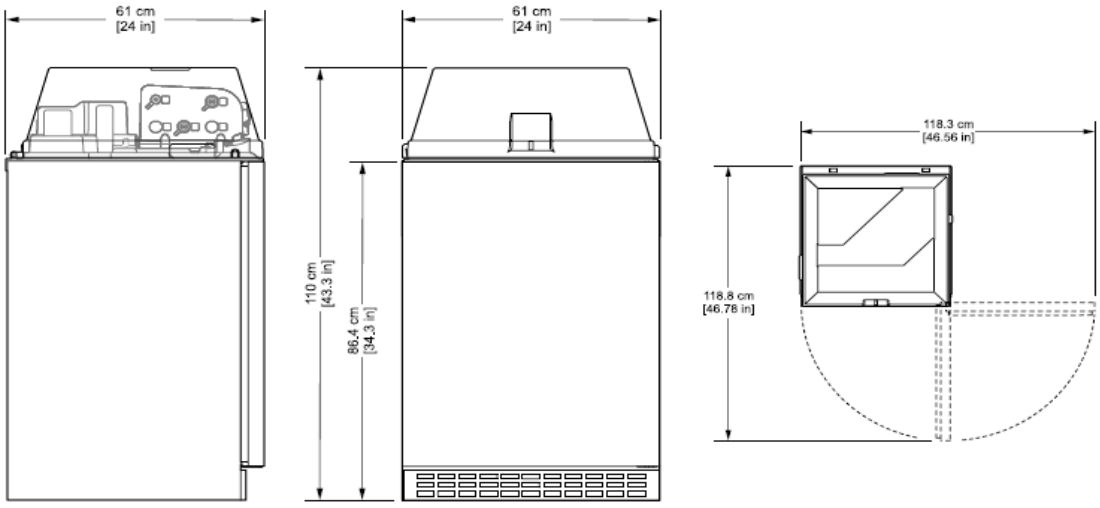
	Sigma SD900 Refrigerator
Enclosure	High-Impact, injection-molded PC/ABS blend; submersible, watertight, dust-tight, corrosion, and ice resistant; NEMA 4X, 6, IP 67
Power requirements	
SD900 Refrigerated	15 VDC provided by 8754500 power supply
AWRS sampler	15 VDC provided by integral power supply
Overload protection	7 amp DC line fuse for pump
Pump	Peristaltic high speed, with spring-mounted rollers
Pump rollers	Nylatron, impact/corrosion resistant
Pump enclosure	Track is injection-molded polyphenylene sulfide. Cover is polycarbonate, high impact resistant. Pump enclosure rated IP37.
Pump tubing	9.5 mm I.D. x 15.9 O.D. mm (3/8 in. x 5/8 in.) silicone
Pump tubing life	20,000 sample cycles under the following conditions: • 1 L sample volume • 1 rinse • 6 minute pacing interval • 16 ft of 3/8 in. intake tube • 15 ft of vertical lift • 70 °F sample temperature
Tubing replacement time	< 1 minute using pre-cut pump tube
Maximum vertical lift to draw sample	Minimum of 28 ft, using 29 ft of 3/8-in. vinyl intake tube at sea level at 20–25 °C (68–77 °F)
Pump flow rate	1.25 gpm (4.8 L/min) at 3 ft (1 m) vertical lift using 3/8-in. intake tube
Typical sample volume repeatability	±5% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical sample volume accuracy	±10% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical transfer velocity	2.9 ft/s (0.9 m/s) with 15 ft (4.6 m) vertical lift, 16 ft of 3/8-in. vinyl intake tubing, 70 °F (21 °C) and 5000 ft elevation
Liquid sensor	Ultrasonic
Liquid sensor body	Ultem® NSF ANSI standard 51 approved, USP Class VI compliant
Internal battery	Lithium
Internal clock	Indicates real time and date
Storage temperature	–30 to 60°C (–22 to 140 °F)
Operating temperature	0 to 50 °C (32 to 122 °F)
Storage/ operating humidity	100% condensing
Graphics display	Graphic dot matrix, 128x64 pixel with LED backlight. Self prompting, menu-driven program.
Status display	Indicates the number of samples collected, the number of missed samples, inhibit mode, bottle position, time or counts to next sample and battery voltage. In addition, when an SDI-12 sonde is detected, the user has the option to display the current measurement values.
Sample history	Stores up to 510 entries for sample time stamp, bottle number and sample status (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery)
Automatic shutdown	
Multiple bottle mode	after complete revolution of distributor arm (unless Continuous Mode is selected)
Composite mode	after preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container.
User interface	Embossed keypad with one power key, four function keys, and eight navigation keys; LED indicator
Event log	Ability to store up to 510 entries in Sample History logging. Records Power On, Power Fail, Firmware Updated, Pump Fault, Distributor Arm Error, Low Memory Battery, Low Main Battery, User On, User Off, Program Started, Program Resumed, Program Halted, Program Completed, Grab Sample, Tube Change Required, SDI-12 communication errors, Setpoint High On/Off, and Setpoint Low On/Off.
Connections	Power, auxiliary, serial communications, distributor, SDI-12, thermal (on AWRS)
Fittings	Barbed fittings for 3/8-in. I.D. flexible tubing
Wetted materials	Typical materials in contact with sample: stainless steel, PE, Teflon, Ultem, Silicon or approved materials that can be tested for leaching properties
Weight	4.2 kg (9 lb, 5 oz)
Dimensions	10-⅜" (26.4 cm) L x 11-½ in. (29.2 cm) W x 6-¾ in. (17.1 cm) H

SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)

Technical Data
Subject to change without notice

Programming features	
Password protection	6-character; protect changes to program and system settings
Multiple programs	Stores up to three sampling programs
Cascade programs	Two samplers used in combination. The second sampler is initiated after the first sampler completes the program.
Synchronized sampling	Ability to simultaneously take two samples with input from a single flow meter
Sample volume	Programmed in 10-mL increments from 100 to 10,000 mL
Air purge	Air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths.
Intake rinse option	Option to rinse intake line with source liquid prior to each sample, 1 to 3 rinses.
Sample distribution	Composite, samples per bottle or bottles per sample.
Setpoint sampling	Ability to start and/or stop a sample program based on an external trigger or user-defined high/low setpoints based on SDI-12 measurements.
User start/stop times	Up to 12 user-defined start/stop times/dates, with option to restart at position 1.
Storm water program	Ability to run time-based, first flush program in parallel with main sample program.
Current status	Display parameters relevant to main and/or storm water programs and SDI-12 measurements.
Units of measure	Volume: gallons or mL; length: feet (ft) or cm
Sample retries	Option to repeat sample collection cycle from 1 to 3 times if sample not obtained on initial attempt.
Manual grab sample	Ability to manually deliver a grab sample to a specific bottle location
Run modes	Continuous or non-continuous with user-entered number of samples.
Time pacing	Uniform or variable time intervals.
Flow pacing	Uniform or variable flow intervals.
Auxiliary connector	Power to Sigma 9XX, SD900, flow pulse input, external inhibit, special output, bottle number output and program complete output.
Program delay	Two formats: 1) 1–9,999 flow pulses (in one unit increments); 2) Programmable start time/date
Timed Bottle Sets	Enables a single sampler to function like multiple samplers.
Communication	
Firmware updates	Ability to perform field upgrades using Sample View software
Serial interface	RS232 compatible; allows on-site collection of stored data including event log and sample history. Ability to configure remotely. Supports Modbus for SCADA connectivity.
SDI-12	Plug & Play interface to Hydrolab DS5 and MS5 sondes to provide measurement data in setpoint sampling applications. Note: Hydrolab plug and play capability requires firmware v5.43 or greater to be installed in the sonde.



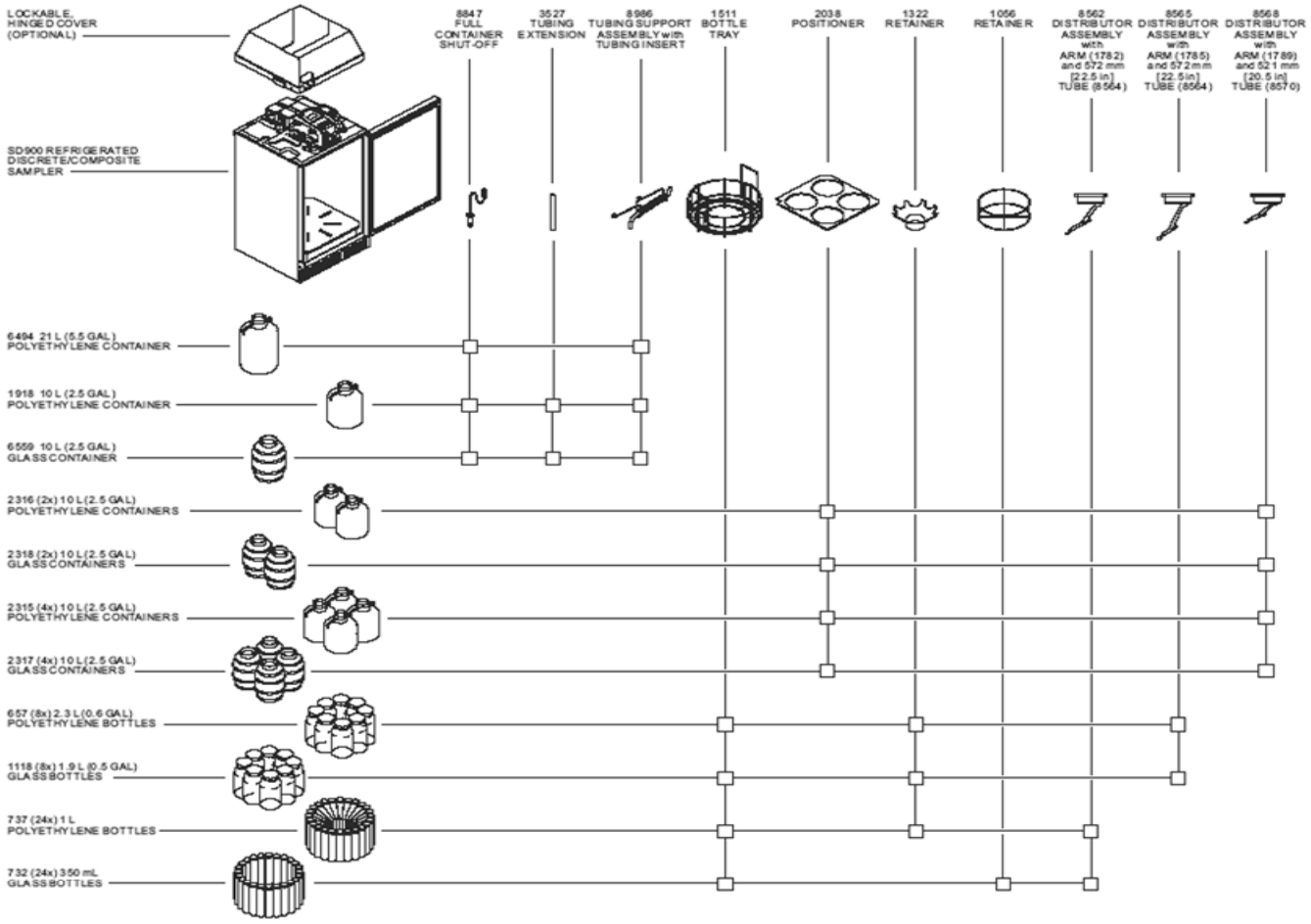
SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)

Configurator:

Necessary part numbers to change existing bottle/base configuration

Sampler	Bottle Type (1 Gal ≈ 3,8 l)	Base type	Part Number					
			Bottle	Base	Full Bottle Shut-off	Support	Retainer	Distributor
Composite	2.5 Gal Glass	6559	8847	8838	3527	N/A	N/A	N/A
Composite	2,5 Gal PE	1918	8847	8838	3527	N/A	N/A	N/A
Composite	6.0 Gal PE	6494	8847	8838	N/A	N/A	N/A	N/A
Multiple bottle	24 x 1 l PE	737	N/A	N/A	N/A	1511	1322	8841
Multiple bottle	24 x350 ml Glass	732	N/A	N/A	N/A	1511	1056	8841
Multiple bottle	8 x 2.3 l PE	657	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	8 x 1.9 l Glass	1118	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	4 x 2,5 Gal PE	2315	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	4 x 2.5 Gal Glass	2317	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 2.5 Gal Glass	2318	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 3 Gal PE	2316	N/A	N/A	N/A	N/A	N/A	8843



SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)

Part No. **Designation**

A variety of configurations are possible depending on the needed Sampler system.
Please refer to the instrument manual for further details.
Alternatively contact your HACH LANGE agency or its local representative.

For new setup's, the SD900 Configurator can help you to configure your sampler model.
Please select needed accessories afterwards.

SD900R.99.1XXXX **Stationary Sampler, refrigerated**

S	D	9	0	0	R	.	9	9	.	1	X	X	X	X

Sampler model option

HACH SD900 refrigerated stationary sampler
includes Controller 900SD

Country Code Selection

Sampling system

Peristaltic pump system 1

Intake tube length option

PVC tubing, 9.5mm ID X 15.9 mm O.D. (3/8" x 5/8") in respective length
plus Teflon/stainless steel strainer Counterweight (P/N 926)

7.5 metre (P/N 920) 1
30 metre (P/N 923) 2

Bottle/Container Options

Plastic, 1 x 10 litre composite bottle 1
Plastic, 1 x 20 litre composite bottle 3
Plastic, 24 x 1 litre in multi bottle 5
Plastic, 4 x 10 litre multi bottle 7
Glas, 4 x 10 litre multi bottle 8
Glas, 1 x 10 litre composite bottle 9
Glas, 24 x 0.35 litre multi bottle ..... A

Housing

ABS/PC Plastic (NEMA 4X, 6, IP 67) 1
ABS/PC Plastic with lockable, hindged Cover 2
SS304 covered bottle compartment 3
SS304 covered bottle compartment with lockable, hindged Plastic Cover 4

Power Supply option for Sampler

230VAC, EU Plug 2
230VAC, UK Plug 3
115VAC, US Plug 4

SAMPLER, refrigerated

SIGMA SD900 - Components Part I

Part No.	Designation
Section 1.0	**Replacement Sampler Controller model** (coming with english manual)
8950SD	SIGMA SD900 Indoor refrigerated Sampler, 230VAC, EU plug SD900 Controller on Vinyl cabinet, EU Power Supply
8927SD	SIGMA SD900 Indoor refrigerated Sampler, 115VAC, US plug SD900 Controller on Vinyl cabinet, US Power Supply
98950SD	SIGMA SD900 Indoor refrigerated Sampler, 230VAC, EU plug SD900 Controller on stainless steel cabinet, EU Power Supply
98927SD	SIGMA SD900 Indoor refrigerated Sampler, 115VAC, US plug SD900 Controller on stainless steel cabinet, US Power Supply
8971SD	SD900 Refrigerated Controller only
Section 1.1	**Bottle Type**
	Composite Bottles and Accessories
6559	2.5 Gallon (9,46 l) Glass Container, with Teflon Lined Cap
1918	3.0 Gallon (11,36 l) PE Container with Cap
6494	6.0 Gallon (22,71 l) PE Container with Cap
	Required accessories for 2.5 and 3 Gallon Containers
3527	Extension Tube
8838	Composite Tube Support with Tube
8847	Full Container Shutoff, for all containers
	Multiple Bottle Sets and Accessories
	PE bottles
737	24 x 1 l PE bottles with Caps[1]
657	8 x 2.3 l PE bottles with Caps[1]
2315	4 x 3 Gallon PE bottles with Caps[2]
2316	2 x 3 Gallon PE bottles with Caps[2]
	Glass bottles
732	24 x 350 ml Glass bottles with Teflon Lined Caps[1]
1118	8 x 1.9 l Glass bottles with Teflon Lined Caps[1]
2317	4 x 2.5 Gallon Glass bottle with Teflon Lined Caps[2]
2318	2 x 2.5 Gallon Glass bottles with Teflon Lined Caps[2]
	[1] Also requires 1511 - Bottle Tray, 1322 - Retainer and 8841 - Distributor [2] Also requires 8843 Distributor
	Replacement bottles
929	1 l PE bottles without caps - Case of 96
931	Caps, for 1 l PE bottles - Case of 96
930	350 ml Glass bottles without caps - Case of 96
932	Caps, Teflon Lined, for 350 ml glass bottles - Case of 96
	Bottle Retainers (for multiple bottle sets)
1511	Bottle Tray (required for 8 and 24 bottle sampling)
1322	Retainer (required for 24 x 1 l PE bottle and 8 bottle sampling)
1056	Retainer (required for 350 ml glass bottles)
2038	Retainer (required for 2 x and 4 x bottle sampling)
	Distributors for Multiple Bottle configurations
8562	Distributor with Arm (for 24 bottle sampling)
8565	Distributor with Arm (for 8 bottle sampling)
8568	Distributor with Arm (for 2 and 4 bottle sampling)
8563	Distributor Arm only (with tube), for 24 bottle sampling
8566	Distributor Arm only (with tube), for 8 bottle sampling
8569	Distributor Arm only (with tube), for 2 and 4 bottle sampling

SAMPLER, refrigerated

SIGMA SD900 - Components Part II

Part No.	Designation
Section 1.2	**Intake Tubing and Strainers**
	Select tubing and strainer based on your application needs!
	Intaking tubing, made of Vinyl
920	25 ft. Intake Tubing, ⅜" ID, made of Vinyl
923	100 ft. Intake Tubing, ⅜" ID, made of Vinyl
924	500 ft. Intake Tubing, ⅜" ID, made of Vinyl
	Teflon Lined (Requires Connection Kit P/N 2186)
921	10' Teflon Lined Polyethylene Tubing, ⅜" ID
922	25' Teflon Lined Polyethylene Tubing, ⅜" ID
925	100' Teflon Lined Polyethylene Tubing, ⅜" ID
2186	Connector Kit, for Teflon lined PE tubing
	Strainer, made of Teflon/Stainless Steel
926	Strainer, Teflon/SS316, 5.5" long x 0.875" OD
903	Strainer, Teflon/SS316, 11.0" long x 0.875" OD
	Strainer, made of Stainless Steel
2070	Strainer, all 316 Stainless Steel
2071	Strainer, for shallow depth applications, all 316 Stainless Steel
4652	Strainer, for high velocity and shallow depth applications, 3.9" long x 0.406" outer Ø
Section 1.3	**Pump Tubing**
8753800	SD900 Refrigerated Pump Tube Insert
4600-15	SIGMA 900 Standard and 900 MAX Pump Tubing, 15 ft. length
4600-50	SIGMA 900 Standard and 900 MAX Pump Tubing, 50 ft. length
Section 1.4	**Distributor tubing**
3866-15	Distributor Tubing, 15 ft. length
3866-50	Distributor Tubing, 50 ft. length
Section 1.5	**AC Power Backup**
5698200	AC Power Back-Up, Battery Included

SAMPLER, refrigerated

SIGMA SD900 - Components Part III

Part No.	Designation
Section 1.6	**Cable and Interfaces**
	Half Cable to connect a Sigma sampler/flow meter to a non-Sigma sampler/flow meter
8756800	7 Pin, Multi Purpose Half Cable, 25 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
8756900	7 Pin, Multi Purpose Half Cable, 10 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
	Full Cable to connect a Sigma sampler to a Sigma flow meter
8757000	7 Pin, Multi Purpose Full Cable, 25 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
8757100	7 Pin, Multi Purpose Full Cable, 10 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
	[1] Note: If cable longer than 10 ft. is needed, order addition SE813 cable.
5760600	Universal junction box for 4-20mA input For Flow proportional based sampling driven by analogue flow meter signal
8757300	Cascade Sampling for 25-ft. cable[2] Leading sampler wakes up second sampler upon program completion
8758000	Adaptor cable, 6 to 7 pin, use when connecting older 900 or 900MAX auxiliary cables to new SD900 Controller not recommended for use on cables over 10ft.
8757500	Kit DB9/7 pin cable, 3 m, + Sample View software (CD-Rom), connects Sampler to PC
8758200	DB9/7pin cable, 3 m, connects Sampler to PC, for use with Sample View software "*Sample View*" Software Package (requires RS232 serial cable)
Section 2.0	**Spare Parts**
8755600	Desiccant Cartridge -Desiccant Tube Assy with Grease
6262000	Pump replacement assembly
7685	Refrigerator vinyl door
2143S	Lockable Hasp
8963	Controller Cover
98960	Refrigerator Assy without Controller, 230V, stainless steel
98959	Refrigerator Assy without Controller, 115V, stainless steel
5697700	Controller Compartment Lock
6611500	Gasket replacement kit-door
6611600	Gasket replacement kit-lid (fits for Controller lid and fridge lid)
6613100	Anchor kit (2 anchors)
8900SD	SD900 AWRS Controller only
	Distributor Arm Only
8563	Distributor arm for 24 bottle set
8566	Distributor arm for 8 bottle set
8569	Distributor arm for 2 and 4 bottle set
	Manuals
DOC026.53.00799	SD900 AWRS stationary Sampler User Manual GB
DOC026.77.00799	SD900 AWRS stationary Sampler User Manual FRA
DOC026.57.00799	SD900 AWRS stationary Sampler User Manual ITA
DOC026.72.00799	SD900 AWRS stationary Sampler User Manual GER
DOC026.85.00799	SD900 AWRS stationary Sampler User Manual CZ
DOC026.90.00799	SD900 AWRS stationary Sampler User Manual POR
DOC026.92.00799	SD900 AWRS stationary Sampler User Manual ES
DOC026.94.00799	SD900 AWRS stationary Sampler User Manual TRK

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)

NEW - Hach Sigma SD900 All Weather Refrigerated Sampler

Built Better from the Top Down with a Top-mounted Compressor

This sampler is designed specifically to endure humid and highly corrosive environments by placing the compressor at the top of the cabinet—away from corrosive gases, rodents, and standing water that may occur at floor level. The molded ABS/PC exterior of the SD900 controller enclosure is tough. The controller is tightly sealed for maximum protection from the elements and corrosive environments. The NEMA 4X, 6, IP67 housing isolates all electromechanical components. The keypad, switches, and display are covered by a waterproof, corrosion-resistant polyester membrane. Sealed connectors and pump shaft further guarantee environmental integrity. Collected samples are protected and preserved inside the refrigerated base.

Easy to Use

The simplified keypad with intuitive icons and scrolling menu on the Hach Sigma SD900 All Weather Refrigerated Sampler assures easy setup. Color coded power/stop buttons are easy to identify. The large, 5-line, transflective LED backlit display stays readable in bright or subdued lighting.

