

# process AUTOMATION

**SIEMENS**

SIREC D  
Display Recorder



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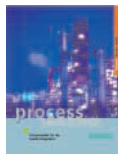


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# SIREC D Display Recorder

Catalog  
MP 20 News · 2007



Supersedes:  
Catalog MP 20 News · 2005

The products contained in this catalog  
can also be found in the e-Catalog CA 01  
Order No.:  
E86060-D4001-A110-C5-7600 (CD-ROM)  
E86060-D4001-A510-C5-7600 (DVD)

Please contact your local Siemens branch

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*The products and  
systems listed in this  
catalog are distribu-  
ted/manufactured using  
a certified quality mana-  
gement system which  
complies with  
DIN EN ISO 9001.*



**SIEMENS**

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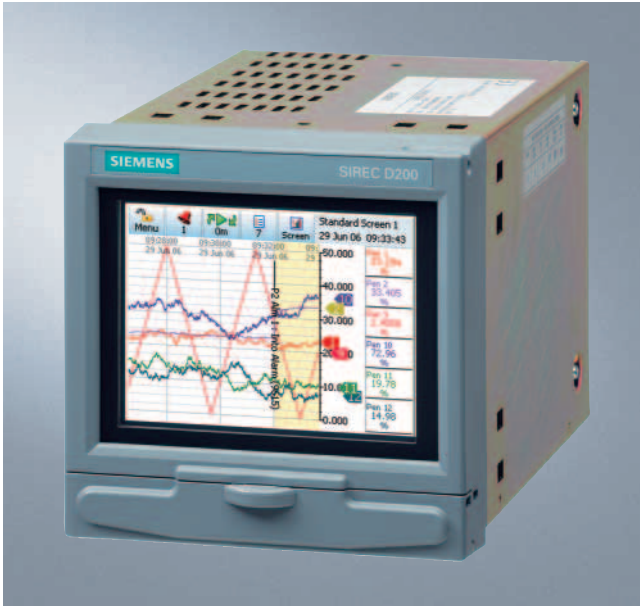
Conditions of sale and delivery

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# SIREC D Display Recorder

## SIREC D200

### Overview



#### Crystal Clear Display

- 5" Digital Colour LCD (TFT)
- QVGA Resolution (320 x 240 pixels)
- Clear and intuitive operation
- Industrial rugged Touch Screen with rapid navigation

#### Comprehensive Connectivity

- 10/100 Ethernet (DHCP), Web, OPC Server Web and E-mail
- FTP and TCP/IP
- RS485 Modbus Protocol (option)
- Front USB port as standard for keyboard and mouse. Rear USB option.

#### Data Storage

- On-board non-volatile memory - up to 400 Mbyte
- Removable USB storage
- No moving parts - all solid state Flash memory

#### Security Stringent - Total Data integrity

- Password Protection - 21CFR Part 11
- ESS - Extended Security System

#### Plus..

- Health Watch for preventative maintenance
- Remote Access - Advanced Software Data Analysis at your PC
- Independent Chart and Logging speeds
- Global Language Support
- Rapid review and replay of data at recorder
- Approvals - CE, CSA, UL
- NEMA 4X/IP66 option
- Up to 10 Hz (100 msec) Logging (including expansion card option)
- Up to 12 Analog Inputs
- Remote Viewing Tool
- 4 Pulse Inputs via the Digital I/O card (option)

### Function

#### Display

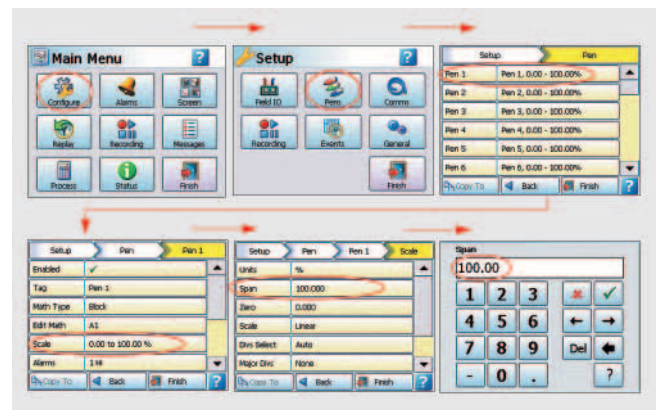
##### 5" Colour Active TFT

With more than 256,000 colours makes it easy to interpret process data and take action with the intuitive bar charts, digital values, trends or trends displays. A screen saver function can be set from 1 to 720 minutes to extend the life of the backlight.

#### Touch Screen

The heavy duty durable touch screen provides easy data entry and rapid navigation through the menus. The touch screen operator interface provides fast, easy access to the recorder menus making set up and data analysis quick and efficient.