Technical Data

Subject to change without notice

	HACH SIGMA AWRS (All Weather Refrigerated Sampler)
Dimensions	76 cm x 130 cm x 81 cm (30" x 51" x 32") (W x H x D with H = closed lid) 76 cm x 180 cm x 81 cm (30" x 71" x 32") (W x H x D with H = open lid)
Weight:	86 kg (190 lb)
Power requirements (incl. 1/5 HP compressor)	115VAC, 60Hz, 4.2A or 6.4A with optional controller compartment heater 230VAC, 50Hz, 2.7A or 4.1A with optional controller compartment heater.
Overload protection	115 VAC models: 7.5A circuit breaker 230 VAC models: 5.0A circuit breaker
Compressor characteristics	
115 VAC models	115°C thermal overload protector, 7.1 locked rotor amps 30 VAC models: 120ºC thermal overload protector, 7.6A peak start current. Top mounted compressor/condenser with fan forced air cooled condenser; 3 sided wrap-around evaporator plate; rigid foam insulation; microprocessor
230 VAC models	120ºC thermal overload protector, 7.6A peak start current. Top mounted compressor/condenser with fan forced air cooled condenser; 3 sided wrap-around evaporator plate; rigid foam insulation; microprocessor
Thermal system	controlled thermostat maintains sample liquid at 4 °C (±1 °C)*; frost free; compression gasket door seal; air cooled condenser is protected against corrosion with a food grade epoxy; all exposed copper tubing is insulated to avoid sweating and condensation.
Cabinet	Low density polyethylene with UV inhibitor. Cabinet enclosure rated IP24.
Operating environment	• As is: 0 to 50 °C (32 to 122 °F) • With AC battery backup: 0 ºC to 40 ºC (32 ºF to 104 ºF) • With optional controller compartment heater: -40 to 50 °C (-40 to 122 °F) • With controller compartment heater and AC battery backup: -15 ºC to 40 ºC (5 ºF to 104 ºF) Humidity 0 to 95%. RH installation and pollution degree (II, 2). Altitude 2000 m maximum.
Recovery time	Sampler temperature recovers to 4°C within 5 minutes after the door has been held open for one minute in 24°C (75 °F) ambient environment while in an active cooling cycle.
Cool down time	Air temperature drops from 24°C (75 °F) to 4°C (39 °F) within 20 minutes (typical).
Certifications	
Europe	IEC: CE - EN / IEC 61010-1 and EN / IEC 60335-2-89 (safety), EN / IEC 61326 (EMC) & CISPR 11 (RF emissions)
North America	cETLus listed -Conforms to UL 61010-1, Certified to CSA C22.2 No. 61010-1 and UL 471 and CSA C22.2 No. 120.
Sample bottle capacity	
Single bottle (Composite)	1 x 21 L (5.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Glass bottle
Multiple bottle	2 x 10 L (2.5 gal) polyethylene and/or 2 x 10 L (2.5 gal) glass bottles 4 x 10 L (2.5 gal) Polyethylene bottles and/or 4 x 10 L (2.5 gal) Glass bottles 8 x 2.3 L (0.6 gal) Polyethylene and/or 8 x 1.9 L (0.5 gal) Glass bottles 24 x 1 L Polyethylene and/or 24 x 350 mL Glass bottles
Strainers	316 stainless steel in standard size, high velocity or low profile for shallow depth applications and Teflon®/316 stainless steel in standard size
Sample intake tubing	9.5 mm (3/8 in.) I.D. Vinyl or Teflon®-lined polyethylene

to be continued

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)

Technical Data
Subject to change without notice

	SD900 controller
Enclosure	High-Impact, injection-molded PC/ABS blend; submersible, watertight, dust-tight, corrosion, and ice resistant; NEMA 4X, 6, IP 67
Power requirements	
SD900 Refrigerated	15 VDC provided by 8754500 power supply
AWRS sampler	15 VDC provided by integral power supply
Overload protection	7 amp DC line fuse for pump
Pump	Peristaltic high speed, with spring-mounted rollers
Pump rollers	Nylatron, impact/corrosion resistant
Pump enclosure	Track is injection-molded polyphenylene sulfide. Cover is polycarbonate, high impact resistant. Pump enclosure rated IP37.
Pump tubing	9.5 mm I.D. x 15.9 O.D. mm (3/8 in. x 5/8 in.) silicone
Pump tubing life	20,000 sample cycles under the following conditions: • 1 L sample volume • 1 rinse • 6 minute pacing interval • 16 ft of 3/8 in. intake tube • 15 ft of vertical lift • 70 °F sample temperature
Tubing replacement time	< 1 minute using pre-cut pump tube
Maximum vertical lift to draw sample	Minimum of 28 ft, using 29 ft of 3/8-in. vinyl intake tube at sea level at 20–25 °C (68–77 °F)
Pump flow rate	1.25 gpm (4.8 L/min) at 3 ft (1 m) vertical lift using 3/8-in. intake tube
Typical sample volume repeatability	±5% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical sample volume accuracy	±10% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical transfer velocity	2.9 ft/s (0.9 m/s) with 15 ft (4.6 m) vertical lift, 16 ft of 3/8-in. vinyl intake tubing, 70 °F (21 °C) and 5000 ft elevation
Liquid sensor	Ultrasonic
Liquid sensor body	Ultem® NSF ANSI standard 51 approved, USP Class VI compliant
Internal battery	Lithium
Internal clock	Indicates real time and date
Storage temperature	–30 to 60°C (–22 to 140 °F)
Operating temperature	0 to 50 °C (32 to 122 °F)
Humidity	100% condensing
Graphics display	Graphic dot matrix, 128x64 pixel with LED backlight. Self prompting, menu-driven program.
Status display	Indicates the number of samples collected, the number of missed samples, inhibit mode, bottle position, time or counts to next sample and battery voltage. In addition, when an SDI-12 sonde is detected, the user has the option to display the current measurement values.
Sample history	Stores up to 510 entries for sample time stamp, bottle number and sample status (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery)
Automatic shutdown	
Multiple bottle mode	after complete revolution of distributor arm (unless Continuous Mode is selected)
Composite mode	after preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container.
User interface	Embossed keypad with one power key, four function keys, and eight navigation keys; LED indicator
Event log	Ability to store up to 510 entries in Sample History logging. Records Power On, Power Fail, Firmware Updated, Pump Fault, Distributor Arm Error, Low Memory Battery, Low Main Battery, User On, User Off, Program Started, Program Resumed, Program Halted, Program Completed, Grab Sample, Tube Change Required, SDI-12 communication errors, Setpoint High On/Off, and Setpoint Low On/Off.
Connections	Power, auxiliary, serial communications, distributor, SDI-12, thermal (on AWRS)
Fittings	Barbed fittings for 3/8-in. I.D. flexible tubing
Wetted materials	Typical materials in contact with sample: stainless steel, PE, Teflon, Ultem, Silicon or approved materials that can be tested for leaching properties
Weight	4.2 kg (9 lb, 5 oz)
Dimensions	10-3/8 in. (26.4 cm) L x 11-½ in. (29.2 cm) W x 6-¾ in. (17.1 cm) H

to be continued

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)

Technical Data
Subject to change without notice

Programming features	
Password protection	6-character; protect changes to program and system settings
Multiple programs	Stores up to three sampling programs
Cascade programs	Two samplers used in combination. The second sampler is initiated after the first sampler completes the program.
Synchronized sampling	Ability to simultaneously take two samples with input from a single flow meter
Sample volume	Programmed in 10-mL increments from 100 to 10,000 mL
Air purge	Air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths.
Intake rinse option	Option to rinse intake line with source liquid prior to each sample, 1 to 3 rinses.
Sample distribution	Composite, samples per bottle or bottles per sample.
Setpoint sampling	Ability to start and/or stop a sample program based on an external trigger or user-defined high/low setpoints based on SDI-12 measurements.
User start/stop times	Up to 12 user-defined start/stop times/dates, with option to restart at position 1.
Storm water program	Ability to run time-based, first flush program in parallel with main sample program.
Current status	Display parameters relevant to main and/or storm water programs and SDI-12 measurements.
Units of measure	Volume: gallons or mL; length: feet (ft) or cm
Sample retries	Option to repeat sample collection cycle from 1 to 3 times if sample not obtained on initial attempt.
Manual grab sample	Ability to manually deliver a grab sample to a specific bottle location
Run modes	Continuous or non-continuous with user-entered number of samples.
Time pacing	Uniform or variable time intervals.
Flow pacing	Uniform or variable flow intervals.
Auxiliary connector	Power to Sigma 9XX, SD900, flow pulse input, external inhibit, special output, bottle number output and program complete output.
Program delay	Two formats: 1) 1–9,999 flow pulses (in one unit increments); 2) Programmable start time/date
Timed Bottle Sets	Enables a single sampler to function like multiple samplers.
Communication	
Firmware updates	Ability to perform field upgrades using Sample View software
Serial interface	RS232 compatible; allows on-site collection of stored data including event log and sample history. Ability to configure remotely. Supports Modbus for SCADA connectivity.
SDI-12	Plug & Play interface to Hydrolab DS5 and MS5 sondes to provide measurement data in setpoint sampling applications. Note: Hydrolab plug and play capability requires firmware v5.43 or greater to be installed in the sonde.

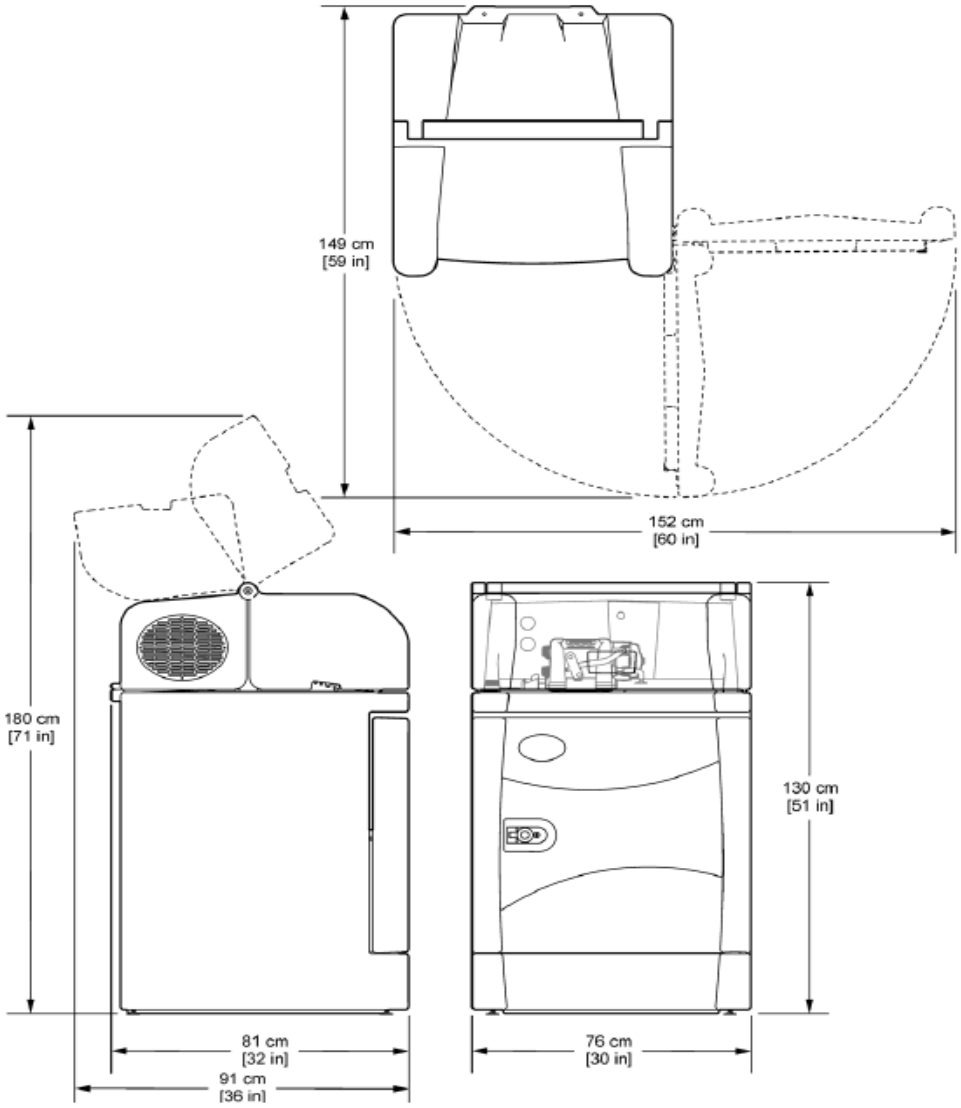
Specifications subject to be change without notice

Implemented Program Languages: English, Spanish, French, German, Italian, Portuguese, Turkish, Chinese, and Czech

Notes: flow proportional sampling
The SD900 supports digital impulse for flow paced sampling - connectity to flow meter with analogue signal output on request

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)



To configure a complete system, the following components are required:

➔ Sampler SIGMA 900 or 900 Max All Weather Refrigerated Sampler
➔ Composite/Multiple Bottle Sampling
➔ Intake Tubing and Strainers

Optional Components:
➔ Pump Tubing
➔ Factory Installed Options
➔ Cables and Interfaces
➔ Accessories

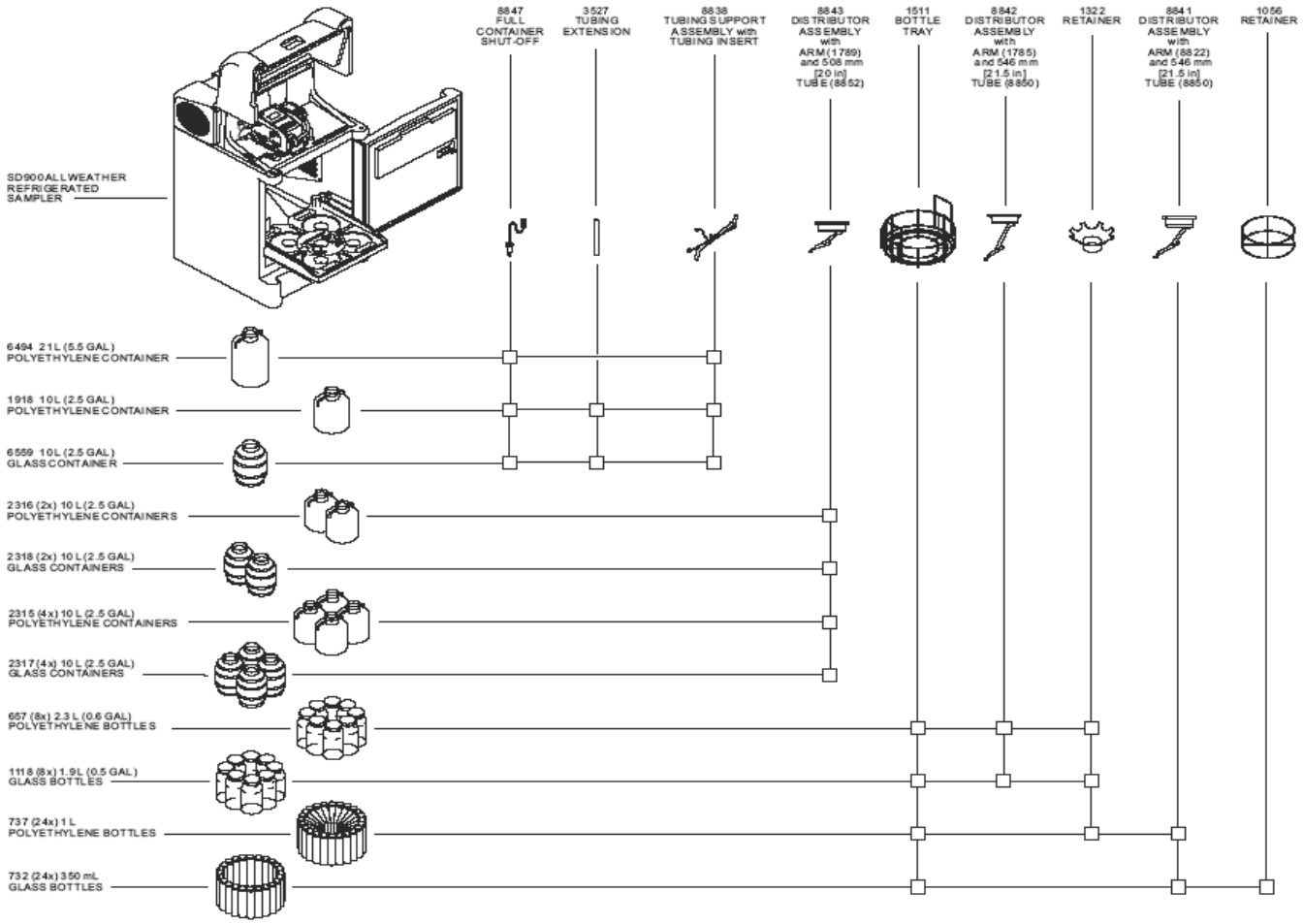
SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)

Configurator:
Necessary part numbers to change existing bottle/base configuration

Note: Full Bottle Shut-off and distributor assembly includes pump tube insert (P/N 8964)

Sampler	Bottle Type (1 Gal ≈ 3,8 l)	Part Number						
		Bottle	Full Bottle Shut-off	Tube Support	Extension Tube	Bottle tray positioner	Retainer	Distributor
Composite	2.5 Gal Glass	6559	8847	8838	3527	N/A	N/A	N/A
Composite	2,5 Gal PE	1918	8847	8838	3527	N/A	N/A	N/A
Composite	6.0 Gal PE	6494	8847	8838	N/A	N/A	N/A	N/A
Multiple bottle	24 x 1 l PE	737	N/A	N/A	N/A	1511	1322	8841
Multiple bottle	24 x350 ml Glass	732	N/A	N/A	N/A	1511	1056	8841
Multiple bottle	8 x 2.3 l PE	657	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	8 x 1.9 l Glass	1118	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	4 x 2,5 Gal PE	2315	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	4 x 2.5 Gal Glass	2317	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 2.5 Gal Glass	2318	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 3 Gal PE	2316	N/A	N/A	N/A	N/A	N/A	8843



SAMPLER, All Weather Refrigerated Sampler

SIGMA SD900 (HACH LIT2590)

Part No. **Designation**

A variety of configurations are possible depending on the needed Sampler system.
Please refer to the instrument manual for further details.
Alternatively contact your HACH LANGE agency or its local representative.

For new setup's, the SD900 Configurator can help you to configure your sampler model.
Please select needed accessories afterwards.

All Weather Refrigerated Sampler HACH SIGMA SD900

SD900A.99.1XXXX Stationary Sampler,

S	D	9	0	0	A	.	9	9	.	1	X	X	X	X

Sampler model option

HACH SD900 AWRS (All Weather Refrigerated Sampler)
includes Controller 900SD

Country Code Selection

Sampling system

Peristaltic pump system 1

Intake tube length option

PVC tubing, 9.5mm ID X 15.9 mm O.D. (3/8" x 5/8") in respective length
plus Teflon/stainless steel strainer Counterweight (P/N 926)

7.5 metre (P/N 920) 1
30 metre (P/N 923) 2

Bottle/Container Options

Plastic, 1 x 10 litre composite bottle 1
Plastic, 1 x 20 litre composite in Standard base 3
Plastic, 24 x 1 litre in multi bottle 5
Plastic, 4 x 10 litre multi bottle 7
Glas, 4 x 10 litre multi bottle 8
Glas, 1 x 10 litre composite bottle 9
Glas, 24 x 0.35 litre multi bottle ..... A

Housing

ABS/PC Plastic (NEMA 4X, 6, IP 67) 1

Power Supply option for Sampler

Power Supply, 230VAC, EU Plug 2
Power Supply, 230VAC, UK Plug 3
Power Supply, 115VAC, US Plug 4

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 - Components Part I

Part No.	Designation
Section 1.0	**Replacement Sampler Controller model** - coming with english manual
3542SDRH	SIGMA SD900 AWRS stationary All Weather Sampler, 230VAC, EU plug SD900 Controller, new rotomold cabinet with protection heater
3540SDRH	SIGMA SD900 AWRS stationary All Weather Sampler, 115VAC, US plug SD900 Controller, new rotomold cabinet with protection heater
8900SD	SD900 AWRS Controller only
Section 1.1	**Bottle Type**
	Composite Bottles and Accessories
6559	2.5 Gallon (9,46 l) Glass Container, with Teflon Lined Cap
1918	3.0 Gallon (11,36 l) PE Container with Cap
6494	6.0 Gallon (22,71 l) PE Container with Cap
	Required accessories for 2.5 and 3 Gallon Containers
3527	Extension Tube
8838	Composite Tube Support with Tube
8847	Full Container Shutoff, for all containers
	Multiple Bottle Sets and Accessories
	PE bottles
737	24 x 1 l PE bottles with Caps[1]
657	8 x 2.3 l PE bottles with Caps[1]
2315	4 x 3 Gallon PE bottles with Caps[2]
2316	2 x 3 Gallon PE bottles with Caps[2]
	Glass bottles
732	24 x 350 ml Glass bottles with Teflon Lined Caps[1]
1118	8 x 1.9 l Glass bottles with Teflon Lined Caps[1]
2317	4 x 2.5 Gallon Glass bottle with Teflon Lined Caps[2]
2318	2 x 2.5 Gallon Glass bottles with Teflon Lined Caps[2]
	[1] Also requires 1511 - Bottle Tray, 1322 - Retainer and 8841 - Distributor [2] Also requires 8843 Distributor
	Replacement bottles
929	1 l PE bottles without caps - Case of 96
931	Caps, for 1 l PE bottles - Case of 96
930	350 ml Glass bottles without caps - Case of 96
932	Caps, Teflon Lined, for 350 ml glass bottles - Case of 96
	Bottle Retainers (for multiple bottle sets)
1511	Bottle Tray (required for 8 and 24 bottle sampling)
1322	Retainer (required for 24 x 1 l PE bottle and 8 bottle sampling)
1056	Retainer (required for 350 ml glass bottles)
	Distributors for Multiple Bottle configurations
8841	Distributor with Arm (for 24 bottle sampling)
8842	Distributor with Arm (for 8 bottle sampling)
8843	Distributor with Arm (for 2 and 4 bottle sampling)
8844	Distributor Arm only (with tube), for 24 bottle sampling
8845	Distributor Arm only (with tube), for 8 bottle sampling
8846	Distributor Arm only (with tube), for 2 and 4 bottle sampling

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 - Components Part II

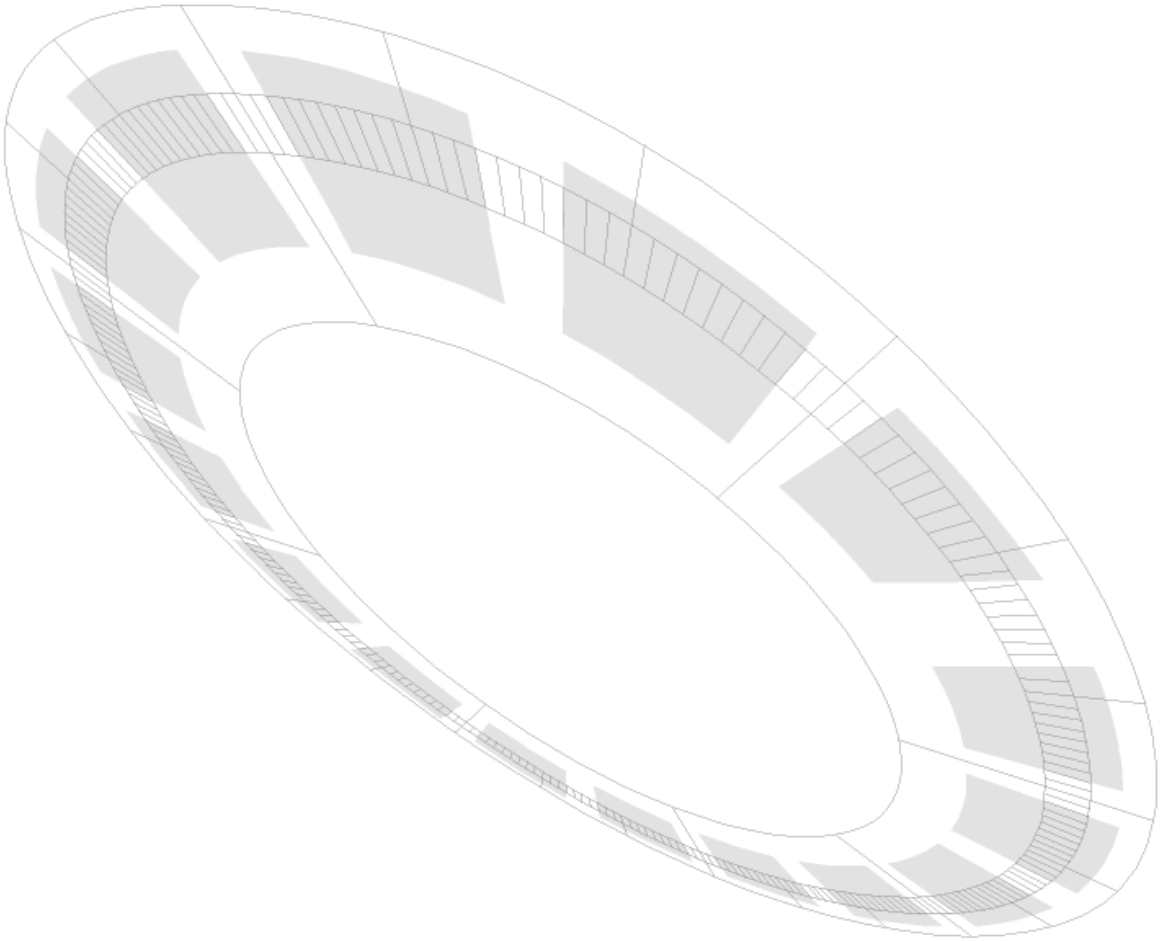
Part No.	Designation
Section 1.2	**Intake Tubing and Strainers**
	Select tubing and strainer based on your application needs!
	Intaking tubing, made of Vinyl
920	25 ft. Intake Tubing, ⅜" ID, made of Vinyl
923	100 ft. Intake Tubing, ⅜" ID, made of Vinyl
924	500 ft. Intake Tubing, ⅜" ID, made of Vinyl
	Teflon Lined (Requires Connection Kit P/N 2186)
921	10' Teflon Lined Polyethylene Tubing, ⅜" ID
922	25' Teflon Lined Polyethylene Tubing, ⅜" ID
925	100' Teflon Lined Polyethylene Tubing, ⅜" ID
2186	Connector Kit, for Teflon lined PE tubing
	Strainer, made of Teflon/Stainless Steel
926	Strainer, Teflon/SS316, 5.5" long x 0.875" OD
903	Strainer, Teflon/SS316, 11.0" long x 0.875" OD
	Strainer, made of Stainless Steel
2070	Strainer, all 316 Stainless Steel
2071	Strainer, for shallow depth applications, all 316 Stainless Steel
4652	Strainer, for high velocity and shallow depth applications, 3.9" long x 0.406" outer Ø
Section 1.3	**Pump Tubing**
8753900	SD900 AWRS Pump Tube Insert
4600-15	SIGMA 900 Standard and 900 MAX Pump Tubing, 15 ft. length
4600-50	SIGMA 900 Standard and 900 MAX Pump Tubing, 50 ft. length
Section 1.4	**Distributor tubing**
3866-15	Distributor Tubing, 15 ft. length
3866-50	Distributor Tubing, 50 ft. length
Section 1.5	**AC Power Backup**
5698200	AC Power Back-Up, Battery Included

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 - Components Part III

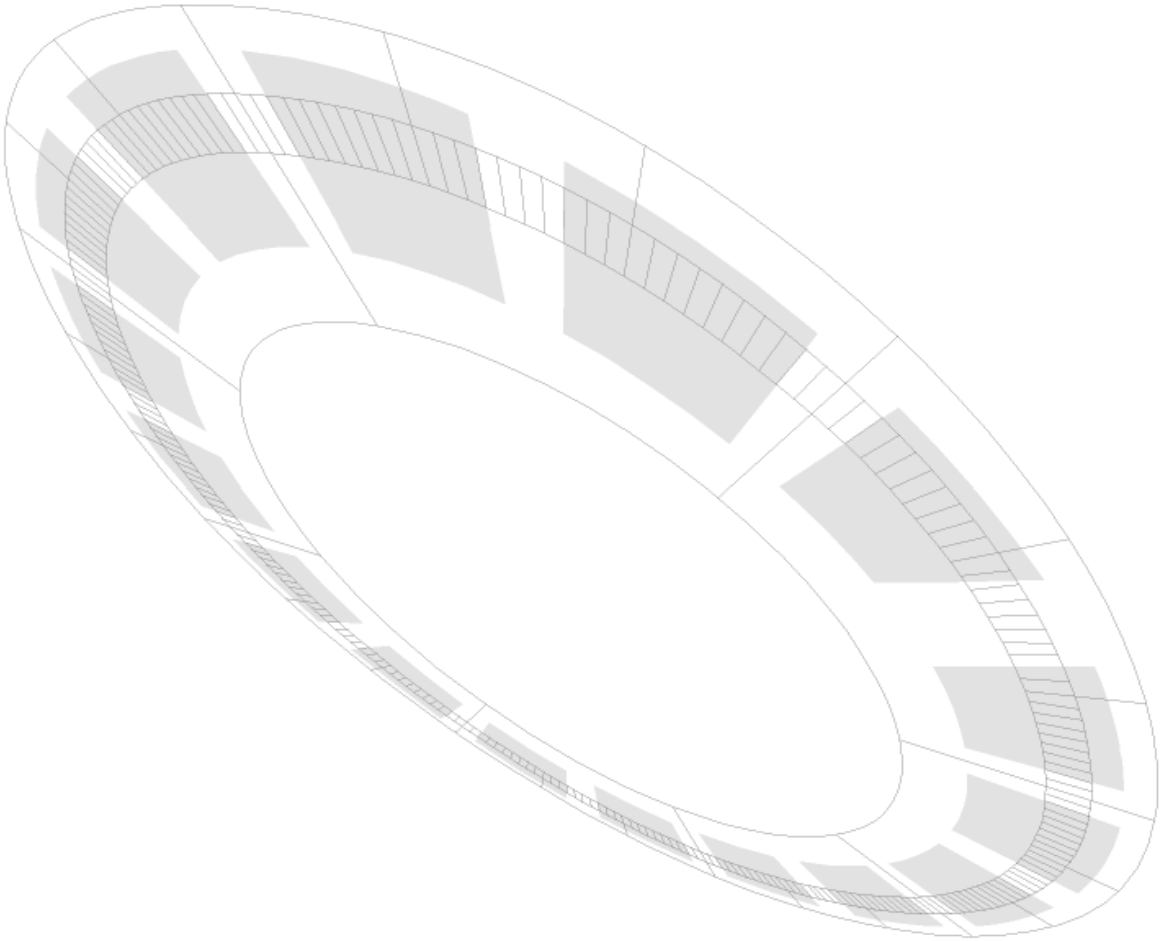
Part No.	Designation
Section 1.6	**Cable and Interfaces**
	Half Cable to connect a Sigma sampler/flow meter to a non-Sigma sampler/flow meter
8756800	7 Pin, Multi Purpose Half Cable, 25 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
8756900	7 Pin, Multi Purpose Half Cable, 10 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
	Full Cable to connect a Sigma sampler to a Sigma flow meter
8757000	7 Pin, Multi Purpose Full Cable, 25 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
8757100	7 Pin, Multi Purpose Full Cable, 10 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
	[1] Note: If cable longer than 10 ft. is needed, order addition SE813 cable.
5760600	Universal junction box for 4-20mA input For Flow proportional based sampling driven by analogue flow meter signal
8757300	Cascade Sampling for 25-ft. cable[2] Leading sampler wakes up second sampler upon program completion
8758000	Adaptor cable, 6 to 7 pin use when connecting older 900 or 900MAX auxiliary cables to new SD900 Controller not recommended for use on cables over 10ft.
8757500	Kit DB9/7 pin cable, 3 m, + Sample View software (CD-Rom), connects Sampler to PC
8758200	DB9/7pin cable, 3 m, connects Sampler to PC, for use with Sample View software "*Sample View*" Software Package (requires RS232 serial cable)
Section 2.0	**Spare Parts**
	SD900 Controller Desiccant Replacement Parts
8755600	Desiccant Cartridge -Desiccant Tube Assy with Grease
6262000	Pump replacement assembly
	Heaters
8805SD	SD900 Controller Compartment Heater, 115 VAC SD900 Controller Compartment Heater, 230 VAC
5697700	Controller Compartment Lock
6611500	Gasket replacement kit-door
6611600	Gasket replacement kit-lid (fits for Controller lid and fridge lid)
6613100	Anchor kit (2 anchors)
8900SD	SD900 AWRS Controller only
	Distributor Arm Only
8563	Only for 24 bottle
8566	Only for 8 bottle
8569	Only for 2 and 4 bottle
	Manuals
DOC026.53.00799	SD900 AWRS stationary Sampler User Manual GB
DOC026.77.00799	SD900 AWRS stationary Sampler User Manual FRA
DOC026.57.00799	SD900 AWRS stationary Sampler User Manual ITA
DOC026.72.00799	SD900 AWRS stationary Sampler User Manual GER
DOC026.85.00799	SD900 AWRS stationary Sampler User Manual CZ
DOC026.90.00799	SD900 AWRS stationary Sampler User Manual POR
DOC026.92.00799	SD900 AWRS stationary Sampler User Manual ES
DOC026.94.00799	SD900 AWRS stationary Sampler User Manual TRK

Appendices



Accessories

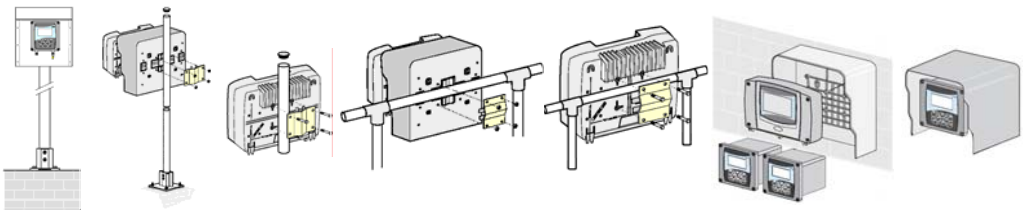
Mounting Assemblies and sc Accessories



Accessories

for sc controllers

Part No.	Designation
	sc60/100 Mounting Hardware
LZX997	Pole Mounting Assembly Kit, for sc60/100, pk/1 complete Mounting Hardware Kit, incl. Pole 1.8 m, Socket, Weather guard for outdoor installation
LZX961	Weather guard for sc60/100 Outside Installation, made of CPVC, pk/1
LZX958	Weather guard for sc1000 Outside Installation, made of CPVC, pk/1 (also suitable for 2x sc60/100 controllers)
6894000	Bench Top Stand, for sc60/100 in Lab, pk/1 (powder coated steel)
	Recommended Accessories for sc60/100
LZX887	Interface cable MSV RS232 for sc60/sc100 for installation of software UpDates and Readout of Datalogger and Events
	sc1000 Mounting Hardware
LZX957	Pole Mounting Assembly Kit, for sc1000, pk/1 complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation
LZX958	Weather guard for sc1000 Outside Installation, made of CPVC, pk/1 (also suitable for 2 x sc100 controllers)
LZX355	Wall mounting kit
	Recommended Accessories for sc1000
LZX998	Interface cable for sc1000, EtherNet Cross over, 2 m, pk/1 for Software UpDates and Readout of Datalogger and Events



A B C D E F G

The sc60/100 and sc1000 controllers are suitable for wall, pipe and hand rail mounting.
The sc60/100 can be mounted in addition to a panel.
The weather guard is essential for outside installation.
For installation close to the analyzer and no other mounting option is possible, we recommend our Pole Mounting assembly kit LZX997 respectively LZX957.

A sc60/100 Pole Mounting Assembly Kit complete
B sc1000 Pole Mounting Assembly Kit complete (with weather guard)
C sc1000 installation scheme; connection to a pole (without weather guard)
D sc1000 installation scheme; connection to a handrail with weather guard
E sc1000 installation scheme; connection to a handrail without weather guard
F sc1000 wall mounting installation scheme using weather guard (also suitable for 2 sc100 controllers)
G sc100 wall mounting installation scheme using weather guard

Accessories

sensor and controller cables & wires

Part No.	Designation		
	Digital extension cable (between sc controller and probe)		cable diameter
LZX847	Digital Extension Cable, with molded plug and coupling, 0.35 m		6.8 mm Ø
LZX848	Digital Extension Cable, with molded plug and coupling, 5 m		6.8 mm Ø
LZX849	Digital Extension Cable, with molded plug and coupling, 10 m		6.8 mm Ø
LZX850	Digital Extension Cable, with molded plug and coupling, 15 m		6.8 mm Ø
LZX851	Digital Extension Cable, with molded plug and coupling, 20 m		6.8 mm Ø
LZX852	Digital Extension Cable, with molded plug and coupling, 30 m		6.8 mm Ø
LZX853	Digital Extension Cable, with molded plug and coupling, 50 m		6.8 mm Ø
LZY339	Digital Extension Cable, without plug and coupling, 100 m[1]		6.8 mm Ø
LZY340	Digital Extension Cable, without plug and coupling, 200 m[1]		6.8 mm Ø
LZY359	Digital Extension Cable, without plug and coupling, 400 m[1]		6.8 mm Ø
LZX971	sc sensor plug, 5 pin, IP67, for cable Ø 6–8 mm, pk/1		
LZX972	sc sensor coupling, 5 pin, IP67, for cable Ø 6–8 mm, pk/1		
5867000	Termination Box Assembly	(for use with sc60/100 only - do not use with sc1000)	

Note: [1] For further information please refer to DataSheet DOC053.22.00131

	sc Controller cable		
LZY488	sc bus cable, 2 x 0.64 mm, AWG 22/1 (black)	suitable for outdoor use	per m
LZY489	sc bus cable, 2 x 0.64 mm stranded, AWG 24/19 (violet) recommended for drag chain applications	suitable for outdoor use	per m
LZX998	Interface cable, Cross over, for sc1000, pk/1 for installation of software UpDates and Readout of Datalogger and Events		
LZX887	Interface cable MSV RS232 for sc60/sc100 for installation of software UpDates and Readout of Datalogger and Events		
LZX918	sc 1000-bus plug, pk/1		

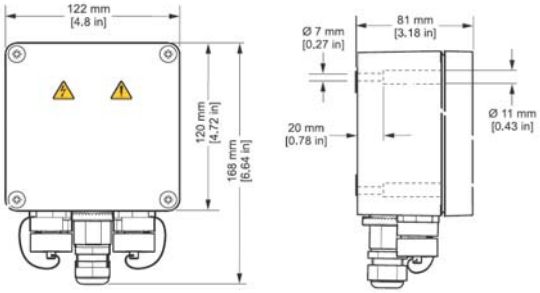
sc Accessories

Power Box for Amtax/Phosphax sc (DataSheet DOC273.52.00161)

The Power connection box has been developed to supply up to 2 sc Analyzers with power.

Now it is possible to connect up to 4 sc Analyzers to 1 sc1000 Probe module, providing more flexibility and reducing investment costs.

The power cable can be extended up to 7 m in total by using the extension power cable LZY431.



Technical Data

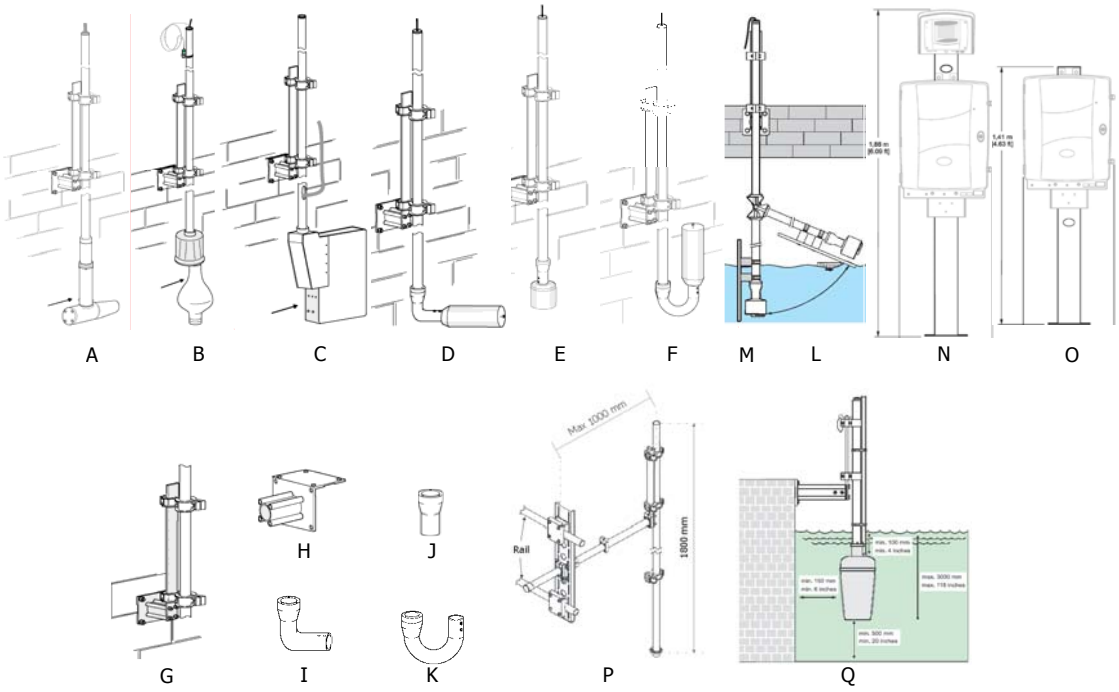
Subject to change without notice

	Power connection Box for sc Analyzers
Designation	Additional Power supply for AMTAX/PHOSPHAX sc Analyzers
Special Note:	One sc 1000 Probe Module can support a maximum of 4 AMTAX/PHOSPHAX sc analyzers.
Mounting	Wall, pole or rail (with included mounting kit LZQ059): Ø 35 mm (1.38 in.)–55 mm (2.17 in.)
Cable feed-through	Strain relief: water resistant: 8–13 mm (0.3–0.5 Conduit: ½" Wire: max. 1,5 mm² (AWG 16)
Temperature	
Ambient temperature	–20 °C to +45 °C (–4 °F to +113 °F); 95% relative humidity, non-condensing
Power supply	100–240 VAC, + 10%–15%; 50/60 Hz; max. 2000 VA
Installation category	II
Pollution degree	II
Fuses	T 5 Amp (slow blow) H, 250 V (4x)
Weight	1,250 kg (44 oz)
Materials	
Housing body	Aluminum with powder coating
power cable length	7 m in total (2 m supplied with sc Analyzer + 1 Extension cable LZY431)
Enclosure rating	IP56 (with mounted covers or connectors)
Certifications	CE, GS, cTUVus
Dimensions (H x W x D)	Housing body: 168 mm x 122 mm x 80 mm (6.61 in. x 4.8 in. x 3.15 in.) Mounted: (space for the cables) x width x (space for the mounting fitting)

Part No.	**Designation**
LQV155.99.00011	Power connector box for AMTAX/PHOSPHAX sc, with EU plug incl. Mounting Kit, for rail or pole mounting used to connect 2 additional sc Analyzers to a sc1000 or to a sc100 controller
LZY431	Power Extension cable for sc1000, 5 m, 115-230 VAC limited to 1 extension cable only

Mounting Hardware & Accessories

for Probes, Analyzers and Accessories



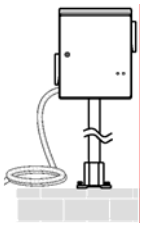
Part No.	Designation		Picture
	Mounting Assembly for Amtax sc/Phosphax sc Analysers		Picture
LZY286	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer + 1 sc 1000 controller		N
LZY287	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer		O
LZY285	Rail mounting kit, for Amtax sc/Phosphax sc analyzer + 1 sc1000 controller		
LZY316	Rail mounting kit, for Amtax sc/Phosphax sc analyzer w/o controller		
	Mounting Assembly for Submersion probes (DOC273.98.03412)		
LZX414.00.00000	Rim mounting kit, for SIGMATAX, VOLITAX, pk/1	without adapter	A,B
LZX414.00.40000	Rim mounting kit, for FILTRAX probe, pk/1	without adapter	C
LZX414.00.50000	Rim mounting kit, for sc Filter probe, pk/1		Q
LZX414.00.60000	Rail mounting kit, for sc Filter probe, pk/1		P
LZX414.00.10000	NITRATAX, UVAS, SOLITAX	incl. 90° adapter	D
LZX414.00.30000	for Special applications	incl. 360° adapter	F
LZX414.00.80000	NH4D sc		
LZX914.99.12400	NH4D sc Chain Mounting Kit, made of PVC		
LZX414.00.70000	SONATAX sc - Tank rim fixing		
LZX414.00.71000	SONATAX sc - Pivot Mounting, 1m pipe		
LZX414.00.72000	SONATAX sc - Pivot Mounting, 0.35m pipe		
LZX414.00.73000	SONATAX sc - Rail mounting assembly, made of SS	see note 2	
LZX414.00.74000	SONATAX sc - Scraper bridge mounting assembly	see note 2	

Note: [2] Requires LZX414.00.70000, LZX414.00.71000 or LZX414.00.72000 in addition

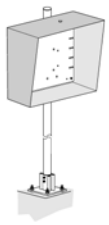
Mounting Hardware & Accessories

for Probes, Analyzers and Accessories continued

Part No.	Designation	
	Optional Accessories for submersion probes	
LZY413	Extension pipe, 1.0 m, made of SS	(new flange design)
LZY414	Extension pipe, 1.8 m, made of SS	(new flange design)
LZX456	Second fastening point (in case of vibrations) Mounting Kit, made of Stainless steel, consisting of: Controller Pipe bracket (ATS010), Probe pipe stand (HPL061), Mouting brackets (LZX200) (2x), Accessories Installation Kit for probes (LZX416)	G
ATS011	90° Base (Controller & probe pipe bracket)	H
	Swivel Mounting	
LZX514	Swivel	
LZX515	Impact protection	M
	Probe adapters for submersion probes	
AHA034	Probe adapter 90°	I
AHA033	Probe adapter 180°	J
BRO065	Probe adapter 360°	K
LZX417	Set of small parts for probe mounting	
	Other Controller Mounting Hardware (DataSheet DOC273.98.03412)	
LZX676	FILTRAX control unit Mounting Kit, complete kit	
LZX413	Display Unit Mounting Kit, for MULTI UNIT, MULTI UNIT plus, SONATAX (plus), Radio transmission Complete Mounting Kit, made of Stainless steel, consisting of: Controller Pipe bracket (ATS010), Weather guard and - insert (HPP440), Mounting pipe (HRO304) (1.8m), Accessories Installation Kit for probes (LZX415)	



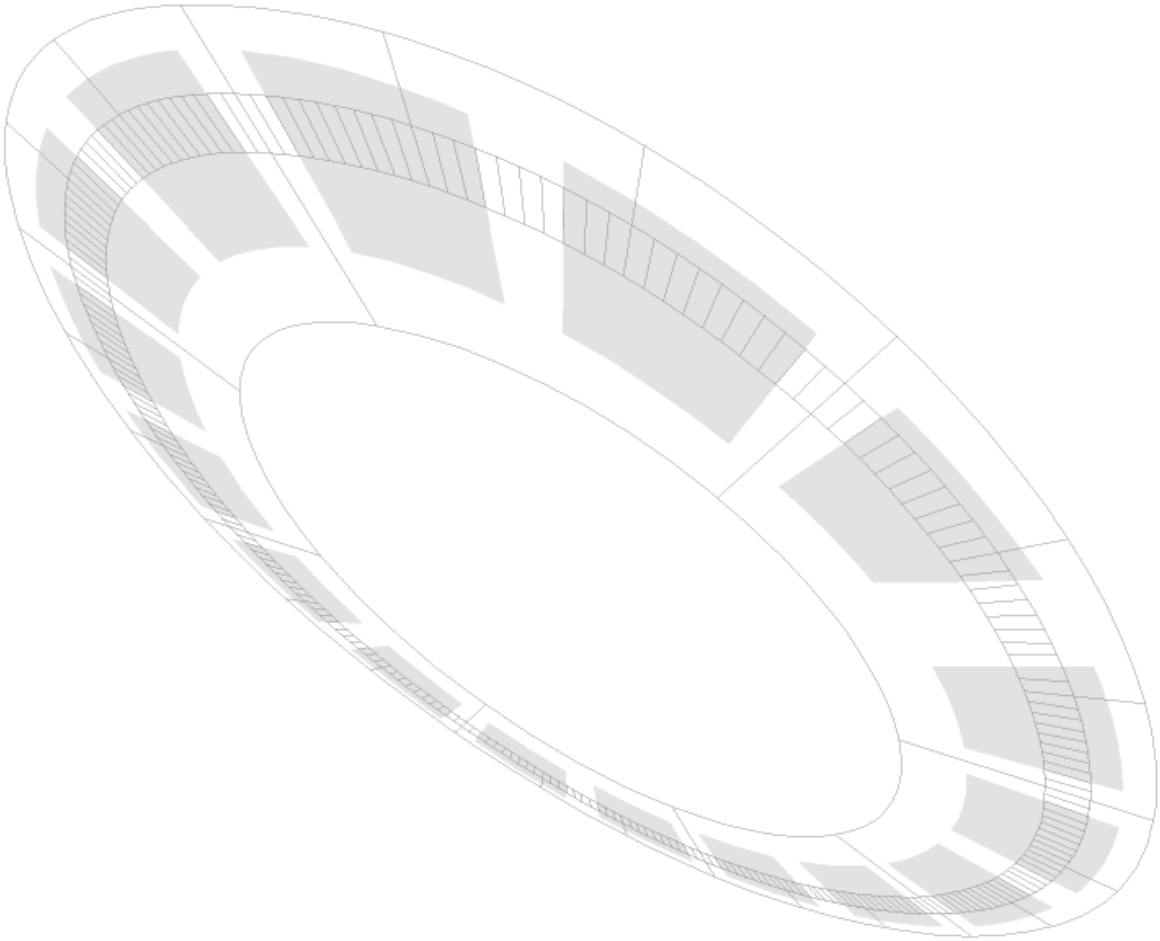
LZX676



LZX413

Appendix B

Process Instrument Reagents & Consumables



Appendix B

Process Reagents & Consumables

Part No.	Designation	
Alkalinity		
	HACH APA 6000	
6001000	Alkalinity Reagent Set, suitable for 30 days operation	
	the following items are essential for operation and must be ordered separately	
2826153	APA Alkalinity Reagent 1, Acid Titrant, 0.08 Mol H2SO4	1 L bottle
2696653	APA Alkalinity Reagent 2, Mixed Indicator, pH 4.5 & pH 8.3	1 L bottle
2697053	APA Alkalinity Acidic Cleaning Solution	1 L bottle
6001100	Alkalinity Standard Set, for 30 days operation	
	includes a 1-L bottle of each (items are also available individually for purchase)	
2696753	Alkalinity Standard 1; 0 mg/l as CaCO3	1 L bottle
2826253	Alkalinity Standard 2, 500 mg/l as CaCO3	1 L bottle
	Optional Reagents & accessories for APA6000:	
2697053	Alkalinity Wash Solution	1 L bottle
2697453	APA6000 Cleaning Solution Detergent solution for the elimination of air bubbles. This solution is sometimes used instead of the cleaning solution for the analyser.	1 L bottle
5104000	APA6000 Installation Kit	
5129100	APA6000 Toolkit	
Ammonium		
	AMTAX (discontinued instrument version)	
LCW811	Cleaning solution	
LZP353	Set of wearing parts	
	AMTAX Inter/ AMTAX Inter2 (discontinued instrument)	
LCW802	Reagent Set, complete for AMTAX inter/2 suitable for 2 month operation in 10 min measuring interval consisting of BCF504, BCF505, BCZ802, 1 each	
BCF504	Reagent A for AMTAX inter/2 (5,2 L)	
BCF505	Reagent B for AMTAX inter/2 (5,2 L)	
BCZ802	AMTAX/AMTAX inter/2 Additives for LCW802	
LCW804	Zero Solution for AMTAX inter/2 (5,2 L)	
LCW862	Calibration solution, 0.5 mg/l NH4-N (1,0 L)	for AMTAX/AMTAX inter/2
LCW803	Calibration solution, 5 mg/l NH4-N (5,2 L)	for AMTAX/AMTAX inter/2
LCW808	Calibration solution, 35 mg/l NH4-N (5,2 L)	for AMTAX/AMTAX inter/2
LCW819	Cleaning solution, 250 mL	for AMTAX/AMTAX inter/2
LZP376	Set of wearing parts (1 year), for AMTAX inter (instrument version LPG301)	
LZV281	Set of wearing parts (1 year) (1 channel), for AMTAX Inter 2	
LZV278	Set of wearing parts (1 year) (2 channel), for AMTAX Inter 2, requires LZV281 in addition!!	
	AMTAX compact (discontinued instrument)	
LCW830	Expulsion solution (for use in all measuring ranges)	
LCW831	Indicator solution (for measuring range 0.2 - 12 mg/l)	
LCW832	Indicator solution (for measuring range 2.0 - 120 mg/l)	
LCW833	Indicator solution (for measuring range 20 - 1,200 mg/l)	
LCW829	Standard solution, 2 mg/l NH4-N	
LCW837	Standard solution, 5 mg/l NH4-N	
LCW806	Standard solution, 10 mg/l NH4-N	
LCW807	Standard solution, 50 mg/l NH4-N	
LCW838	Standard solution, 50 mg/l NH4-N	
LCW839	Standard solution, 500 mg/l NH4-N	
LZV149	Set of wearing parts for 1 year (1 channel instrument)	
LZV184	Set of wearing parts for 1 year (2 channel instrument), requires LZV149 in addition!!	

Appendix B

Process Reagents & Consumables

Part No.	Designation

Ammonium continued

AMTAX sc

LCW865	Reagent Set AMTAX sc with Standard solution set, MR1: 0.05 … 20 mg/l NH4-N
	consisting of
BCF1009	AMTAX sc reagent, 2.5 l (for all measuring ranges)
BCF1010	Calibration Standard, 1mg/l NH4-N, 2l MR1: 0.05 … 20 mg/l NH4-N
BCF1011	Calibration Standard, 10mg/l NH4-N, 2l MR1: 0.05 … 20 mg/l NH4-N
LCW871	Reagent Set AMTAX sc with Standard solution set, MR2: 1.0 … 100 mg/l NH4-N
	consisting of
BCF1009	AMTAX sc reagent, 2.5 l (for all measuring ranges)
BCF1020	Calibration Standard, 10mg/l NH4-N, 2l MR2: 1.0 … 100 mg/l NH4-N
BCF1021	Calibration Standard, 50mg/l NH4-N, 2l MR2: 1.0 … 100 mg/l NH4-N
LCW866	Reagent Set AMTAX sc with Standard solution set, MR3: 10 … 1,000 mg/l NH4-N
	consisting of
BCF1009	AMTAX sc reagent, 2.5 l (for all measuring ranges)
BCF1012	Calibration Standard, 50mg/l NH4-N, 2l MR3: 10 … 1,000 mg/l NH4-N
BCF1013	Calibration Standard, 500mg/l NH4-N, 2l MR3: 10 … 1,000 mg/l NH4-N

Note: Reagent Sets are suitable for 3 month operation in 5 min, 6 month in 10 min and 12 month in 20 min Measuring interval

LZY464	AMTAX sc - wearing part set, (1st year in operation), 10 min Meas. Interval
LZY465	AMTAX sc - wearing part set, (2nd year in operation), 10 min Meas. Interval
LCW868	Set of electrolyte (3 x Electrolyte + 3 x membrane caps)
LCW867	Cleaning solution AMTAX sc (250 mL)
LZY069	GS electrode AMTAX sc
LZY181	Pump head for air pump 10 mL

NH4D sc

6188400	NH4D sc sensor cartridge, factory calibrated (replacement)
6188300	Test cartridge (for "NH4D sc sensor function test")

Reference Laboratory system for Process Calibration/Verification purpose

LZY571	Pocket Colorimeter II - LCK Ammonia - Validation Kit for NH4D sc
	LZY571 is a bundle which consist out of LCK-on-pocket "Ammonia-kit" P/N 5653000V.01), 1 box of LCK303, 1 box LCK304, pipettor, tips, filtration cartridges, cuvette stand etc Please refer to DOC012.98.90071 for further information.

Appendix B

Process Reagents & Consumables

Part No.	Designation
Disinfectants	
	CL17
2556900	Reagent Set, Chlorine free, suitables for 1 month operation consisting of 2297255, 2314011, 2314111 (1 each)
2557000	Reagent Set, Chlorine free, suitables for 1 month operation consisting of 2297255, 2263411, 2263511 (1 each)
2297255	DPD indicator powder (free + total), 24g
2314011	Indicator solution, Chlorine free, 473 ml
2314111	Butter solution, Chlorine free, 473 ml
2263411	Indicator solution, Chlorine total, 473 ml
2263511	Buffer solution, Chlorine total, 473 ml
5444300	Maintenance Kit, for 1 year operation
5516400	Installation Kit Cl17/SP510
	CP-1 (discontinued instrument)
LCW800	Sulfuric acid 95-97 %, 125 ml
LCW801	DPD-sulfate, set of 6 bottles
	9184 sc and MONEC9184 (Free Chlorine and TFC)
Z09184=A=3500	Membranes for 9184 sensors, pre-mounted, set of 4
Z09184=A=3600	Electrolyte Filling solution, 100ml
Z09184=A=1000	Replacement electrode with membranes, for the 9184/9184sc composed of Z09184=A=1001 + Z09184=A=3500
Z09184=A=1001	Replacement electrode for the 9184/9187/9184sc/9187sc (bare electrode)
	9187 sc and MONEC9187 (Chlorinedioxide)
Z09187=A=3500	Membranes for 9187 sensors, pre-mounted, set of 4
Z09187=A=3600	Electrolyte Filling solution, 100ml
Z09184=A=1000	Replacement electrode with membranes, for the 9184/9184sc composed of Z09184=A=1001 + Z09184=A=3500
Z09184=A=1001	Replacement electrode for the 9184/9187/9184sc/9187sc (bare electrode)
	9185 sc and MONEC9185 (Ozone)
Z09185=A=3500	Membranes for 9185 sensors, pre-mounted, set of 4
Z09185=A=3600	Electrolyte Filling solution, 100ml
Z09185=A=1000	Replacement electrode for the 9185/9185 sc (bare electrode)
	General Spare parts for 918X Amperometric Disinfectant sensors
Z09184=C=4100	Replacement probe body for Clark Cell (918X sensors, except 9181)
Z09184=C=1030	Electrolyte Filling screw for 918X sensors
Z560150,21957	Syringe, for electrolyte re-filling

Appendix B

Process Reagents & Consumables

Part No.	Designation	
E-Chem - pH & ORP		
	pH Standard solutions - Technical Standard solutions	
Z363130,00500	Buffer solution pH 4.00, 500 ml	NIST trabeable
Z363131,00500	Buffer solution pH 6.88, 500 ml	NIST trabeable
Z363132,00500	Buffer solution pH 9.22, 500 ml	NIST trabeable
2283449	pH 4.00, 500 ml	NIST traceable, color coded red
2283456	pH 4.00, 4000 ml	NIST traceable, color coded red
2283461	pH 4.00, 20 l	NIST traceable, color coded red
2283549	pH 7.02, 500 ml	NIST traceable, color coded yellow
2283556	pH 7.02, 4000 ml	NIST traceable, color coded yellow
2283561	pH 7.02, 20 l	NIST traceable, color coded yellow
2283649	pH 10.05, 500 ml	NIST traceable, color coded blue
2283656	pH 10.05, 4000 ml	NIST traceable, color coded blue
2283661	pH 10.05, 20 l	NIST traceable, color coded blue
	ORP Reference Solutions	
25M2A1001-115	200 mV, 500 ml	
25M2A1001-123	200 mV, 3500 ml	
25M2A1002-115	600 mV, 500 ml	
25M2A1002-123	600 mV, 3500 ml	
	pH & ORP Replacements	
	pHD S sc probe	
SB-R1SV	Replacement Saltbridge for pHD S sc Sensor	
5H1304	Replacement Salt Bridge Viton O-ring	
25M1A1025-115	Standard Cell Solution for pHD sensors (equitransferrant pH7 buffer), 500 ml	
	pHD sc and pHD probes	
SB-P1SV	Replacement Saltbridge for pHD sensors with PEEK body material	
SB-R1SV	Replacement Saltbridge for pHD sensors with RYTON body material	
5H1304	Replacement Salt Bridge Viton O-ring	
5H1306	Replacement Salt Bridge EDPM O-ring	
5H1096-019	Replacement Salt Bridge perfluoroelastomer O-ring (for HF resitant pHD sensors)	
25M1A1025-115	Standard Cell Solution (equitransferrant pH 7 buffer, 500 ml)	
1000A3378-001	Protective Replacement Cap for Insertion and Sanitary Style pHD sc and pHD Sensors (Replacement)	
	1200 pH S sc probes	
LZX889	pH electrode with fitting for 1200-S sc (replacement)	
LZX890	ORP electrode with fitting for 1200-S sc (replacement)	

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Process Reagents & Consumables

Part No.	Designation		
E-Chem - Conductivity			
	Conductivity Standard Solution		
C20C280	0.001 M KCl, 148 µS/cm @ 25 °C	500 ml bottle	
C20C270	0.01 M KCl, 1413 µS/cm @ 25 °C	500 ml bottle	
C20C250	0.1 M KCl, 12.88 mS/cm @ 25 °C	500 ml bottle	
25M3A2000-119	100-1000 µS/cm*	1 Liter NaCl	
25M3A2050-119	1000-2000 µS/cm*	1 Liter NaCl	
25M3A2100-119	2000-150,000 µS/cm*	1 Liter NaCl	
25M3A2200-119	200,000-300,000 µS/cm*	1 Liter NaCl	
	* For all Conductivity Reference Solutions, please specify the desired conductivity value of the solution.		
LZX985	Electrical Calibration tool for 3798-S sc		
LZY011	Electrical Calibration tool for 2200 Inductive conductivity sensor series		
E-Chem - Dissolved Oxygen			
	LANGE Process LDO™		
5791100	Replacement Sensor cap, including 1 gasket		
LZX857	Gasket for sensor cap (set of 2)		
LZH125	LDO Protection-/Calibration Cap, made of EPDM		
	5740 sc Dissolved Oxygen		
LZX772	5740 sc Digital Galvanic DO Sensor Replacement Cartridge		
276M1210	Replacement Calibration Bags for "in air"- calibration, pk/12		
	EVITA Oxy		
085G0021	OXY 1100 Oxygen Sensor, 25µm	Measuring range 0.002-2mg/l	pk/1
085G0024	OXY 1100 Oxygen Sensor, 25µm	Measuring range 0.002-2mg/l	pk/5
085G0025	OXY 1100 Oxygen Sensor, 25µm	Measuring range 0.002-2mg/l	pk/10
085G0022	OXY 1100 Oxygen Sensor, 50µm	Measuring range 1-10 mg/l	pk/1
085G0026	OXY 1100 Oxygen Sensor, 50µm	Measuring range 1-10 mg/l	pk/5
085G0027	OXY 1100 Oxygen Sensor, 50µm	Measuring range 1-10 mg/l	pk/10
085G0023	OXY 1100 Oxygen Sensor, 125µm	Measuring range 2-50 mg/l	pk/1
085G0029	OXY 1100 Oxygen Sensor, 125µm	Measuring range 2-50 mg/l	pk/5
085G0030	OXY 1100 Oxygen Sensor, 125µm	Measuring range 2-50 mg/l	pk/10
	Sensor accessories & Consumables for Ø 12 x 120 mm sensors		
	for OxyGold sensors		
LZY073	Membrane Replacement Kit for OxyGold D.O. sensors consting of: 3 membrane heads, 3 O-rings (EDPM)		
LZY074	OxyLyte G - Filling solution for OxyGOLD sensor series, 50 ml		
LZY081	Polarisation Module "G" for D.O. sensor models OxyGOLD G and OxyFERM, pk/1 not suitable for OxyGold B, because of different Polarisation Voltage		
	for OxyFerm sensors		
LZY076	Membrane Replacement Kit for OxyFerm D.O. sensors including 3 Membrane heads, 3 O-rings (EDPM), Electrolyte filling solution 20ml, 1 pipette		
LZY077	OxyLyte - Filling solution for OxyFerm sensor, 50 ml		
LZY081	Polarisation Module "G" for D.O. sensor models OxyGOLD G and OxyFERM, pk/1		

Note: For replacement sensors, please refer to the chapter E-Chem Dissolved Oxygen Ø12mm sensors

Appendix B

Process Reagents & Consumables

Part No.	Designation		
Hardness			
	Reagents for APA6000 Low Range Analyser		
6001900	Reagent Set, APA 6000 LR Hardness Analyzer (suitable for 1 month operation) includes a 1 l bottle of each		
2695853	APA Reagent 1 HARDNESS Calmagite Indicator Solution, 1L		
2695753	APA Reagent 2 HARDNESS Buffer Solution, 1L		
2876453	APA Acidic Washing solution, Surfactants, 1L		
6002000	Standard Set, APA 6000 LR Hardness Analyzer (suitable for 1 month operation) includes a 1-L bottle of each		
2696253	APA Standard 1, LR Hardness, 0 mg/L, 1L		
2696353	APA Standard 2, LR Hardness, 5 mg/L, 1L		
2697453	APA6000 Cleaning Solution Detergent solution for the elimination of air bubbles. This solution is sometimes used instead of the cleaning solution for the analyser.		1 L bottle
	Reagents for APA6000 High Range Analyser		
6002100	Reagent Set, APA 6000 HR Hardness Analyzer (suitable for 1 month operation) includes a 1 l bottle of each		
2793553	Reagent 1, APA HR Hardness, Masking Solution, 1L		
2793600	Reagent 2 Kit, APA HR Hardness, Titration Indicator, solution and powder		
2793753	Reagent 3, APA HR Hardness, Titrant, 1 L		
2876453	APA Acidic Washing solution, Surfactants, 1L		
6002200	Standard Set, APA 6000 HR Hardness Analyzer (suitable for 1 month operation) includes a 1 l bottle of each		
2793253	APA Standard 1, HR Hardness, 0 mg/L, 1L		
2793353	APA Standard 2, HR Hardness, 1000 mg/L, 1L		
2697453	APA6000 Cleaning Solution Detergent solution for the elimination of air bubbles. This solution is sometimes used instead of the cleaning solution for the analyser.		1 L bottle
	HACH Hardness-Monitor SP510		
2768549	Buffer Solution, 0.3, 1, 2, 5 mg/L Hardness	500 ml	(suitable for 2 month operation)
2768649	Buffer Solution, 10 mg/L Hardness	500 ml	(suitable for 2 month operation)
2768749	Buffer Solution, 20 mg/L Hardness	500 ml	(suitable for 2 month operation)
2768849	Buffer Solution, 50 mg/L Hardness	500 ml	(suitable for 2 month operation)
2768949	Buffer Solution, 100 mg/L Hardness	500 ml	(suitable for 2 month operation)
2794649	Indicator Solution, 0,3 mg/L Hardness	500 ml	(suitable for 2 month operation)
2769049	Indicator Solution, 1,0 mg/L Hardness	500 ml	(suitable for 2 month operation)
2769149	Indicator Solution, 2,0 mg/L Hardness	500 ml	(suitable for 2 month operation)
2769249	Indicator Solution, 5 to 100 mg/L Hardness	500 ml	(suitable for 2 month operation)
5516500	Maintenance Kit, 1 year		
	Hydrastat 9186		
2834453	Diisopropylamine, 99%, 1l Diisopropylamine is a Dual use reagent and requires special licence by non-EU purchasers. (CoO = Europe) Monoethylamine, Diethylamine or Ammonia can be also used; please refer to the instrument manual.		
Z09186=A=8000	Spare-parts kit for 2 years for Hydrastat 9186 composed of : 6 x filters, 1 x reference electrode, 1 x venturi injection nozzle, 7 x plastic beads, 6 meters of 4 x 6mm PE tubing		

Appendix B

Process Reagents & Consumables

Part No.	Designation	
Nitrate		
	NITRAX / NITRATAX / NITRATAX sc	
LZX148	Set of wiper blades 1 mm, pk/5	
LZX012	Set of wiper blades 2 mm, pk/5	
LZX117	Set of wiper blades 5 mm, pk/5	
LCW828	Standard solution 25 mg/l NO3-N	500 ml
LCW825	Standard solution 50 mg/l NO3-N	1000 ml
LCW826	Standard solution 100 mg/l NO3-N	500 ml
LCW827	Standard solution 200 mg/l NO3-N	500 ml
BCF398	Cleaning solution, Hydrochlorid acid 25%	1000 ml
Organic matter / SAC		
	UVAS / UVAS sc	
LZX148	Set of wiper blades 1 mm, pk/5	
LZX012	Set of wiper blades 2 mm, pk/5	
LZX117	Set of wiper blades 5 mm, pk/5	
LZX119	Set of wiper blades 20/50 mm, for UVAS, pk/5	
ortho-Phosphate		
	PHOSPHAX (LPG277) - discontinued instrument model	
LCW805	Reagent for PHOSPHAX (10 L)	
LCW809	Standard solution 1 mg/l PO4-P (1 L)	
LCW810	Standard solution 10 mg/l PO4-P (1 L)	
LCW811	Cleaning solution (250 mL)	
LZP347	Set of wearing parts PHOSPHAX (LPG277)	
	PHOSPHAX compact - discontinued instrument model	
LCW834	Reagent for PHOSPHAX compact 0.2 - 10 mg/l PO4-P (2,5 L)	
LCW836	Cleaning solution for PHOSPHAX compact (2,5 L)	
LZV150	Set of wearing parts for 1 year (1 channel instrument)	
LZV184	Set of wearing parts for 1 year (2 channel instrument) - requires LZV149 in addition	
	PHOSPHAX inter / PHOSPHAX inter2 - discontinued instrument model	
LZP411	Set of wearing parts for PHOSPHAX inter	
LCW820	Reagent for PHOSPHAX inter/inter2 (10L)	
LCW821	Cleaning solution for PHOSPHAX inter/inter2 (10 l)	
LZV282	Set of wearing parts for one year (1 channel instrument)	
LZV280	Set of wearing parts for one year (2 channel instrument) - requires LZV282 in addition	
	PHOSPHAX sc	
LCW869	Reagent Set PHOSPHAX sc (2 L) for all measuring ranges	
LCW870	Cleaning solution PHOSPHAX sc (1 L) for all measuring ranges	
LZY466	PHOSPHAX sc - wearing part set, (1st year in operation), 10 min Meas. Interval	
LZY467	PHOSPHAX sc - wearing part set, (2nd year in operation), 10 min Meas. Interval	

Appendix B

Process Reagents & Consumables

Part No.	Designation

ortho-Phosphate continued

HACH Serie 5000

4563300	Phosphate LR Reagent Set, S5000 (suitable for 1 month operation) Reagent set consisting of
2375503	Anionic Surfactant Solution, 2.9 l
2600303	Acsorbic Acid Reagent package
2599803	Molybdate Reagent Solution for LR, 2.9 l
2059703	Phosphate Standard Solution, 3 mg/l, 2.9 l
2600103	Phosphate Zero Standard Solution, 2.9l
	Phosphate HR Reagent Set, S5000 (suitable for 1 month operation) the following items are essential for operation and must be ordered separately
1420703	Molybdovanadate Reagent, 2.9 l
244903	Sulfuric Acid Standard Solution, 2.9 l
1436703	Phosphate Standard Solution, 30 mg/l, 2.9 l
2375503	Anionic Surfactant Solution, 2.9 l
4698133	Annual Maintenance Kit, Series 5000 Phosphate analyser, low range
4698100	Annual Maintenance Kit, Series 5000 Phosphate analyser, high range

Phosphamat 9211

Z09211=C=7000	Blue Method - Set of dry chemicals, 0-5ppm, except H2SO4 (45 days operation)
Z09211=C=7001	Yellow Method - Set of dry chemicals, 0-50ppm, except H2SO4 (45 days operation)
	Sulfuric Acid is essential for operation and must be purchased locally in the market. 500 ml will be required for preparation of 2 l Reagent 1.
97949	Sulfuric acid, concentrated, ACS grade, 500 ml
Z09210=A=8000	2-years-spare part kit

Total / ortho-Phosphate

PHOSPHAX sigma

LCW823	Reagent Set for PHOSPHAX Σ (suitable for 3 Month operation) consisting of BCF689, BCF822, BCF691, BCF692 and BCZ824, 1 each
BCF689	Reagent A for PHOSPHAX Σ and TOCTAX (5.2 l)
BCZ822	Aditives for LCW823 Reagent A
BCF691	Reagent C for PHOSPHAX Σ (5.2 l)
BCF692	Reagent D for PHOSPHAX Σ (5.2 l)
BCZ824	Additives for LCW823 reagent D for PHOSPHAX Σ
LCW824	Calibration solution, 2 mg/l PO4-P for PHOSPHAX Σ
LZP959	Set of wearing parts for PHOSPHAX S (1 year)

Appendix B

Process Reagents & Consumables

Part No.	Designation
Sodium	
	Sodimat 9073 - discontinued instrument
2834453	Diisopropylamine, 99%, 1l Diisopropylamine is a Dual use reagent and requires special licence by non-EU purchasers. (CoO = Europe) Monoethylamine, Diethylamine or Ammonia can be also used; please refer to the instrument manual.
2835153	Sodium Standard, 10 mg/l as Na+, 1l
2834253	Sodium Standard, 100 mg/l as Na+, 1l
Z09073=A=0750	All equipped cartridge (from fittings to mixed-bed resin)
Z09073=A=8000	9073 Maintenance Kit for 2 years operation
Z125=010=004	Measuring electrode
Z125=020=003	Reference electrode
Z09073=C=0035	Temperature sensor
Z359016,10105	Connection cable, Reference electrode (1m), AS7 connector
Z359016,10111	Connection cable, Measuring electrode (1m), AS9 connector
Z363140,00500	KCL Filling solution, 3 M, 500 ml
	Sodimat 9240/9245
2834453	Diisopropylamine, 99%, 1l Diisopropylamine is a Dual use reagent and requires special licence by non-EU purchasers. (CoO = Europe) Monoethylamine, Diethylamine or Ammonia can be also used; please refer to the instrument manual.
2835153	Sodium Standard, 10 mg/l as Na+, 1l
2834253	Sodium Standard, 100 mg/l as Na+, 1l
Z09240=A=8000	1 year spare part kit for 9245-9240 (all ranges)
Z09240=A=8010	Kit for Instrumentation Technicians on 9245 - 9240
Silica	
	Silkostat 9210
Z09210=C=7010	Set of dry chemicals for 50 days operation
97949	Sulfuric Acid is essential for operation and must be purchased locally in the market. alternatively consider LCW800. 25 ml will be required for preparation of 2 l Reagent 1. Sulfuric acid, concentrated, ACS grade, 500 ml
Z09210=A=8000	2-years-spare part kit
Z09210=A=8012	9210 Instrument Tech spare part kit (for models with S/N > than XXX)
Z09210=A=8010	9210 Instrument Tech spare part kit (for models with S/N < than XXX)
	HACH Serie 5000/Modell 60001
	Silica Reagent Set, S5000 (suitable for 1 month operation) the following items are essential for operation and must be ordered separately
199503	Molybdate 3 reagent, 2.9 l
2347003	Citric Acid Surfactant, 2.9 l
2353103	Amino Acid F Reagent, 2.9 l
2100803	Silica Standard Solution, 0.50 mg/L, 2.9 l
4698100	S5000 Silica, Annual Maintanance Kit

Appendix B

Process Reagents & Consumables

Part No.	Designation
Sludge level	
	SONATAX sc
LZX328	Set of wiper blades (for 5 changes)
LZY344	wiper arm, magnetic driven
LZY345	Adjusting screw for wiper arm
	SONATAX - discontinued instrument
LZX328	Set of wiper blades (for 5 changes)
Suspended Solids	
	Please refer to Turbidity & Supended Solids
TOC - Total Organic Carbon	
	TOCTAX
LCW841	Absorption Solution for TOCTAX, 400 ml (suitable for 2 month operation)
LCW840	Reagent set for TOCTAX (suitable for 2 month operation) consisting of BCF869, BCZ822 and BCF851, 1 each
BCF689	Reagent A for PHOSPHAX sigma and TOCTAX (5,2 L)
BCZ822	Aditives for LCW823 reagent A (P.sigma/TOCTAX)
BCF851	Reagent B for TOCTAX (5,2 L)
LCW844	Standard solution, 10 mg/l C, 1 l
LCW842	Standard solution, 25mg/l C, 1 l
LCW843	Standard solution, 100mg/l C, 1 l
LCW845	Standard solution, 200 mg/l C, 1 l
LCW848	Standard solution, 100mg/l C for TOCTAX 1000 (1 L)
LCW846	Standard solution, 500 mg/l C, 1 l
LCW847	Standard solution, 800 mg/l C, 1 l
LZV313	TOCTAX, Set of wearing parts for 1 year operation
	ASTRO UV-TOC
BCF890	Phosphoric Acid (85%), p.A., 1 l
BCF889	Sodium persulfate, p.A., 1 kg
BCF891	Potassium-Hydrogenphthalat, p.A., 50 gr.
Z200122	ASTRO TOC UV, START-UP Kit
Z200123	ASTRO TOC UV, 1 year spare parts kit
Z200124	ASTRO TOC UV, 2 year spare parts kit
Z200132	ASTRO TOC UV, FITTINGS and O-ring kit

Appendix B

Process Reagents & Consumables

Part No.	Designation

Turbidity & Suspended Solids

HACH 1720D/E

4415600	KIT, CALIBRATION CYLINDER 1720C/1720D /1720E Complete calibration set (includes a 1 L calibration cylinder, TenSette pipette and 500 ml bottle 4000 FNU formazine primary standard)
246149	Formazine Primary standard, 4000 FNU/NTU, 500ml bottle
2659600	StablCal calibration kit, < 0.1 and 20 FNU/NTU, 4 L each
2723353	StablCal standard, 0.1 FNU/NTU, 1 l
2659853	StablCal standard, 1.0 FNU/NTU, 1 l
2660153	StablCal standard, 20 FNU/NTU, 1 l
2746353	StablCal standard, 40 FNU/NTU, 1 l
5222500	ICE-PIC 0.5 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
5221500	ICE-PIC 1 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
5225000	ICE-PIC 20 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
1895000	Tungsten lamp assembly (Replacement)
4415300	1720C/D/E Calibration Cylinder assembly
4411600	Drain plug for 1720E body

FILTERTRAK FT660 and FT660sc

5236400	CALIBRATION KIT FOR FILTER TRAK FT660 including 500 ml 800 mNTU StablCal Standard, calibration cylinder and funnel
2723353	CALIBRATION KIT FOR FILTER TRAK FT660
2697953	CALIBRATION KIT FOR FILTER TRAK FT660
2698049	CALIBRATION KIT FOR FILTER TRAK FT660
2788449	CALIBRATION KIT FOR FILTER TRAK FT660
2877553	CALIBRATION KIT FOR FILTER TRAK FT660

ULTRATURB series

LZV275	Set of wiper blades for 4 changes
LCW813	Formazin Turbidity Standard, 4000 FNU, 100 ml
246149	Formazin Turbidity Standard, 4000 NTU, 500 ml
LZV325	Set of filters for zero calibration (0.2 µm diaphragm filter incl. connecting material)
LZV325	0.2 µm diaphragm filter (without accessories)
LZV451	Syringe-Calibration-Set for "Wet Calibration" using Formazine Standard

CVM - Calibration Verification module, Dry standard, for Ultraturb sc series

LZV414.00.00000	CVM standard, 0.6 NTU	with Certificate
LZV414.00.10000	CVM standard, 1.5 NTU	with Certificate
LZV414.00.20000	CVM standard, 6 NTU	with Certificate
LZV414.00.30000	CVM standard, 15 NTU	with Certificate
LZV414.00.40000	CVM standard, 25 NTU	with Certificate

SOLITAX, SOLITAX sc seriesw

LZX050	Set of wiper blades, pk/5 (made of Silicon for normal applications)
LZX578	Set of wiper blades, pk/5 (made of Viton for e.g. media containing oil)
LCW813	Formazin Turbidity Standard, 4000 FNU, 100 ml
246149	Formazin Turbidity Standard, 4000 NTU, 500 ml

Appendix B

Process Reagents & Consumables

Part No.	Designation

Sample preparation

Filtration probe sc

LZY468	Filter probe sc - wearing parts, (1st year in operation), 10 min Meas. Interval
LZY469	Filter probe sc - wearing parts, (2nd year in operation), incl. 2 Filtermodules, 10 min Meas. Interval
LZY140	Filter module for filtration probe sc, pk/1 (replacement)

Filtrax

LZX018	Set of annual consumables Including tubing set (LZX667), Filter mat set (8 pcs) LZX017, Pump rollers 2-channel (5 pcs) LZX019, pump cartridge BVQ522 and a set of small accessories.
LZX677	Filter module, pk/1
LZX675	Sample hose, 2 m unheated
LZX672	Sample hose, 10 m heated
LZX674	Sample hose, 20 m heated
LZX765	Sample hose, 30 m heated
LZX670	Filter module carrier, complete, 5 m, 230 VAC
LZX024	Compressor, complete, for Filtrax 230 VAC

Sigmatax 2

LZX376	Diaphragm compressor, typical replacement after 1½ years
LZX306	Sampling Probe Wearing Parts (for approx. 6 months)
LZX299	Air filter without fittings (for approx. 12 months)

Appendix B

Process Reagents & Consumables

Part No.	Designation	
LCW811	Cleaning solution (Sodiumhypochloride, chlorine bleach)	250 ml
BCF398	Cleaning solution, Hydrochloric acid 25%	1000 ml

Part No.	Designation	Concentration				Tolerance	Volume
LCW829	Ammonium reference standard	2 mg/l	NH4-N			± 1%	1000 ml
LCW806	Ammonium reference standard	10 mg/	NH4-N			± 3%	1000 ml
LCW807	Ammonium reference standard	50 mg/l	NH4-N			± 3%	1000 ml
LCW861	Ammonium reference standard	1000 mg/l	NH4-N				500 ml
LCW828	Nitrate reference standard	25 mg/l	NO3	5.56 mg/	NO3-N	± 1%	500 ml
LCW825	Nitrate reference standard	50 mg/l	NO3	11.3 mg/l	NO3-N	± 1%	1000 ml
LCW826	Nitrate reference standard	100 mg/l	NO3	22.6 mg/l	NO3-N	± 1%	500 ml
LCW827	Nitrate reference standard	200 mg/l	NO3	45.2 mg/l	NO3-N	± 1%	500 ml
LCW809	Phosphate reference standard	1 mg/l	PO4-P			± 3%	1000 ml
LCW810	Phosphate reference standard	10 mg/l	PO4-P			± 3%	1000 ml
LCW844	TOC reference standard	10 mg/l	C				1000 ml
LCW843	TOC reference standard	100 mg/l	C				1000 ml
LCW845	TOC reference standard	200 mg/l	C				1000 ml
LCW848	TOC reference standard	250 mg/l	C				1000 ml
LCW846	TOC reference standard	500 mg/l	C				1000 ml
LCW847	TOC reference standard	800 mg/l	C				1000 ml
LCW813	Turbidity Primary Standard	4000	FNU			± 3%	100 ml
246149	Turbidity Primary Standard	4000	FNU			± 3%	500 ml

Instrument specific Calibration standard solutions for:

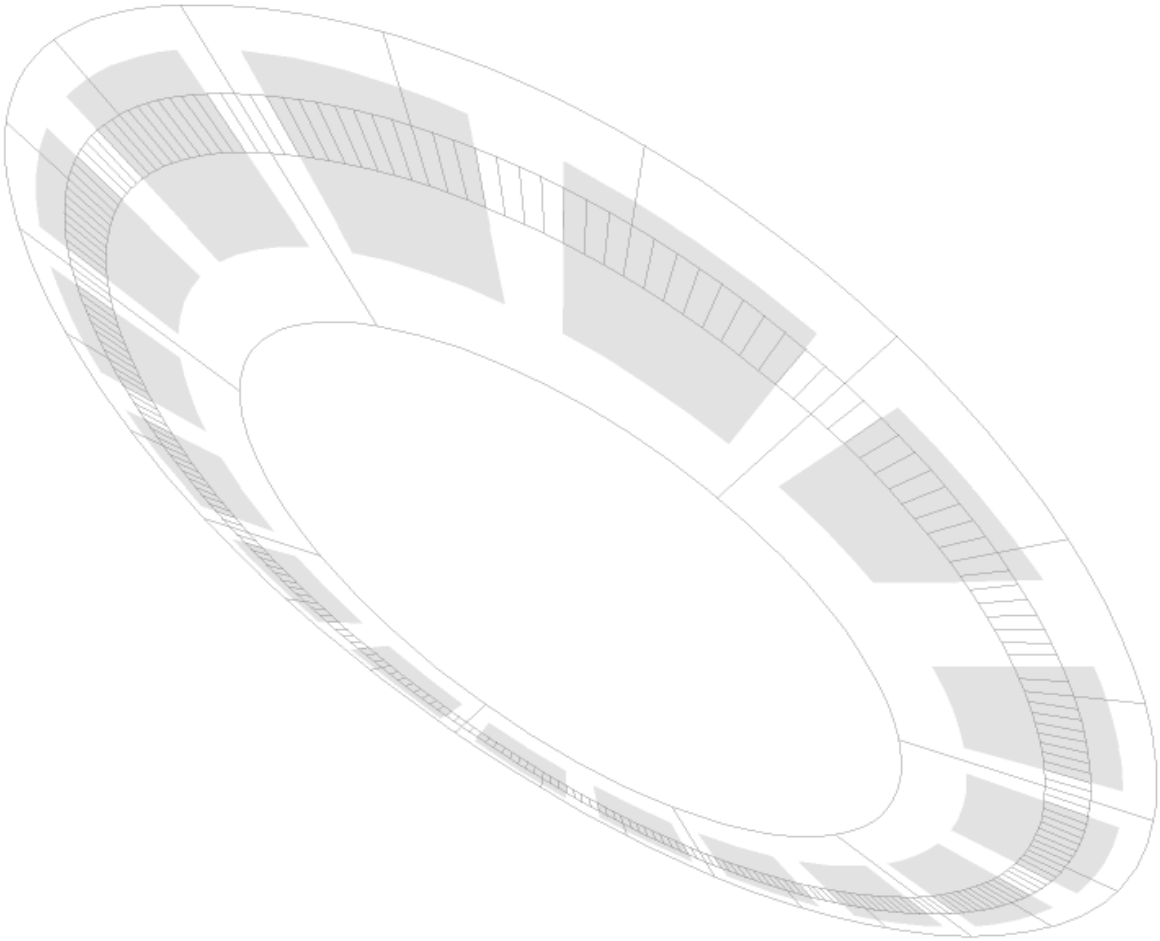
BCF1010	AMTAX sc MR I	1.0 mg/l	NH4-N				2000 ml
BCF1011	AMTAX sc MR I	10 mg/l	NH4-N				2000 ml
BCF1020	AMTAX sc MR II	10 mg/l	NH4-N				2000 ml
BCF1021	AMTAX sc MR II	50 mg/l	NH4-N				2000 ml
BCF1012	AMTAX sc MR III	50 mg/l	NH4-N				2000 ml
BCF1013	AMTAX sc MR III	500 mg/l	NH4-N				2000 ml
LCW862	AMTAX inter2 2	0.5 mg/l	NH4-N				1000 ml
LCW803	AMTAX inter2 20	5 mg/l	NH4-N				5200 ml
LCW808	AMTAX inter2 80	35 mg/l	NH4-N				5200 ml
LCW837	AMTAX compact 12	5 mg/l	NH4-N				250 ml
LCW838	AMTAX compact 120	50 mg/l	NH4-N				250 ml
LCW839	AMTAX compact 1200	500 mg/l	NH4-N				250 ml
LCW824	PHOSPHAX Σ sigma	2 mg/l	PO4-P			± 1%	500 ml
LCW842	TOCTAX	25 mg/l	C				1000 ml

AQA - Analytical Quality Assurance for Process Instruments

The objective of AQA is the rapid detection of errors, improved quality of the measured results and improved reliability. It includes both the regular inspection and maintenance of the instruments by the manufacturer, and also regular analytical quality checks by the operating organisation.
All actions and comparative measurements must be correctly documented to obtain official acceptance. An AQA folder from us will help to keep an overview, keep all documents together and help to clearly document all measured results.

Appendix C

Accessories for and Spare Part for non sc analyzers



CHLORINE

Chloromat 9184 - Amperometric Analyzer (DataSheet TE9184revD)

Chloromat 9184 HOCl version is an industrial single channel analyzer for on-line selective measurement of the Hypochlorous acid (HOCl) in the field of drinking water treatment plants, distribution networks and any other application that requires active chlorine follow-up in the range of ppb and ppm.

Measurement is done by an amperometric cell after the molecules diffused through a membrane.

Technical Data
Subject to change without notice

	9184 Free Chlorine and Total Free Chlorine Single Channel Analyzer
Application	Disinfectant control and monitoring in clean water applications
Measuring principle	Amperometric/Membrane
Measuring range	0...5 ppm (mg/l) HOCl pH: 0...12 ± 0.03 pH (for TFC model only)
Detection limit	< 10 ppb HOCl, ≈ 20 ppb Chlorine free
Repeatability HOCl	< ± 2% of measure or < ± 5 ppb
Repeatability TFC	pH < 7.5: < ± 5% of measure or < ± 10 ppb pH < 8.0: < ± 10% of measure or < ± 20 ppb pH > 8.0: < ± 15% of measure or < ± 30 ppb
Response time T_{90}	< 90 seconds
Interferences	no interferences from Chloramines Chlorine Dioxide and Ozone will be determined in addition
Calibration	Electrical zero or chemical zero with dechlorinated water; calibration of the slope by comparison with a laboratory measurement pH calibration: Single or Two Point calibration or lab method
Calibration interval	2 months (typical)
Process connection	
Installation style	Bypass with atmospheric outlet; Wall, pipe or panel mount
Sample inlet	DN 4/6 P.E tubing (4mm ID / 6mm OD)
Drain (outlet)	DN 6/8 P.E tubing (6mm ID / 8mm OD)
Sample flow	200 ... 250 ml/min (minimum); 12 ... 15 l/h recommended
Pressure range	0.1–2 bar (1.4–28 psi) inlet; flow cell pressure will be the atmospheric pressure
Temperature T_{max}	
Sample	+5°C ... +35 °C; no suspended solids
Ambient	0 to 45 °C
Temp. compensation	automatic; 0°C ... 45°C
pH requirements	4 to 8 (acidification unit available for >8 pH)
Outputs	2 x 0/4... 20mA, electrical isolation of input/output for the measure (linear or bi-linear) and/or for temperature (linear) 4 relays, 3A 240 VAC maximum(min./max., system alarm, timer) RS485 MODBUS / ProfiBus DP (optional)
Cable length	10 m
Enclosure rating	IP65 (NEMA 4)
Material	Electrode: gold cathode/silver anode Measuring cell: PVC Probe body: PVC
Power supply	100 - 240 VAC, 50/60 Hz, 90 VA (depending on model)
Dimensions Controller	144 x 144 x 150 mm (WxHxD)
Weight (approximately)	10 kg
Maintenance req.	Measurement Cell: 6 months for membrane and electrolyte, typical pH Cell: 1 to 1.5 years, typical
Remarks:	Electrodes are supplied with consumables for 2 years operation (typical use)
Warranty	24 month; extendable to 60 month

CHLORINE

Chloromat 9184 - Amperometric Analyzer (DataSheet TE9184revD)

Part No. **Designation**

Z09184=A=00XX **9184 Chloromat Free active Chlorine (HOCl)**

Z	0	9	1	8	4	=	A	=	0	0	X	X

Power Supply & Outputs options

110...240 VAC + 2 x I/0 Output	**0**	**0**
110...240 VAC + 2 x I/0 Output + RS485 MODBUS	**1**	**1**
24 VAC + 2 x I/0 Output	**2**	**0**
24 VAC + 2 x I/0 Output + RS485 MODBUS	**3**	**1**

Z09184=A=01XX **9184 Chloromat TFC/pH (HOCl + OCl^-)**

Z	0	9	1	8	4	=	A	=	0	1	X	X

Power Supply & Outputs options

110...240 VAC + 2 x I/0 Output	**0**	**0**
110...240 VAC + 2 x I/0 Output + RS485 MODBUS	**1**	**1**
24 VAC + 2 x I/0 Output	**2**	**0**
24 VAC + 2 x I/0 Output + RS485 MODBUS	**3**	**1**

Z09184=A=0XXX **9184 Chloromat TFC/Acidification (HOCl + OCl^-)**

Z	0	9	1	8	4	=	A	=	0	X	X	X

Power Supply & Outputs options

240 VAC + 2 x I/0 Output	**2**	**0**	**0**
240 VAC + 2 x I/0 Output + RS485 MODBUS	**2**	**1**	**1**
110 VAC + 2 x I/0 Output	**3**	**0**	**0**
110 VAC + 2 x I/0 Output + RS485 MODBUS	**3**	**1**	**1**
24 VAC + 2 x I/0 Output	**4**	**2**	**0**
24 VAC + 2 x I/0 Output + RS485 MODBUS	**4**	**3**	**1**

Standard accessories

Accessories: 1 start up kit including consumables for 2 years operation, 1 set of operating instructions

Consumables (for 2 years operation, typical)

Z09184=A=3500	Membranes for 9184 sensors, pre-mounted, set of 4
Z09184=A=3600	Electrolyte filling solution, 100 ml

Optional Accessories

Z09184=C=2700	Mounting plate for 9184/9185/9187 models, made of SS
Z09184=A=1700	Overflow vessel and mounting bracket for 9184 Chloromat [HOCl and TFC/pH versions] and 9185 Ozonmat
Z696=046=001	Needle valve for flow adjustment

Spare Parts / Replacements

Z09184=A=1000	9184 electrode replacement kit - Composed of 09184=A=1001 + 09184=A=3500
Z09180=A=8010	Connection cable 10 m for Clark cell (918X sensors)
Z09078=C=1010	Probe body for Clark cell (918X sensors except 9181)
Z09184=C=1030	Electrolyte filling screw for 918X sensors
Z359072,00120	Black nut maintain 918X electrodes in probe body (PG13.5 polycarbonates)
Z09184=C=2024	Acidification pump 9184 - 24VAC
Z09184=C=2110	Acidification pump 9184 - 110VAC
Z09184=C=2240	Acidification pump 9184 - 240VAC
Z368417,00000	pH combination electrode (8417B)
Z09184=C=2000	Flow-through cell for pH probe 9184

CHLORINE DIOXIDE

Chloromat 9187 - Amperometric Analyzer (DataSheet TE9187revD)

The 9187 chlorine dioxide analyser is a single channel industrial analyser for the selective online measurement of chlorine dioxide in drinking water treatment plants, distribution networks and all applications demanding the monitoring of chlorine dioxide in the ppb and ppm ranges.

Measurement is carried out using an amperometric method after diffusion of the chlorine dioxide molecules through a membrane.

Technical Data
Subject to change without notice

	9187 Chlorine Dioxide Single Channel Analyzer
Application	Disinfectant control and monitoring in clean water applications
Measuring principle	Amperometric/Membrane
Measuring range	0...2 ppm (mg/l) ClO_2
Detection limit	< 0.01 mg/l ClO_2
Repeatability	< ± 5% of measure or < ± 0.01 mg/l ClO_2
Response time T_{90}	< 90 seconds
Interferences	Ozone no interferences by Chlorine, Bromine
Calibration	Electrical zero or chemical zero with Chlorine Dioxide free water; calibration of the slope by comparison with a laboratory measurement
Calibration interval	2 months (typical)
Process connection	
Installation style	Bypass with atmospheric outlet; Wall, pipe or panel mount
Sample inlet	DN 4/6 P.E tubing (4mm ID / 6mm OD)
Drain (outlet)	DN 6/8 P.E tubing (6mm ID / 8mm OD)
Sample flow	200 ... 250 ml/min (minimum); 12 ... 15 l/h recommended
Pressure range	0.1–2 bar (1.4–28 psi) inlet; flow cell pressure will be the atmospheric pressure
Temperature T_{max}	
Sample	+5°C ... +35 °C; no suspended solids
Ambient	0 to 45 °C
Temp. compensation	automatic; 0°C ... 45°C
pH requirements	4 to 8 (acidification unit available for >8 pH)
Outputs	2 x 0/4... 20mA, electrical isolation of input/output for the measure (linear or bi-linear) and/or for temperature (linear) 4 relays, 3A 250 VAC maximum(min./max., system alarm, timer) RS485 MODBUS / ProfiBus DP (optional)
Cable length	10 m
Enclosure rating	IP65 (NEMA 4) - optional NEMA4X
Material	Electrode: gold cathode/silver anode Measuring cell: PVC Probe body: PVC
Power supply	90 - 265 VAC, 50/60 Hz, ~25 VA
Dimensions Controller	144 x 144 x 150 mm (WxHxD)
Weight (approximately)	10 kg
Maintenance req.	Measurement Cell: 6 months for membrane and electrolyte, typical
Remarks:	Electrodes are supplied with consumables for 2 years operation (typical use)
Warranty	24 month; extendable to 60 month

CHLORINE DIOXIDE

Chloromat 9187 - Amperometric Analyzer (DataSheet TE9187revD)

Part No.	Designation
Z09187=A=00XX	**9187 Chlorine Dioxide Analyser ClO_2**

Z	0	9	1	8	7	=	A	=	0	0	X	X

Power Supply & Outputs options

110...240 VAC + 2 x I/0 Output	**0**	**0**
110...240 VAC + 2 x I/0 Output + RS485 MODBUS	**1**	**1**
24 VAC + 2 x I/0 Output	**2**	**0**
24 VAC + 2 x I/0 Output + RS485 MODBUS	**3**	**1**

Standard accessories

Accessories: 1 start up kit including consumables for 2 years operation, 1 set of operating instructions

Consumables (for 2 years operation, typical)

Z09187=A=3500	Membranes for 9187 sensors, pre-mounted, set of 4
Z09187=A=3600	Electrolyte filling solution, 100 ml

Optional Accessories

Z09184=C=2700	Mounting plate for 9184/9185/9187 models, made of SS
Z09184=A=1700	Overflow vessel and mounting bracket for 9184 Chloromat [HOCl and TFC/pH versions] and 9185 Ozonmat
Z696=046=001	Needle valve for flow adjustment

Spare Parts / Replacements

Z09185=A=1000	9187 electrode replacement kit - Composed of 09187=A=1001 + 09187=A=3500
Z09180=A=8010	Connection cable 10 m for Clark cell (918X sensors)
Z09078=C=1010	Probe body for Clark cell (918X sensors except 9181)
Z09184=C=1030	Electrolyte filling screw for 918X sensors
Z359072,00120	Black nut maintain 918X electrodes in probe body (PG13.5 polycarbonates)
Z09181=C=4500	Flow through cell with nut for 918X (PVC)

Manuals

Z621=191=087	9187 Instruction manual in English

CHLORINE

Ozonmat 9185 - Amperometric Analyzer (DataSheet TE9185revD)

The oxidative properties of ozone are used for disinfecting water in a large number of industrial installations. Continuous monitoring of dissolved ozone levels is therefore essential in order to guarantee the bacteriological quality of water.

The OZONMAT 9185 is an industrial single channel analyser for the in-line and selective measurement of dissolved O_3 in potable and pure water treatment facilities, along with all applications requiring ozone level monitoring.

Technical Data

Subject to change without notice

	9185 Ozone Single Channel Analyzer
Application	Disinfectant control and monitoring in clean water applications
Measuring principle	Amperometric/Membrane
Measuring range	0...2 ppm (mg/l) O_3
Detection limit	< 0.002 mg/l O_3
Repeatability	< ± 5% of measure or < ± 0.005 mg/l O_3
Response time T_{90}	< 60 seconds
Interferences	No interferences from Chlorine, Chlorine dioxide, Bromine or Hydrogen peroxide
Calibration	Electrical zero or chemical zero with Ozone free water; calibration of the slope by comparison with a laboratory measurement
Calibration interval	2 months (typical)
Process connection	
Installation style	Bypass with atmospheric outlet; Wall, pipe or panel mount
Sample inlet	DN 4/6 P.E tubing (4mm ID / 6mm OD)
Drain (outlet)	DN 6/8 P.E tubing (6mm ID / 8mm OD)
Sample flow	200 ... 250 ml/min (minimum); 12 ... 15 l/h recommended
Pressure range	0.1–2 bar (1.4–28 psi) inlet; flow cell pressure will be the atmospheric pressure
Temperature T_{max}	
Sample	+5°C ... +35 °C; no suspended solids
Ambient	0 to 45 °C
Temp. compensation	automatic; 0°C ... 45°C
pH requirements	4 to 8 (acidification unit available for >8 pH)
Outputs	2 x 0/4... 20mA, electrical isolation of input/output for the measure (linear or bi-linear) and/or for temperature (linear) 4 relays, 3A 250 VAC maximum(min./max., system alarm, timer) RS485 MODBUS / ProfiBus DP (optional)
Cable length	10 m
Enclosure rating	IP65 (NEMA 4) - optional NEMA4X
Material	Electrode: gold cathode/silver anode Measuring cell: PVC Probe body: PVC
Power supply	90 - 265 VAC, 50/60 Hz, ~25 VA
Dimensions Controller	144 x 144 x 150 mm (WxHxD)
Weight (approximately)	10 kg
Maintenance req.	Measurement Cell: 6 months for membrane and electrolyte, typical
Remarks:	Electrodes are supplied with consumables for 2 years operation (typical use)
Warranty	24 month; extendable to 60 month

Part No.	Designation
Z09185=A=00XX	**9185 Ozone Analyser O_3**

Z	0	9	1	8	5	=	A	=	0	0	X	X

Power Supply & Outputs options

110...240 VAC + 2 x I/0 Output	**0**	**0**
110...240 VAC + 2 x I/0 Output + RS485 MODBUS	**1**	**1**
24 VAC + 2 x I/0 Output	**2**	**0**
24 VAC + 2 x I/0 Output + RS485 MODBUS	**3**	**1**

Standard accessories

Accessories: 1 start up kit including consumables for 2 years operation, 1 set of operating instructions

Consumables (for 2 years operation, typical)

Z09185=A=3500	Membranes for 9185 sensors, pre-mounted, set of 4
Z09185=A=3600	Electrolyte filling solution, 100 ml

Optional Accessories

Z09184=C=2700	Mounting plate for 9184/9185/9187 models, made of SS
Z09184=A=1700	Overflow vessel and mounting bracket for 9184 Chloromat [HOCl and TFC/pH versions] and 9185 Ozonmat
Z696=046=001	Needle valve for flow adjustment

Spare Parts / Replacements

Z09185=A=1000	9185 electrode replacement kit - Composed of 09185=A=1001 + 09185=A=3500
Z09180=A=8010	Connection cable 10 m for Clark cell (918X sensors)
Z09078=C=1010	Probe body for Clark cell (918X sensors except 9181)
Z09184=C=1030	Electrolyte filling screw for 918X sensors
Z359072,00120	Black nut maintain 918X electrodes in probe body (PG13.5 polycarbonates)
Z09181=C=4500	Flow through cell with nut for 918X (PVC)

Manuals

Z621=191=085	9185 Instruction manual in English

ACCESSORIES

Viewtax - Analysis Program

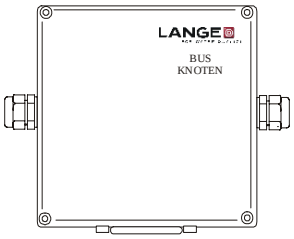
Part No.	Designation
LZX408	**ViewTax** - Software Analysis Package for Windows Analysis, documentation and diagnostics program Comprising: Software on 3,5'' Floppy Disc, Interface cable, Adapter and Operating Manual. VIEWTAX is the analysis program for the Safememo function (data logger). It is used for the graphic display of the measured data collected and the storage of the data. Zoom functions in x and y direction make it possible to select a specific period and / or view an interesting concentration range with high resolution. Events and calibrations can be displayed on the curves or hidden.

Note: Viewtax is dedicated for data analysis from Multi Unit & MultiUnit plus controllers only.
The Software is not compatible with sc controllers and probes.

ACCESSORIES - Fieldbus interfaces

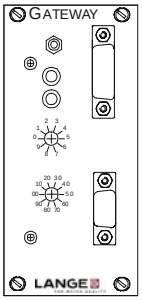
for Multi Unit and Multi Unit plus

BUS NODE



LPV361

MODBUS-PROFIBUS GATEWAY



LQV145.00

The LANGE process photometers can be connected to various bus systems if the related network cards are installed (state the type of Fieldbus with the order).
Here the following must be noted:

- From 2 bus users, the process photometers can only be connected to the standardised MODBUS using BUS NODES
- The combination of MODBUS and OPC server requires WINDOWS 2000 or WINDOWS XP
- With the MODBUS-PROFIBUS GATEWAY the MODBUS can be coupled to the PROFIBUS
- A process photometer connection can be made directly to the PROFIBUS.E10

Controller compatibility

Multi Unit plus

Multi Unit

Part No.	Designation
LPV361	Bus node for interfacing the process photometer to the MODBUS.
LQV145.00	GATEWAY for MODBUS-PROFIBUS interface.

Note: The controllers MultiUnit and MultiUnit plus have been discontinued.

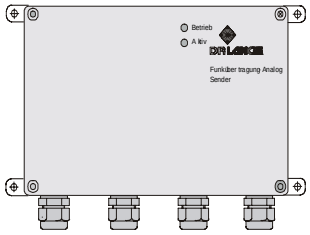
Applications:

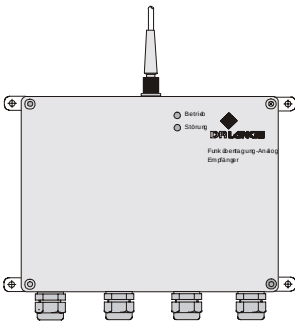
RF transmission is used wherever fixed wiring is not possible, not sensible, or is too expensive (e. g. rotating scraper bridge, large distance).
Here an analogue current output and the position of two floating contacts (limit values, error signals, etc.) are transmitted wirelessly from a transmitter to a receiver.

The receiver makes these signals available in their original form for further processing.
The radio transmissions in the variants listed here are registered and free of fees and the need for licensing in Germany, the Netherlands and Austria.
These devices need the prior legal permission to be operated in any other country!

Analogue radio transmission:

This system should always be used when only the data (analogue signal and two floating contacts) from a single process instrument is to be transmitted. The transmitter is setup in the immediate vicinity of the process instrument and connected; the related receiver can be installed within a range of 300 m.





Technical Data
Subject to change without notice

	Transmitter	Receiver
Inputs	1 x analogue: 0 - 20 mA 2 floating contacts	-
Outputs	-	Class 1 Laser 10 mW, 660 nm
Outputs	-	1 x analogue: 0 - 20 mA 2 floating contacts, 1 alarm contact
Status indication	operation ON / OFF (LED)	operation ON / OFF (LED)
Error indication	-	light emitting diode
Ambient	-20 °C to +40 °C	-20 °C to +40 °C
Range	approx. 300 m depending on local conditions	-
Enclosure rating	IP 65	IP 65
Power supply	230 V AC, 50-60 Hz, 15 VA others on request	
Dimensions (in mm)	approx. 226 x 120 x 81 (W x H x D)	approx. 226 x 120 x 81 (W x H x D)
Weight	approx. 1.5 kg	approx. 1.5 kg

Discontinued Instrument's Spare Parts

RADIO TRANSMISSION analogue for Multi Unit and Multi Unit plus

Part No.	Designation
LQV126.XX.XX000	**Analog radio transmission** (incl. Transmitter and Receiver)

L	Q	V	1	2	6	.	5	2	.	X	X	0	0	0	

Language / Country Code Selection *please refer to Appendix E for further info*

Number of Channels

1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
10	9

Aerial option

Transmitter + Receiver stationary aerial	0
Transmitter + Receiver remote aerial	1
Transmitter remote aerial, Receiver stationary aerial	2
Transmitter stationary aerial, Receiver remote aerial	3

Note: It is imperative that the number of existing and required radio links is stated with the order!
If there are several radio links in an area of approx. 1 km, additional channels (radio frequencies) must be chosen to avoid mutual interference.
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Recommended Accessories:

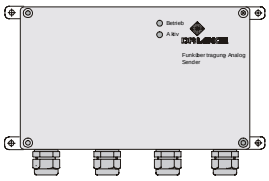
LZX413	Mounting Kit for radio transmission Stainless steel frame and plastic weather protection shield for the installation of transmitter or receiver
LZQ061	Antenna, with 1.2 m cable

Discontinued Instrument's Spare Parts

RADIO TRANSMISSION analogue 4 - for Multi Unit and Multi Unit plus

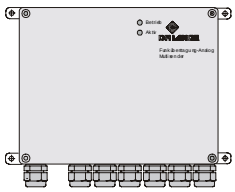
This system is recommended for the radio transmission of data for several instruments. Due to the numerous possible combinations of the four individual components, the right solution can be found for nearly every application.

Transmitter



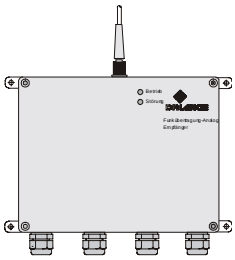
The transmitter transmits an analogue signal (0/4 - 20 mA) and the position of two floating contacts to the multi-receiver.

Multi-Transmitter



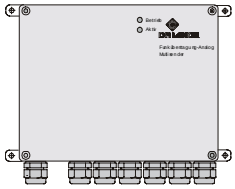
Up to 4 analogue signals (0/4 - 20 mA) and the position of up to 8 floating contacts are transmitted by this multi-transmitter to the multi-receiver.

Multi Receiver



Multi-receiver for the reception and the output of up to 4 analogue signals (0/4 - 20 mA) and up to 8 floating contacts. Up to three expansions can be added to this multi-receiver.

Expansion Unit



Multi-receiver expansion
The expansion has 4 analogue signals (0/4 - 20 mA) and 8 floating contacts.

Technical Data

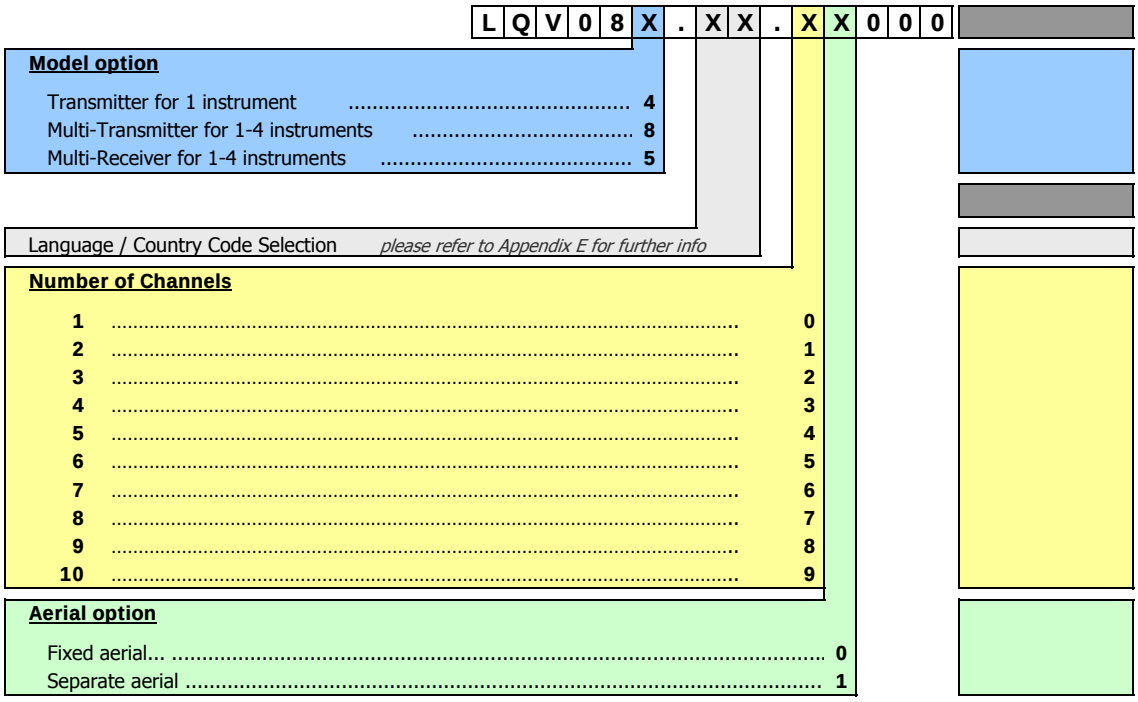
Subject to change without notice

	Transmitter	Receiver
Inputs	4 x analogue: 0 - 20 mA [transmitter: 1 x analogue] 8 floating contacts [transmitter: 2 contacts]	-
Outputs	-	4 x analogue: 0 - 20 mA, 8 floating contacts, 1 alarm contact
Status indication (visual)	operation ON / OFF (LED)	operation ON / OFF (LED)
Error indication (visual)	-	light emitting diode
Ambient temperature	-20 °C to +40 °C	-20 °C to +40 °C
Range	approx. 300 m depending on local conditions	-
Enclosure rating	Conforming to IP65	Conforming to IP65
Power supply	230 V AC, 50-60 Hz, 15 VA	230 V AC, 50-60 Hz, 15 VA
Dimensions (in mm)	approx. 226 x 150 x 81 (W x H x D) [226 x 120 x 81]	approx. 226 x 150 x 81 (W x H x D)
Weight	approx. 1.5 kg	approx. 1.5 kg

Discontinued Instrument's Spare Parts

RADIO TRANSMISSION analogue 4 - for Multi Unit and Multi Unit plus

Part No.	Designation
LQV08X.XX.XX000	**Analogue radio transmission (incl. Transmitter and Receiver)**



Note: It is imperative that the number of existing and required radio links is stated with the order!
If there are several radio links in an area of approx. 1 km, additional channels (radio frequencies) must be chosen to avoid mutual interference.
Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Recommended Accessories:

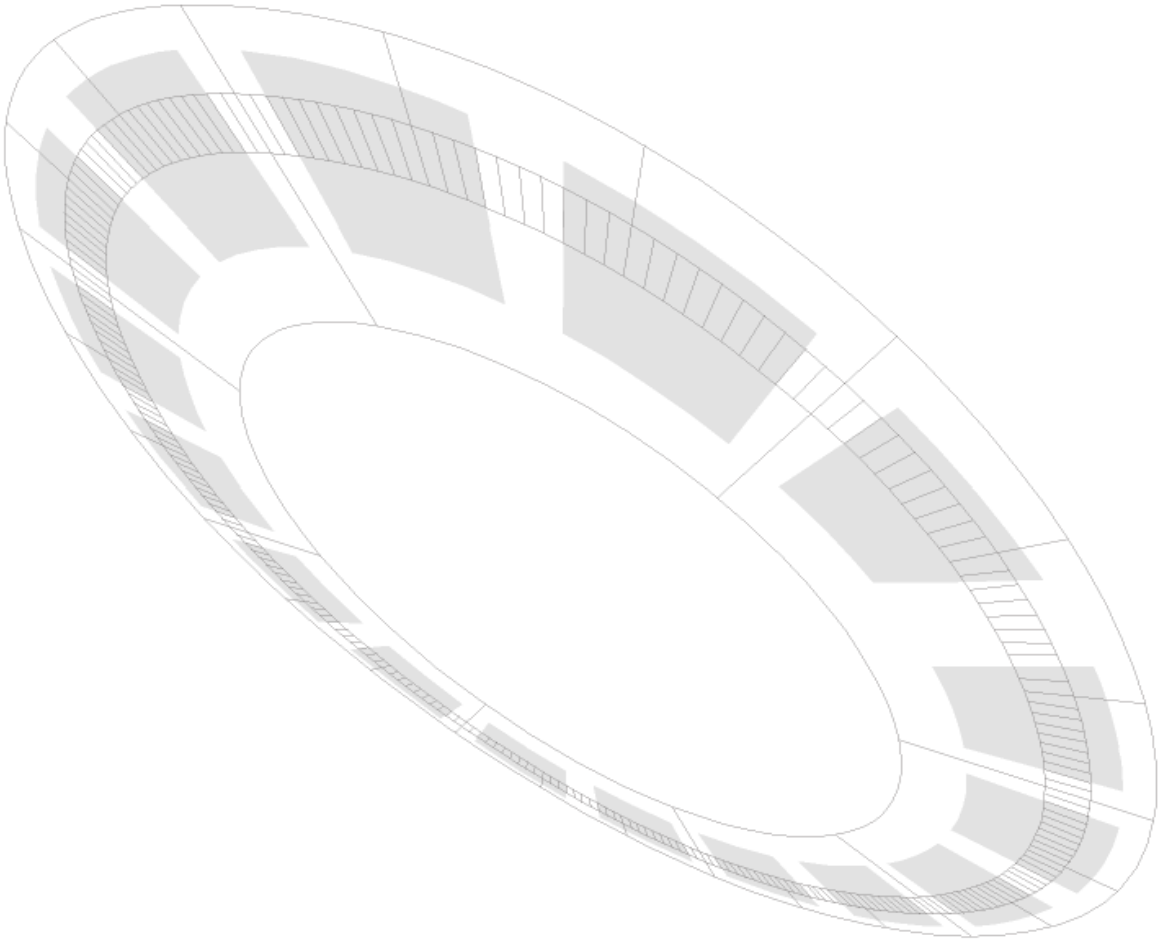
LQV089 Multi-receiver expansion
For the connection of 4 additional instruments, maximum 3 expansions are possible

LZX413 Mounting Kit for radio transmission
Stainless steel frame and plastic weather protection shield for the installation of transmitter or receiver

LZQ061 Antenna, with 1.2 m cable

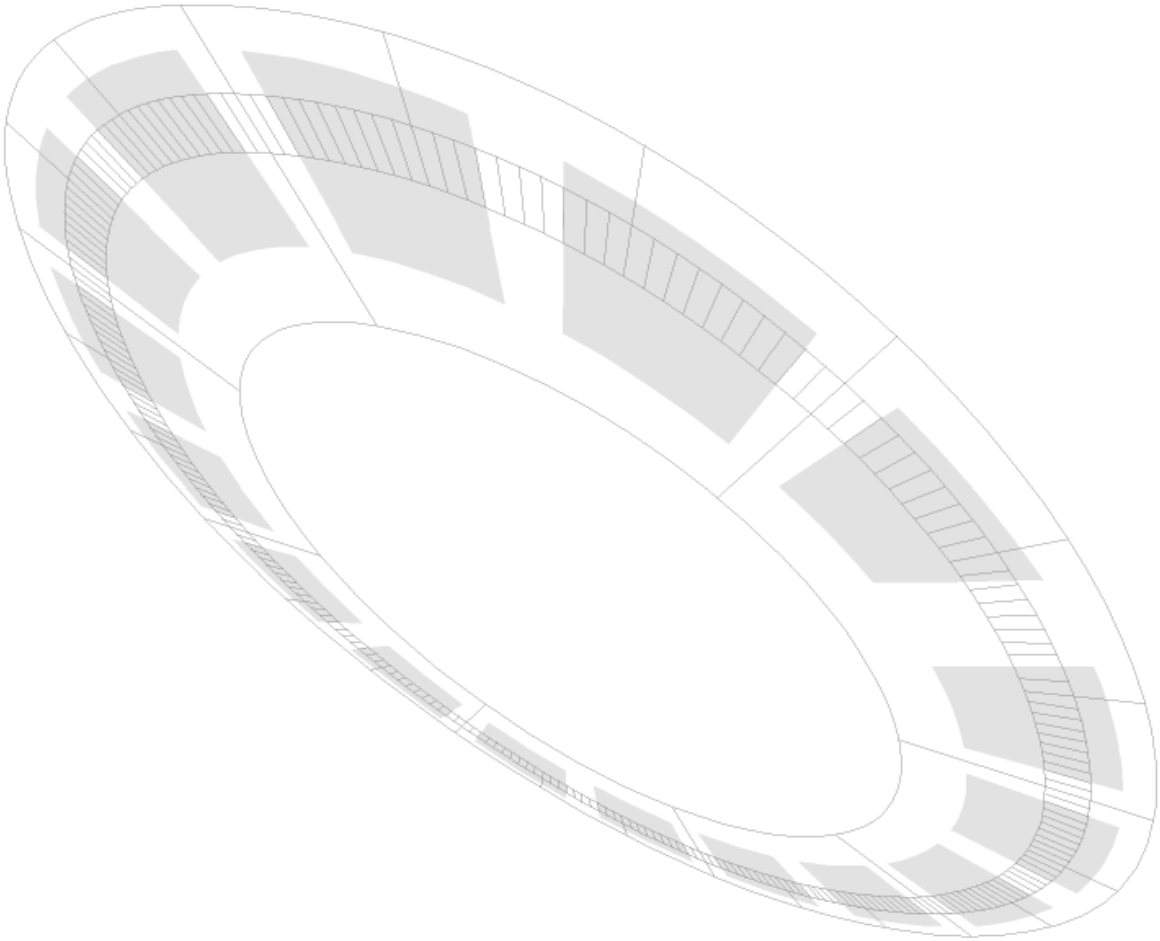
Appendix D

Services, Commissioning, Trainings



Appendix E

Language / Country Code Selection overview



Appendix E

Language / Country Code Selection overview

Country Code Selection Table for Analyzers and Probes

Country code	Pre-setted language	Power cord supplied acc.
00	German	EU plug
51	German	Switzerland
52	English, 230VAC	EU plug
53	English, 115VAC	USA
55	French	EU plug
56	Dutch	EU plug
57	Italian	EU plug
58	Danish	EU plug
59	Swedish	EU plug
60	Polish	EU plug
61	Spanish	EU plug
62	Russian	EU plug
63	Finnish	EU plug
73	Italian	Switzerland
75	French	Switzerland
79	Portuguese	EU plug
80	Chinese	
81	Japanese	
82	English	UK
85	Czech	EU plug
99	Selectable	Country specific
	English, German, French, Italian, Dutch, Spanish, Swedish and Polish.	

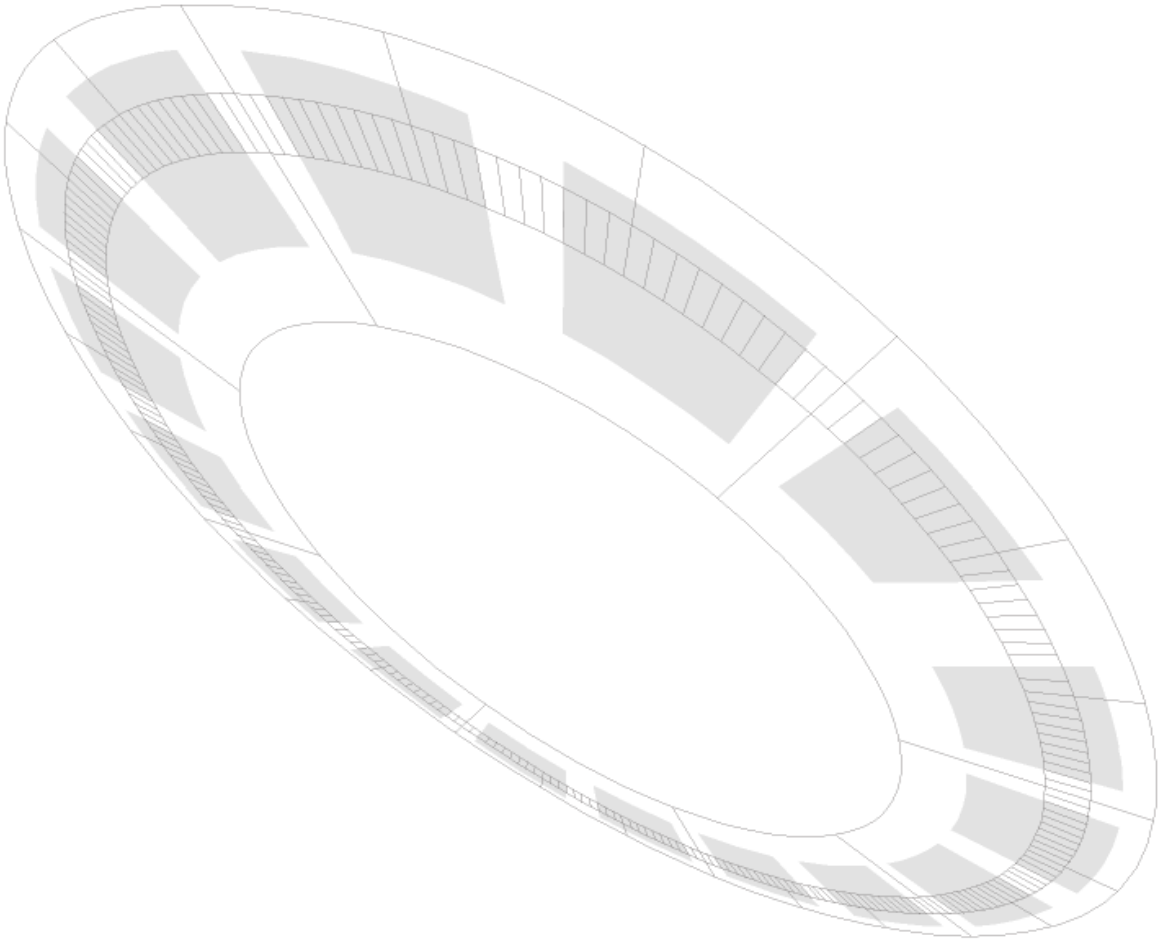
Country Code Selection Table for Bühler Samplers

Country Code	
00	German
51	Switzerland in German
52	English 230V
53	English 115V
55	French
56	Dutch
57	Italian
58	Danish
59	Swedish*
60	Polish
61	Spanish
62	Russian *
63	Finnish*
73	Switzerland in Italian
75	Switzerland in French
79	Portuguese
80	Chinese*
81	Japanese*

* Language not available in the embadded software

Appendix F

Spare Parts for discontinued Products - ANALON



Discontinued Instrument's Spare Parts

Datalogger and accessories

Technical Data
Subject to change without notice

	Single channel Data logger
Memory	16 kB for 15,900 measured values
Resolution	8 bit
Interval	1 s...10 days
Housing	plastic, IP 68
Dimensions	34 x 59 x 80 mm
Weight	140 g
Power supply	Lithium battery

Part No.	Designation
LZX530	Connecting cable for data logger Two-wire connecting cable for connecting current output on the instrument to the data logger, Cable length: 1 m
LZX528	Software for data logger Software for the configuration and analysis of the data logger. System requirements: Pentium I processor, WINDOWS95
LZX531	Re-ed software for data logger Additional software which allows to program the data logger for a specific measured parameter. (e.g.: mg/l, pH, µS/cm, mS/cm)
LZX529	Serial interface cable for data logger

Part No.	Designation	

SOTADJ - pH Electrode for waste water

Electrode for the determination of the pH value in waste water.
Optionally with integrated temperature sensor (PT100) and / or head connector TOP 68.

LZX472	SOTADJ	10 m moulded cable
LZX473	SOTADJ PT100	10 m moulded cable, with integrated PT100
LZX533	SOTADJ T*	with head connector TOP 68
LZX535	SOTADJ PT100 T*	with integrated PT100 and head connector TOP 68

Note: * Suitable T68 connection cables must be ordered separately if required.

Technical data

Reference system	Ag/AgCl
Diaphragm	double ring diaphragm, porous Teflon
Electrolyte	KCl/AgCl + KNO3 gel
Measuring ranges	pH: 0...14
	Temp.: -5...80 °C
Max. pressure	3.5 bar
Shaft length	140 mm
Diameter	12 mm

LTLCON - pH electrode for drinking water with low Temperature / low Conductivity

Electrode for the determination of the pH value in drinking water or other low ionic water samples.
Optionally with integrated temperature sensor (PT100) and / or head connector plug TOP 68.

LZX474	LTLCON	10 m moulded cable
LZX561	LTLCON PT100	with integrated PT100 and 10 m moulded cable
LZX536	LTLCON T*	with head connector TOP 68
LZX537	LTLCON PT100 T*	with integrated PT100 and head connector TOP 68

Note: * Suitable T68 connection cables must be ordered separately if required.

Technical data

Reference system	Ag/AgCl
Diaphragm	ring diaphragm, porous Teflon
Electrolyte	KCl, saturated KCl/AgCl (crystal)
Measuring ranges	pH: 2 ... 10
	Temp.: -20 ... +50
Max. pressure	3.5 bar
Shaft length	140 mm
Diameter	12 mm
Cable length	10 m

HighpH - pH electrode for high pH applications

Electrode for the determination of the pH value in alkaline solutions. Optionally with integrated temperature sensor (PT100) and / or head connector plug TOP 86.

LZX471	HIGHpH	5 m moulded cable
LZX539	HIGHpH T*	with head connector TOP 68
LZX540	HIGHpH PT100 T*	with integrated PT100 and head connector TOP 68

Note: * Suitable T68 connection cables must be ordered separately if required.

Technical data

Reference system	Ag/AgCl
Diaphragm	ring diaphragm, porous Teflon
Electrolyte	standard gel KCl/AgCl
Measuring ranges	pH 1...14, particularly suitable for pH 9...14
	Temp.: 0 ... 80°C
Max. pressure	3.5 bar
Shaft length	140 mm
Diameter	12 mm
Cable length	3 m

Part No.	Designation	

PRO140 - pH electrde for process applications

Electrode for the determination of the pH value in process water in harsh operating conditions. Optionally with integrated temperature sensor (PT100) and/or head connector plug TOP 68.

LZX517	PRO140	10 m moulded cable
LZX544	PRO140 PT100	10 m moulded cable, with integrated PT100
LZX545	PRO140 T*	with head connector TOP 68
LZX546	PRO140 PT100 T*	with integrated PT100 and head connector TOP 68

Note: * Suitable T68 connection cables must be ordered separately if required.

Technical data

Reference system	Ag/AgCl
Diaphragm	ring diaphragm, porous Teflon, double
Electrolyte	KCl/AgCl + KNO_3 gel, suitable for high temperatures
Measuring ranges	pH: 0...14 temperature: -5...135 °C
Max. pressure	34 bar
Shaft length	140 mm
Diameter	12 mm
Cable length	10 m

pHpulp - pH electrode for low viscosity media and pressurized pipes

Electrode with integrated temperature sensor (PT100) for the determination of the pH value in media with low viscosity. Optionally with head connector plug TOP 68.

LZX475	pHPULP PT100	with integrated PT100 and 5 m moulded cable

When water with high content of solids is pumped in a pipe there will be an "water layer" cose to the pipe wall. It is in this water layer where it is possible to measure pH

Technical data

Reference system	Ag/AgCl
Diaphragm	ring diaphragm, porous Teflon, double
Electrolyte	exterior EPH gel, interior standard gel KCl/AgCl
Measuring ranges	pH: 1...14 temperature: -5...135 °C
Max. pressure	10 bar
Shaft length	300 mm
Diameter	22 mm
Cable length	5 m
Material	Stainless steel

Suitable for use with the 22 mm inline armature (LZX 467).

pHRET - pH electrode for waste water and pressurized pipes

Electrode for the determination of the pH value in water and waste water.
Optionally with integrated temperature sensor (PT100) and/or head connector TOP68.

LZX476	pHRET	10 m moulded cable
LZX477	pHRET PT100	10 m moulded cable, with integrated PT100

Technical data

Reference system	Ag/AgCl
Diaphragm	porous Teflon, double ring diaphragm,
Electrolyte	KCl/AgCl + KNO_3 gel, suitable for high temperatures
Measuring ranges	pH: 0...14 temperature: -5...135 °C
Max. pressure	15 bar
Shaft length	205 mm
Diameter	12 mm
Cable length	3 m
Material	Stainless steel

Suitable for use with the 12 mm inline armature (LZX465).

Part No. **Designation**

LZX469 **RET5-EL Conductivity probe for water and waste water in pressurized pipes**

5-electrode measuring cell with integrated temperature sensor (NTC) for the determination of the conductivity of water and waste water in pressurized pipes.

Technical data

Measuring range	0.010... 500 mS/cm (in combination with ANALON Cond 10)
Measuring principle	5-electrode conductive probe
Cell constant	K = 1
Temperature sensor	NTC 10 kΩ integrated
Max. sample temp.	100 °C (shorterm up to 130 °C)
Max. pressure	8 bar at 25 °C, 4 bar at 100 °C
Measuring cell	
diameter	25 mm
material	PVDF/1.4401
total length	382 mm
immersion depth	170 mm max.
Measuring cell cable	
cable length	3 m
material	PVC, screened

Suitable for use with the inline armature RETVA (LZX470)

LZX470 **RETVA - Inline armature retractable**

In-line armature, designed for tanks or pipes; the conductivity cell can be straightforwardly replaced (diameter 25 mm) without the need to stop the process. The measuring cell can be carefully removed, the valve shuts off.
The measuring cell must have a stainless steel shaft.

Technical data

Material	1.4401
Max.temp.	100 °C
max. pressure	8 bar
Connection	1 inch
Measuring cell diameter	25 mm

Suitable electrode: RET5-EL (LZX469)

Part No. **Designation**

DO5 - Dissolved Oxygen sensor for water and waste water applications

Dissolved Oxygen sensor with integrated NTC Temperature sensor for the determination of the dissolved oxygen in water and waste water.

LZX479 DO5, 7 m moulded cable
LZX522 DO5XL, 20 m moulded cable

Technical data

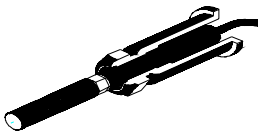
Measuring principle	galvanic (nickel/lead)
Diaphragm	polypropylene
Membrane leak indicator	integrated
Temperature sensor	NTC 50 kΩ integrated
Response time (T90)	30-40 s at 20 °C
Flow, required	> 2-3 cm/s
Measuring range	0...20 mg/l
Water temperature	-1...50° C
Max. immersion depth	up to 30 m
Enclosure rating	IP68
Materials	Plexiglas (PMMA), PVC, stainless steel
Dimensions	
diameter:	16 mm
length:	165 mm

LZX744 **Sensor head DO-5E**
Replacement sensor head for the online oxygen sensor DO5

LZX486 **ADDO5 -** Adapter for Oxygen probe **DO5**

Technical data

Diameter	35 mm
Material	PVC



Discontinued Instrument's Spare Parts

ANALON - Temperature sensor, TOP68 connection cables and further accessories

Part No.	Designation

LZX483 **Temperature sensor PT100**

Technical data

Measuring range	0...200 °C
Shaft length	150 mm
Diameter	12 mm
Material	stainless steel
Cable length	8 m
Pressure	max. 5 bar

Electrode cable for TOP 68 head connector plug

Connection cable for electrodes with head connector plug TOP 68 with and without integrated PT100.

LZX547	5 m cable for electrodes without PT100	former designation	KT 6825
LZX534	10 m cable for electrodes without PT100	former designation	KT 68210
LZX548	5 m cable for electrodes with PT100	former designation	KT 6845
LZX516	10 m cable for electrodes with PT100	former designation	KT 68410

LZX484 **Adapter for 12mm electrodes**

Adapter for mounting a pH-ADPH 12 electrode with a diameter of 12 mm. Electrode projection can be adjusted as required

Technical data

Diameter	35 mm
Material	PVC

LZX413 **ANALON Display Unit Mounting Kit**

Standard package, consting of:

ATS010	Base
HRO304	Supporting pipe
HAG135	Housing canopy
HPP440	Sun Shield
LZX415	Hardware

LZX524 **Analon Sensor Mounting Kit**

Standard package, consting of:

LZX490	Immersion pipe NDA 10PR
LZX488	Mounting clip RF10
LZX489	Angle plates VP10
LZX487	Electrode protection GS10
LZX525	Hardware

Note: For pH or O2 electrodes, the adapter ADPH12 (LZX484) or ADDO5 (LZX486) is also required.

Part No. **Designation**

LZX465 **Inline armature, retractable, ∅ 12 mm**
LZX467 **Inline armature, retractable, ∅ 22 mm**

These inline armatures are designed for tanks or pipes and permits easy electrode retraction and replacement (∅ 12 respectively 22 mm) without having to stop the process.
The electrodes must have a stainless steel shaft with least 200 mm shaft length

Technical data	∅ 12 mm	∅ 22 mm
Material	1.4571/Noryl	1.4571/PVDF
Max. temp.	100 °C	100 °C
Max. pressure	10 bar	10 bar
Connection	1/2 inch	1 inch
Electrode diameter	12 mm	22 mm
Suitable electrodes	pHRET (LZX476), pHRET PT100 (LZX477)	pHPULP PT100 (LZX475)

Immersion pipe Sensor Mounting assembly, (without adapter)

LZX490 **NDA 10PR**

Technical data

Pipe length	2.5 m
Diameter	DN40
Pressure rating	PN16
Material	PVC

LZX491 **NDA 10SR**

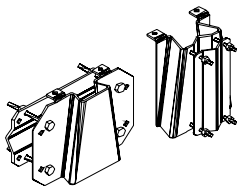
Technical data

Pipe length	3 m
Diameter	DN32
Material	Stainless steel 1.4401

LZX488 **RF 10 Rail Brackets**

Technical data

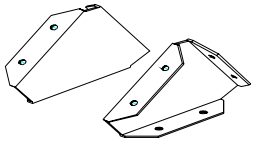
Material	stainless steel 1.4401
Mounting location	rails (max. Ø 63 mm) or angle plate (see below)
Width of the clip	approx. 200 mm
Height of the clip	approx. 150 mm



LZX489 **VP 10 Angle plates**
for mounting the rail brackets on the tank rim

Technical data

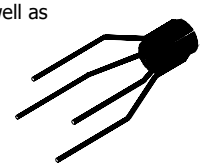
Material	stainless steel 1.4401
Adjustable angle	15°, 30° and 45°
Height	approx. 155 mm
Width	approx. 200 mm



LZX487 **GS 10 Sensor protection**
This sensor protection prevents mechanical damage to the sensor by large solids in the (waste) water. It can be fastened to the PVC adapter ADPH12, ADDO5 as well as to the conductivity measuring cell M5-EL.

Technical data

Material	stainless steel 1.4401



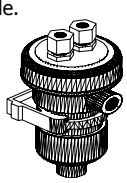
Part No. **Designation**

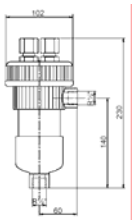
LZX496 **DSDF2 Flow-Through armature** (pH)

This flow-through fitting enables the pH value to be determined in a sample line.
It is designed to hold a maximum of two pH electrodes (Ø12 mm) or PT100 temperature sensors. The transparent part of the armature permits visual inspection of the sample.

Technical data

Material	PVC (partly transparent)
Max. temp.	60 °C
Connection	½ inch
Pressure	max. 5 bar



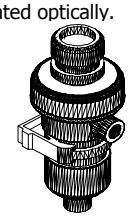


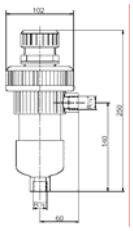
LZX497 **DSDF 3 Flow-Through armature** (multiple purpose)

This flow-through fitting allows to determine the pH value, the conductivity or the oxygen concentration in a medium in a sample pipe. It is of universal design for mounting various sensors in combination with the related adapters
(pH: ADPH12, conductivity: without additional adapter, O2: ADDO5).
The transparent section of the fitting enables the sample to be evaluated optically.

Technical data

Material	PVC (partly transparent)
Max. temp.	60 °C
Connection	½ inch, adapter ADPH10, ADDO5 or M5-EL
Pressure	max. 5 bar



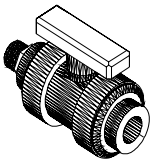


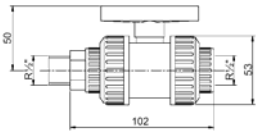
LZX499 **AV 10 Shut-off valve**

This shut-off valve enables the flow of medium to the DFS2/DFS3 flow-through armature to be shut off, e.g. to replace the electrode.

Technical data

Material	PVDF
Max. temp.	60 °C
Max. pressure	5 bar
Connection	1/2 inch



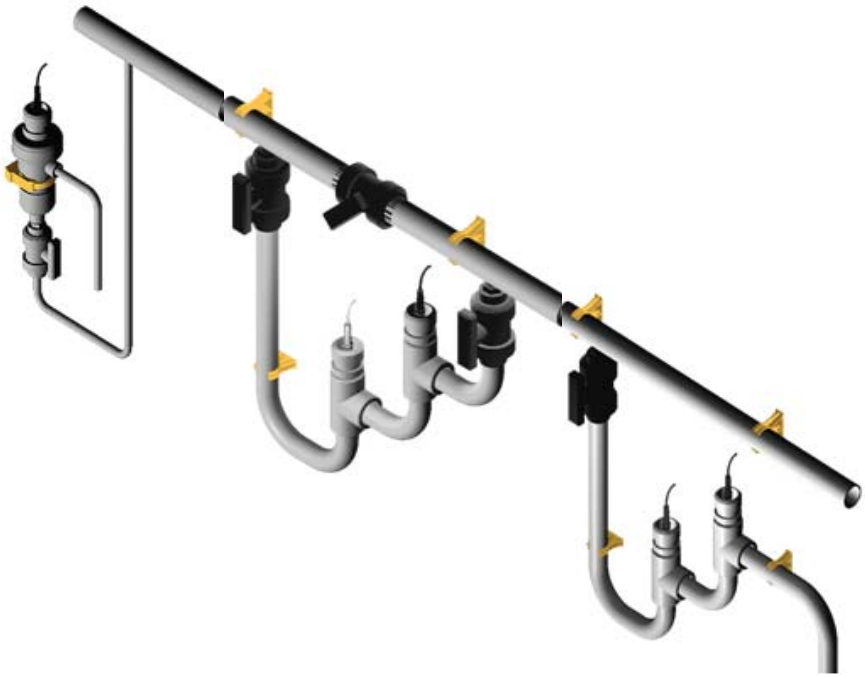


LZX498 **IN 10P Inline armature** (bypass)

This In-line-armature enables the pH value, conductivity or oxygen concentration to be determined in a bypass line. It is universally designed to hold various sensors with the corresponding adapters (pH: ADPH12, conductivity: no additional adapter, O2: ADD05).

Technical data

Material	PVC
Max. temp.	60 °C
Max. pressure	5 bar
Connection	1.5 inch, adapter ADPH10, ADDO5 or M5-EL



Discontinued Instrument's Spare Parts

PHOSPHAX inter2, PHOSPHAX compact (DataSheet DOC053.52.03402 & DOC053.52.03401)

Phosphax Inter 2

High-precision process photometer for the continuous determination of the orthophosphate concentration in water and waste water samples low in solids for the optimisation of the phosphate elimination and waste monitoring . Due to the intermittent principle of operation and the yellow method, this instrument is particularly economical in use.

Phosphax compact

Cost-effective, compact process photometer for the continuous determination of the orthophosphate concentration in water and waste water samples low in solids for the optimisation of the phosphate elimination and waste monitoring. The yellow method and the intermittent operation ensure that the instrument is economical in use.

Technical Data

Subject to change without notice

	Phosphax Inter2	**Phosphax compact**
Measuring technique	vanadate-molybdate method	vanadate-molybdate method
Measuring range	0.05 - 15.0 mg/l PO_4-P	0.1 – 10.0 mg/I PO_4-P
Measurement uncertainty:	± 2.0 % of the measured value ± 0.02 mg/l PO_4-P, with standard solutions	± 3 % of the measured value ± 0.1 mg/l PO_4–P with standard solutions
Measuring interval	5 or 10 min	Continous, 10, 15, 20 or 30 min selectable
Ambient temperature	+5 °C to +40 °C	+10 °C to +40 °C
Sample requirement	at least 200 ml/h sample free of solids	at least 200 ml/h sample free of solids
Reagent capacity	approx. 6 or 12 months depending on measuring interval	approx. 2-4 months depending on measuring interval
Display	graphics monitor with curve display	graphics monitor with curve display
Outputs		
Current	0/4...20 mA, max.500 Ohm, (option: 2x)	0/4 - 20 mA, max.500 Ohm, (option: 2x)
Limit value contacts	2 contacts, floating 24 V, 1 A	2-4 contacts, floating 24 V, 1 A (option)
Error signalling	-	1 error signalling contact, floating 24 V 1A
Interfaces	bus support (optional)	bus support (optional)
Enclosure	Conforming to IP 54	Conforming to IP 54
Special features	auto-cleaning, zero point correction for each measurement	auto-cleaning, zero point correction for each measurement
Servicing interval	6 months	6 months
Maintenance requirement	1 h / month typical	1 h / month typical
Power supply	230 V AC, 50 Hz, 100 VA	100-240 V AC, 50 - 60 Hz, 150 VA
Dimensions	550 x 810 x 390 mm (W x H x D)	350 x 640 x 220 mm (W x H x D)
Weight	approx. 19 kg	approx. 10 kg
Warranty	24 month, extendable to 60 month by service contract	

Discontinued Instrument's Spare Parts

PHOSPHAX Inter2 (DataSheet DOC053.52.03402)

Part No. **Designation**

LPV398.XX.0X0X0 **PHOSPHAX *inter2***

L	P	V	3	9	8	.	X	X	.	0	X	0	X	0

Country Code Selection

GB language with EU power cord **5 2**

Sampling

Seditax **0**
1 channel continuous (Standard version) **1**
2 channel continuous ..... LZV296 ..... **2**

Interfaces

No Bus connection (Standard version) **0**
MODBUS ..... YAA857 ..... **1**
PROFIBUS ..... LZV148 ..... **2**

Standard accessories (supplied with the instrument)

1 set of reagents
1 set of cleaning solution
1 set of wearing parts for one year
1 set of operating instructions
1 maintenance calendar
1 Factory Test Certificate

For low maintenance sampling from the aeration tank or final clarification, we recommend our FILTRAX sampling device. Please refer to Chapter "Sample Preparation".

Reagents and consumables, annual requirements* for PHOSPHAX inter2

	Measuring interval	Measuring interval
Reagents	2 x LCW820	1 x LCW820
Cleaning Solution	2 x LCW821	2 x LCW821
Wearing parts (1 channel)	1 x LZV282	1 x LZV282
Wearing parts (2 channel)	1 x LZV280	1 x LZV280
+	1 x LZV282	1 x LZV282

Annual average costs of reagents & consumables (1 Channel Version)	Measuring interval 5 min.	Measuring interval 10 min.
0.05 - 15.0 mg/l PO4-P		

Discontinued Instrument's Spare Parts

PHOSPHAX compact (DataSheet DOC053.52.03401)

Part No. **Designation**

LPV369.XX.01000 **PHOSPHAX compact**

L	P	V	3	6	9	.	X	X	.	0	X	X	X	0	

Country Code Selection

GB language with EU power cord **5 2**

Sampling

Seditax **0**

1 channel continuous (Standard version) **1**

LZV145 2 channel continuous ..... LZV145 ..... **2**

Limit value contacts

No contacts (standard version) **0**

LZV146 1 x 2 contacts ..... LZV146 ..... **1**

2 x 2 contacts ..... 2 x LZV146 ..... **2**

Interfaces

No Bus connection (Standard version) ..... **0** -

YAA857 MODBUS ..... YAA857 ..... **1**

LZV148 PROFIBUS ..... LZV148 ..... **2**

Standard accessories (supplied with the instrument)

1 set of reagents
1 set of cleaning solution
1 set of wearing parts for one year
1 set of operating instructions
1 maintenance calendar
1 Factory Test certificate

For low maintenance sampling from the aeration tank or final clarification, we recommend our FILTRAX sampling device. Please refer to chapter " Sample preparation".

Note:

Please refer to Phosphorus or Phosphate Analyzers in the Chapter Nutrients as suitable replacement.

Reagents and consumables, annual requirements* for Phosphax compact

Annual requirements	Measuring interval	Measuring interval
Reagents	6 x LCW834	3 x LCW834
Cleaning Solution	2 x LCW836	2 x LCW836
Wearing parts (1 channel)	1 x LZV150	1 x LZV150
Wearing parts (2 channel)	1 x LZV184	1 x LZV184
+	1 x LZV150	1 x LZV150

Annual average costs of reagents & consumables (1 Channel Version)	Measuring interval 10 min, 15 min	Measuring interval 20 min, 30 min
0.1 – 10.0 mg/l PO4-P		

Discontinued Instrument's Spare Parts

PHOSPHAX inter 2 & compact Accessories

Part No.	Designation
	Further accessories
LPV361	MODBUS node, bus node for connection to MODBUS
HDF171	User Guide PHOSPHAX (GB)
DOC023.52.03040	Operating manual PHOSPHAX inter2 (GB)
DOC023.52.03102	Operating manual PHOSPHAX compact (GB)
	Cabinets (made of stainless steel) for outdoor installation
LZH010	**Cabinet TYPE I,** for one instrument (Type: compact) - Mounting bracket for one compact instrument - Heater, fan, terminal box, 2 sockets - Insulation
	Optional accessories
LZH024	Bracket
LZH027	Wind protection
LZH011	**Cabinet TYPE II,** for two instruments (Type: compact) - Mounting bracket for two compact instruments - Heater, fan, terminal box, 3 sockets - Insulation
	Optional accessories
LZH025	Bracket
LZH027	Wind protection
LZH012	**Cabinet TYPE III,** for three instruments (Type: 2 compact, 1 N-bypass) - Mounting bracket for three compact instruments - Heater, fan, terminal box, 3 sockets - Insulation
	Optional accessories
LZH026	Bracket
LZH027	Wind protection

Note: For further reagents & consumables please refer to the chapter Appendix A

[2] Please refer to Appendix E for more details about manuals and user interfaces in different available languages

For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Discontinued Instrument's Spare Parts

FILTERTRAK FT 660, Ultra Low Range Turbidimeter

The laser process turbidity sensor FT 660 is a continuously operating instrument for the measurement of very fine turbidities in ultra clear liquids. Due to the high sensitivity of the FilterTrak, possible filter fracture can be detected significantly earlier than with conventional turbidity instruments. In conjunction with the versatile AquaTrend interface, the operation and calibration of the FT 660 are extremely straightforward and the maintenance effort low. With a single AquaTrend interface and the necessary power supply, up to eight FT 660 turbidity sensors can be operated.

The basic system comprises an FT 660 turbidity sensor, an AquaTrend interface with integrated SOM, a junction box and a power supply PS 2401. Other output modules can also be included such that a network for turbidity monitoring to suit requirements can be produced.

Technical Data
Subject to change without notice

	FilterTrak FT660
Measuring range	0.0001 – 1.000 NTU (= 0.1- 1000 mNTU)
Accuracy	± 5 % or ± 5 mNTU (whichever is the larger)
Resolution	0.001 mNTU
Reproducibility	± 3.6 % at 30 mNTU, ± 01.7 % at 800 mNTU
Response time	on a full scale change, first response in 1 minute, 15 seconds. Fluctuation depending on flow speed (see table in the operating instructions)
Sample flow rate	100 - 750 ml/min
Storage temperature	-20 to 60 °C (instrument only)
Operating temperature	0 to 40 °C (instrument only)
Operating humidity	5 to 95 % without formation of condensation
Sample temperature	0 to 50 °C
Measurement output	selectable for 0-20 mA or 4-20 mA. Output range can be programmed over any part of the range from 0 to 1 NTU.
Alarm	two floating min/max limit value contacts for an Ohmic load of 5 A at 230 VAC
Power supply	95-240 VAC, 50/60 Hz, automatic selection; (power supply module PS2401)
Sample feed	1/4" NPT female thread, 1/4" pipe threaded fitting
Waste threaded fitting	1/2" NPT female thread, 1/2" hose nipple
Communication	Max. node-to-node distance: 400 m
distance	Max. Total length of the wiring: 500 m
Installation	AquaTrend: wall, pipe, control panel and stand Power supply: wall, pipe, control panel and stand Turbidity sensor housing and head unit: wall and stand
Housing	Aqua Trend interface and PS2401 power supply; NEMA-4X/IP66 (indoors) turbidity sensor housing and SIO no enclosure rating defined
Dimensions	AquaTrend: 22.9 x 22.9 x 17.8 cm Power supply: 22.9 x 22.9 x 17.8 cm Turbidity instrument housing and cover: 25.4 x 30.5 x 40.6 cm
Shipping weight	8.17 kg FT 660 turbidity sensor, PS 2401 Power supply and Aqua Trend interface with SOM: approx. 9.9 kg

Discontinued Instrument's Spare Parts

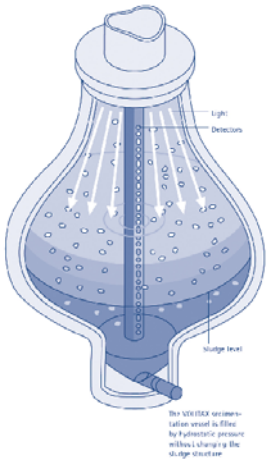
FILTERTRAK FT 660, Ultra Low Range Turbidimeter

Part No.	Designation
5230101	**Filtertrak FT660 with AquaTrend** interface with Signal Output Module, PS2401 power supply, junction box and operating instructions
5230000	**Filtertrak FT660,** (Network add-on sensor) junction box and operating instructions
	AquaTrend accessories
5120000	AquaTrend interface
5135000	AquaTrend with integrated signal output module
5140000	Portable AquaTrend module
5435300	PS2401 power supply module
5145000	Signal Input Module (SIM)
5125000	Signal Output Module (SOM) 2 channel
5750000	Signal Output Module (SOM) 8 channel
5240000	Digital Display Module (DDM)
5710002	MOD I/O interface, 230 VAC
5711100	MOD I/O OPC software, CD-ROM
5435000	Junction box
	Cable
5215710	Two-wire cable, communication only 30 m
5215810	Four-wire cable, communication and power 30 m
	Cables also available in the lengths 75 m, 150 m and 300 metres!
	Further accessories
5236400	Calibration set (includes a calibration cylinder with base and funnel)
2723353	STABLCAL SOLN, 0.1 - 0.2 NTU 1L 1 l
2697953	STABLCAL STD, 0.30 NTU 1000mL 1 l
4630800	Power cord kit for PS2401 (230 VAC)

Note: Power and communication cable must be ordered separately for over-length.

Discontinued Instrument's Spare Parts

VOLITAX (DataSheet DOC053.52.03408)



Submerged in the basin, the Volitax sensor determines the sludge volume by optically monitoring the sludge level during a sedimen-tation period of 30 minutes. This dircet measuring method ensures excat values directly in the process, 24h a day and 365 days a year.

Due to its special design the sludge flocs will sink unobstructed even when high sludge volumes are present, without dilution.
The progress of the sedimentation provide early information about changes in the sludge index and facilitates the process management.

Connecting an anolgue Solitax t_s-probe, the Sludge Volume (SV), the Sludge Volume Index (SVI) and the Sludge Concentration (g/l TSS) will be determined in parallel.

Technical Data

Subject to change without notice

	Volitax
Measuring values	Sludge volume SV optional: TSS and SVI with SOLITAX sensor
Measuring technique	equivalent to DIN 38414 part 10
Measuring range	50 ml/l to > 750 ml/l
Measuring resolution	< 10 ml/l
Measuring uncertainty	±10 % of the measured value ±20 ml/l (compared to Lab method DIN 38414-10)
Response time T_{90}	37 min
Calibration	precalibrated by the manufacturer with long-term calibration
Cable length	8 m (10 m max.)
Display	graphics display with curve tendency alphanumeric liquid crystal display
Outputs	2 x 0/4 - 20 mA, max. 500 Ohm Bus interfaces: MODBUS or ProfiBUS DP (optional)
Process connection	
Installation	Immersed directly into the media
Temperature T_{max}	
Sample	+2°C to +40°C (probe)
Ambient	-10°C to +40°C (controller)
Dimensions	
Probe (L x Ø)	540 mm x 184 (235) mm
Controller (WxHxD)	306 x 286 x 93 mm
Power Supply	100-240 VAC, 50-60 Hz, 18 Ohm 24 VAC/VDC ± 25%, 15W (optional)
Material in contact with the media	Glass, NBR, PE, ABS, SS1.4571 (V4A), PTFE, PFA, Pharmed®
Enclosure rating	IP65
Weight	
sensor (appr.)	4.8 kg
controller (appr.)	3.5 kg
Maintenance requirement	1 h / month, typical
Servicing interval	12 months
Controller compatibility	Volitax Multi-Unit and Multi-Unit plus
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years

Discontinued Instrument's Spare Parts

VOLITAX (DataSheet DOC053.52.03408)

Part No.	Designation
LXV279.XX.00000	**VOLITAX sensor,** without controller, 8m cable
LXV309.XX.X0000	**MULTI UNIT VOLITAX,** Controller with graphics display and curve tendency

L	X	V	3	0	9	.	X	X	.	X	0	0	X	0	

Country Code Selection

GB language with EU power cord..... **5 2**

Power supply

100-240 VAC, 50-60 Hz, 18 VA **0**
24 VDC, 15 W..... **1**

Interface Options

No bus connections (Standard version) **0**
MODBUS ..... YAA857 ..... **1**
PROFIBUS ..... LZV148 ..... **2**

Note:

For Solitax (analog) sensor please contact HACH LANGE.
[2] Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Standard accessories for all Solitax

1 set of wiper blades (for 5 changes)
1 set of operating instructions
1 factory test certificate

Mounting assemblies LZX414.00.00000 and LZX413 are essential for installation and must be ordered separately.

Further accessories

LZX414.??.00000	Mounting Kit for immersion probes (without adapter), made of SS, for mounting the probe to a tank or channel	
LZX413	Mounting Kit for display unit, made of stainless steel for monting the display unit near the probe	
LZX142	Y cable - for the connection of a second sensor to the MULTI UNIT Controller	
LPV361	MODBUS node - bus node for connection to MODBUS	
DOC023.??.03095	Operating instructions VOLITAX SVI (GB)	

Extension cables

LZX437	Extension cable	5 m
LZX438	Extension cable	10 m
LZX439	Extension cable	15 m
LZX440	Extension cable	20 m
LZX462	Extension cable	30 m
LZX463	Extension cable	50 m
LZX512	Extension cable	100 m

LXV092	SOLITAX ts-probe (analog instrument version; for use with Volitax only) made of SS316, with automatic cleaning option, measuring range 0.001 ... 50 g/l SS
LZX414.00.10000	Probe Mounting Kit, made of SS with 90° adapter for fixing the probe to a tank or channel

Discontinued Instrument's Spare Parts

SODIMAT 9073 AutoCal (DataSheet TE9073revD)

The Sodimat 9073 is a microprocessor controlled process analyser which ensures high accuracy of sodium measurements.

The instrument is designed without moving parts, pumps, or valves to maintain and replace - other than a low-maintenance micro piston pump used for calibration. The only regular care that is needed is to replace the conditioning reagent about once per month.

The Sodimat 9073 Sodium Analyzer uses a sodium-sensitive glass electrode to measure sodium in a sample that is conditioned to a pH greater than 10 to limit interference from other ions.

The pH is adjusted using gaseous diisopropylamine or ammonia to avoid risk of contamination by the conditioning solution.
(This conditioning system is suitable for nuclear power plant samples that may contain boric acid.) A microprocessor-controlled transmitter processes the electrode signal, which is corrected for temperature, and displays the sodium concentration.

Technical Data

Subject to change without notice

	Sodimat 9073
Application	Demineralisation, Boiler feedwater, Steam condensate, Semiconductor On-line monitoring of low level Sodium in ultrapure water and steam condensate
Measuring principle	Using Sodium sensitive glass electrode after sample conditioning > pH 10
Measuring range	0.01 ppb...10,000 ppm, freely programmable
Measuring uncertainty	< 5% of reading or ± 0.05 ppb whichever is greater
Reproducibility	< 3% of reading or ± 0.03 ppb whichever is greater
Response time T_{90}	< 2 min (in the range 10 to 100 ppb); < 10 min (in the range 1 to 1000 ppb)
Interferences	none K-kit must be used if sample acidity is > 10 meq/l, e.g. cation exchanger samples
Calibration	AutoCal - 1 or 2 point automatic standard addition Process calibration using Laboratory reference values manual 2 point calibration
Temp. compensation	automatic within the range +5°C ... 45°C
Process connection	
Installation style	Bypass
Sample inlet	Swageloc 6 x 1 mm tubing, free of solids (< 2 NTU) and oil
Drain (outlet)	Nippel for 8 x 1 mm PE hose, atmospheric outlet
Sample flow	3 ... 5 l/h
Pressure range	0.5 ... 6 bar
Temperature T_{max}	
Sample	+5°C ... 45°C
Ambient	+5°C ... 50°C
Outputs	2 x 0/4...20 mA for measured value and/or temperature (900 Ohm max) 3 relays (min/max, system alarm), RS232
Enclosure rating	IP65 (NEMA4)
Material	Enclosure: ABS with PMMA Window
Power requirement	24/110/220/240 V (-15% ...+10%), 50-60 Hz, 50VA
Dimensions	485 x 891 x 290 mm (W x H x D)
Weight (approximately)	10 kg
Warranty	24 Month; extendable to 60 months

Discontinued Instrument's Spare Parts

SODIMAT 9073 AutoCal (DataSheet TE9073revD)

Part No.	Designation
Z09073=A=1XXX	**SODIMAT 9073**, Sodium Process Analyzer with auto-calibration

Z	0	9	0	7	3	=	A	=	1	X	X	X

Power supply Option

110 VAC, 50/60 Hz	**1 1 0**
220 VAC, 50/60 Hz	**2 2 0**
240 VAC, 50/60 Hz	**2 4 0**

Note: Instrument is supplied without reagents

Accessories

Z09073=A=8000	9073 Maintenance Kit for 2 years operation Consisting of 1 x reference electrode 1 x sodium glass electrode 2 x 1 liter electrolyte bottle 2 x 11x4mm O-ring 2 x In-line filter 3m 4x6mm PE tubing 1m 1,6 X 3,2 Tygon tubing 1m 2 x 3 PE tubing 5 x 10-32UNF 1/16 PP fittings 5 x 10-32UNF 1/8 PP fittings 2 x injection T 1 x PP elbow piece x 4x6mm tubing 2 x wall-through fittings 1 x carrying case
Z09073=A=0450	Liquid Conditioning (K)-Kit 9073 for high acidity conditioning, 50 Hz
Z09073=A=0460	Liquid Conditioning (K)-Kit 9073 for high acidity conditioning, 60 Hz
Z09073=A=0700	Mixed bed complete system for 9073 (Autocal Version)

Standards and Reagents

2834453	Diisoproylamine 99%, 1l Diisopropylamine is a Dual use reagent and requires special licence by non-EU purchasers. Monoethylamine, Diethylamine or Ammonia could be also used; please refer to the instrument manual.
2835153	Sodium Standard, 10 mg/l as Na^+, 1l
2834253	Sodium Standard, 100 mg/l as Na^+, 1l
Z09073=A=0750	All equipped cartridge (from fittings to mixed-bed resin)

Manuals

Z621=190=073	Instruction manual Sodimat 9073, GB

Spare Parts

Z125=020=003	Reference electrode
Z125=010=004	Measuring electrode
Z09073=C=0035	Temperature sensor
Z359016,10105	Connection cable, Reference electrode (1m), AS7 connector
Z359016,10111	Connection cable, Measuring electrode (1m), AS9 connector

Note: For further reagents & consumables please refer to the chapter Appendix B
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Discontinued Instrument's Spare Parts

8810 Multi-Stream Sequencer for SODIMAT 9073

Part No.	Designation
Z08811=A=30XX	**8811 Sample Sequencer,** Multi-Stream Sequenzer for 9073 Sodimat

Z	0	8	8	1	1	=	A	=	3	0	X	X

Power supply

110 VAC	1
220 VAC	2
240 VAC	3

Sequencer channels

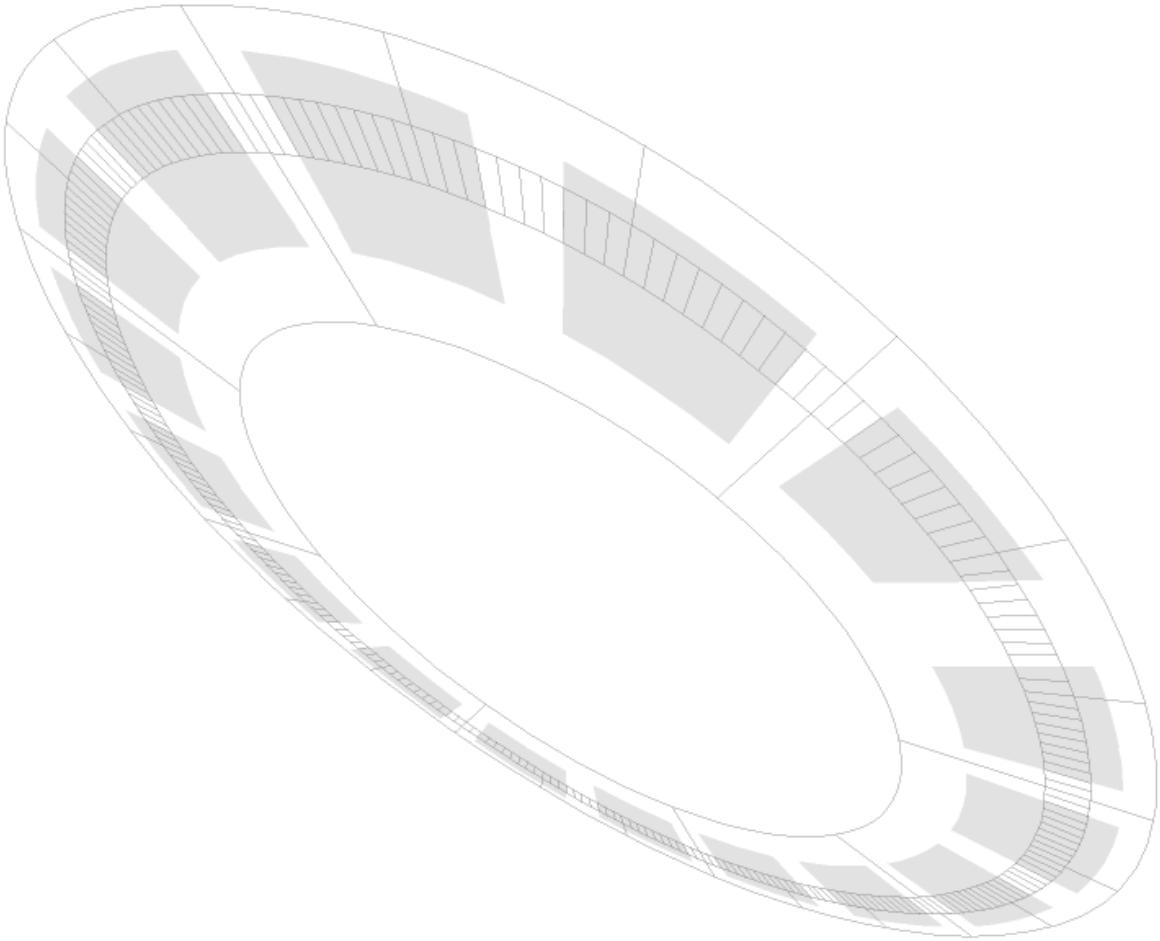
2 channel	2
3 channel	3
4 channel	4
5 channel	5
6 channel	6

Spare Parts for 8811 Sample Sequenzer/9073 Sodimat

Z08810=A=7000	PI-Board (Display) CE version
Z08811=A=0000	8811 electronic unit complete with box
Z08811=A=0010	3 conductor serial interface cable
Z08811=A=6200	8811 Sequencer Eeprom V.1. XX
Z151575,00006	PE tubing 4/6 mm
Z359110,20000	P-O Power supply board (complete) for 8810 NLZ: configured for 220, 230 or 240 Volts (in 50HZ or 60 HZ)
Z431=300=018	G 1/8" stainless steel plug
Z577011,20602	G 1/8" stainless steel fitting DN 4/6
Z577011,40609	Elbow fitting DN 4/6
Z689=131=030	3/2 way valve
Z696=046=001	Needle valve

Appendix G

Delivery and Payment terms



Delivery and Payment terms

General Terms and Conditions of Delivery and Payment of HACH LANGE GmbH, Berlin

1. Scope of application

All our quotations and deliveries shall exclusively be on the basis of the following General Terms and Conditions of Delivery and Payment, as amended. These General Terms and Conditions of Delivery and Payment shall also apply for all future transactions. Customer's terms and conditions of purchase are hereby expressly contradicted. Agreements deviating from the present Terms and Conditions of Delivery and Payment shall only apply if these have been confirmed by us in writing as an addition to the present General Terms and Conditions of Delivery and Payment. This shall also apply if we implement a delivery without reservations despite knowledge of all and any deviating terms and conditions of Customer.

2. Taking effect of contracts

Our quotations shall be non-committal. The contract shall only come about through our order confirmation or implementation of the order. Contractual properties of the object of delivery shall be exclusively defined by our order confirmation. Information on properties not expressly contained or referred to in the order confirmation shall not become objects of the contract. Information on properties other than those expressly stated or referred to in the order confirmation shall not represent a defect in the object of delivery – pre-supposing a lack of the same.

3. Prices and payment terms

3.1 Unless expressly agreed to the contrary in writing, prices shall apply ex works as net prices in Euros plus statutory VAT to the amount at the time. Payments shall be due within 30 days after delivery without any deduction. Repairs and services including spare parts used shall be settled immediately without deduction. If both delivery services and also repairs and other services are owed, a payment period of 30 days from delivery shall be deemed agreed.

3.2 From maturity of payments, we shall be entitled to demand 5% interest from Customer subject to other agreements. From the occurrence of arrears, we shall be entitled to demand interest to the amount of 8% above the basic rate of interest. The right to claim further damages shall be reserved. If Customer fails to pay the amount owed after a suitable subsequent period has been set in writing, we shall have the right to withdraw from the contract or to demand damages in lieu of performance.

4. Delivery and passage of risk

4.1 Suitable partial deliveries shall be admissible.

4.2 We reserve the right to correct and punctual delivery to us.

4.3 In delivery freight prepaid, risk shall pass to Customer at the moment at which the commodities leave our works. In the event of delays in dispatch for which Customer is answerable, risk shall pass upon notification of readiness for dispatch.

4.4 We reserve the right to charge costs of packaging and costs of freight additionally as a function of the value of the commodities for deliveries. Special packaging shall be charged at cost price.

5. Arrears and impossibility

5.1 If we fall into arrears with our obligation to delivery through slight negligence, Customer can demand a reimbursement to the amount of 0.5%, albeit no more than a maximum of 5 % of the value of the part of the overall delivery which cannot be used or cannot be used in good time as a result of the arrears, for each commenced week of arrears. A lower or higher amount of damage shall be claimed if we can prove lower or Customer can prove higher damages.

5.2 Notwithstanding Customer's right of withdrawal in the event of defects (cf. 7. Warranty), Customer can only make use of its right of withdrawal in the event of impossibility of performances in arrears or of a breach of obligations for which we are answerable.

5.3 In the event of arrears, withdrawal or damages in lieu of performance shall additionally presuppose that Client has previously set us a suitable period of not less than 4 weeks in writing, expressly clarifying that it shall claim withdrawal from the contract and/or damages if the period is not complied with. After the expiry of said period, Customer shall be obliged to declare, upon request by us, whether it continues to insist on delivery or is claiming damages or is withdrawing from the contract. If Customer fails to make said declaration within a suitable period set by us, Customer shall no longer be entitled to reject delivery, withdraw from the contract or demand damages in lieu of performance.

5.4 Setting a period as stated in sub-section 5.3 shall be dispensable if we serious-ly and finally reject the performance owed by contract or specific circumstances justifying immediate withdrawal following consideration of mutual interest exist.

5.5 Customer cannot withdraw either before maturity of the period or in the event of a merely inconsiderable breach of the contract on our part. Finally, withdrawal shall be ruled out if Customer is responsible alone or to a great extent for circumstances which would justify a withdrawal or a circumstance for which we are not answerable occurs during arrears in acceptance by Customer.

5.6 Section 8 of the present General Terms and Conditions of Delivery and Payment shall apply for claims to damages.

6. Notification of defects

6.1 Obvious defects, i.e. defects in title and quality, excessive, short or wrong delivery as well as the lack of a property possibly guaranteed by us or of the service life of the delivery of service (defects) shall be claimed in writing forth-with, albeit no later than 14 days after receipt of the goods, defects not recognisable in a customary check of incoming goods being notified forthwith, albeit no longer than 14 days after their discovery.

6.2 If defects or other complaints are not claimed within the periods pursuant to sub-section 6.1 above, all and any warranty claims against us shall be ruled out.

7. Warranty

7.1 If a defect exists, we shall carry out a remedy of the defect (afterworking) or re-placement delivery at our choice if the notification pursuant to Section 6 of the present General Terms and Conditions of Delivery and Payment is in good time. The period of limitationfor all and any warranty claims shall be 24 months from the hand-over of the object of delivery.

7.2 If we have carried out afterworking twice or replacement delivery once and if the existing defect has not been rectified hereby and also in the event of us rejecting or improperly delaying a necessary afterworking or replacement de-livery or if afterworking cannot be reasonably expected from Customer for any other reasons and also if the prerequisites of §§ 281 II or 323 II German Civil Code have been fulfilled, Customer can, in lieu of afterworking or replacement delivery, make the statutory remedies of withdrawal and reduction of the pur-chase price as well as claims to damage and reimbursement of expenditure, the latter within the framework of Section 8 of the present General Terms and Conditions of Delivery and Payment. In the event of replacement delivery, return of the delivered commodities shall be agreed with us in advance.

7.3 For outside products, our warranty shall be limited to transfer of the claims which we have against the supplier of the outside products. In the event of Customer not being able to assert its warranty rights against the supplier of the outside product, we shall warrant within the framework of the present terms and conditions.

7.4 Following agreement, Customer shall give us the necessary time and opportuni-ty of carrying out the afterworking or replacement delivery.

7.5 Apart from this, we shall not be obliged to afterworking or replacement delivery if this is only possible with disproportionate costs. Such costs shall be disproportionate if they exceed 25% of the purchase price of the object of delivery.

7.6 All and any parts replaced in the course of warranty shall become our property.

7.7 If the notification of defects is unjustified, we shall be entitled to demand reimbursement of our expenditure from Customer.

7.8 We shall bear no warranty in the event of only inconsiderable deviation from the agreed property and only inconsiderable impairment of the usefulness or for damages occurring in particular for the following reasons: unsuitable, improper or faulty use of the object of delivery by Customer or a third party, natural wear and tear, faulty or negligent treatment, in particular excess strain, replacement materials, chemical or electrical influences insofar as they are not to be put down to culpability on our part.

7.9 All documents belonging to our deliveries, such as illustrations, diagrams, network plans or portrayals of screen masks etc., shall only be approximate insofar as they are not expressly designated as being binding by us. Information in these documents and also DIN norms to which reference is made shall not portray property or service life guarantees. We reserve ownership, copyright and other protective rights to these documents. These documents may only be made accessible to third parties with our prior written approval.

7.10 If the commodities have subsequently been moved to a place other than Customer's establishment and if expenditure, in particular transport, travelling and material costs for the afterworking or replacement delivery increase as a result, this increased expenditure shall be borne by Customer unless movement to a different location corresponds to proper use of the commodities.

7.11 If certain appliance-specific maintenance or inspection work is to be done by Customer within the warranty period (maintenance) or to be carried out by the supplier (inspection) and if these requirements are not complied with, our obligation to warranty shall not extend to the damage resulting therefrom.

8. Damages

8.1 To the extent that nothing to the contrary has been agreed in the present terms and conditions, all claims of Customer to damages of any kind and reimbursement of expenditure and indirect damage shall be ruled out. This shall particularly apply to claims on account of all breaches of obligation from the contractual relationship and from tort. The disclaimer shall also apply if we have used assistants or vicarious agents.

8.2 We shall nevertheless be liable for the cases mentioned in sub-section 8.1 if we, our senior employees or vicarious agents can be accused of gross negligence or malice aforethought and also in all cases in which we, our senior employees or vicarious agents culpably breach essential contractual obligations (cardinal duties) and the purpose of the contract is thus impaired.

8.3 In the event of a breach of cardinal duties, our liability shall however only be limited to the amount of the value of the order in the event of slight negligence.

8.4 If, in an exceptional case, the value of the order does not correspond to the typically foreseeable damage in the latter named case, the amount of our liability shall be limited to the typically foreseeable damage.

8.5 The disclaimer shall finally not apply for claims from the Product Liability Act or if a guarantee for the properties or the service life of the object of delivery has been taken on. Further, the disclaimer shall not apply for damage from injury to life, limb or health.

9. Force majeure

Incidents of force majeure with us or our sub-suppliers shall extend the delivery period suitably. This shall also apply in the event of official interventions, difficulties in supplying, strikes, lock-outs and unforeseen difficulties in delivery to the extent that we are not answerable for them. If delivery becomes impossible or unreasonable due to the aforementioned circumstances, we shall be released from our obligation to delivery, of which we shall notify Customer forthwith. If the delay in delivery lasts for more than two months, Customer shall be entitled to withdraw from the contract.

10. Diagrams, samples etc.

10.1 We reserve ownership and copyrights to our diagrams, samples and models. As a matter of principle, they may not be made accessible to third parties.

10.2 If we are to supply according to samples, diagrams and models from Customer, Customer shall assume liability for the fact that we do not breach any third party protective rights. If a third party bans us from producing and supplying objects produced according to diagrams, models or samples from Customer, referring to a protective right accruing to it, we shall be entitled to stop production and delivery and to demand reimbursement of the costs expended – without being obliged to examine the legal situation – ruling out all claims to damages of Customer. Customer shall reimburse us for all indirect and direct damage which can be incurred as a result of the breach of all and any protective rights and from the claiming of all and any protective rights by third parties. Customer shall make a suitable down-payment with regard to all and any costs of proceedings upon request and shall generally hold us harmless from such costs.

10.3 Acceptance and custody of objects and documents of Customer shall be done at its risk.

11. Offsetting, solvency and transfer

11.1 Offsetting with counterclaims other than undisputed or legally effective ones and exercising of rights of rejection of service and retention against claims for purchase prices shall require our approval.

11.2 In the event of doubts about the solvency of Customer, in particular in arrears in payment, we can demand advance payments or securities for future deliveries and revoke payment periods granted, subject to further claims.

11.3 Rights and duties from the purchase contract may only be transferred to third parties by Customer with our express approval.

12. Retention of title/cuvette test

12.1 Commodities supplied shall remain our property until complete payment of our invoice and payment of all previous deliveries and services, including all subsidiary claims, in the event of payment by cheque or bill until the time at which we can freely dispose of the amount (§ 449 I German Civil Code). Addition of individual claims to a current account and balancing and acknowledgement thereof shall not affect the retention of title.

12.2 Cuvette tests supplied by us shall remain our property. They can be only used and deployed by Customer in the way prescribed by us (operating instructions/ manuals) and shall be collected from Customer within the territory of the Federal Republic of Germany after their use following prior announcement. Cuvette tests from medicinal diagnostics (in vitro diagnostics) shall form an exception from the present regulation.

12.3 If conditional commodities are combined, mixed or connected with commodi-ties not belonging to us pursuant to §§ 947, 948 German Civil Code, we shall become co-owners of the overall object in the ratio of the value of the invoice for the deliveries and services to the remaining processed goods at the time of the processing, combination, mixing or connecting. If Customer becomes sole owner by combination or mixing, it here and now transfers co-ownership to us in the ratio described above and engages to keep the new objects free of charge on our behalf.

12.4 If conditional commodities are sold by Customer alone or together with commodi-ties not belonging to us, Customer here and now transfers the claims resulting from the re-sale to us to the amount of the value of the conditional commodities with all subsidiary rights. If the resold commodities are in our ownership, the transfer of the claim shall extend to the amount corresponding to the value of the share of our co-ownership. We empower Customer to collect the claims transferred to us, subject to revocation. If Customer falls into arrears with its obligations towards us, it shall notify us of the debtors of the transferred claims and notify the latter of the transfer. In such a case, we shall also be entitled to notify the debtors in question of the transfer and to make use of our power of collection ourselves.

12.5 In breach of contract by Customer, in particular in arrears in payment, we shall be entitled to take back the conditional commodities following a reminder and setting of a period and Customer shall be obliged to hand over the commodities. Claiming of a right of retention and seizure of the object of delivery by us shall not be deemed withdrawal from the contract. Customer here and now declares its agreement with the persons commissioned by us to collect the conditional commodities having access to and driving onto its premises for this purpose.

12.6 Customer shall only be entitled and empowered to re-sales, use or installation of the conditional commodities in the customary proper course of business and only with the proviso that the claims transferred to us (sub-section 12.3) also actually pass to us. Customer shall not be entitled to any other disposal of the conditional commodities. Customer may in particular not pledge the object of delivery or transfer it by way of security.

12.7 Customer shall inform us forthwith of compulsory enforcement measures of third parties against the conditional commodities or the claims transferred to us, simultaneously handing over the documents necessary for a protest.

12.8 All conditional commodities shall be insured by Customer at its own expense, in particular against fire and theft. All claims against the insurance company in question with regard to the conditional commodities are hereby transferred to us; we accept this transfer.

12.9 If the value of the securities granted to us exceeds our claims by more than 20%, we shall be obliged to release the securities granted to us to Customer insofar as they exceed the agreed cover limit.

13. Work services

For services to which the directives of the contract for works and services are applicable, Contract Procedure for Building Works (VOB) part B as amended shall apply. The valid VOB part B can be requested from us at any time.

14. Place of performance, place of jurisdiction and applicable law

14.1 Place of performance for Customer's payments and for our deliveries shall be the headquarters of our company in Berlin, Germany.
The exclusive place of jurisdiction for all disputes shall be Berlin. In addition, the plaintiff shall be entitled to sue at the defendant's headquarters.

14.2 The contractual relationship to Customer shall be governed by the law of the Federal Republic of Germany. Application of the United Nations Convention on the International Sales of Goods, Vienna, of 11.04.1980, shall be ruled out.

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www.hach-lange.com

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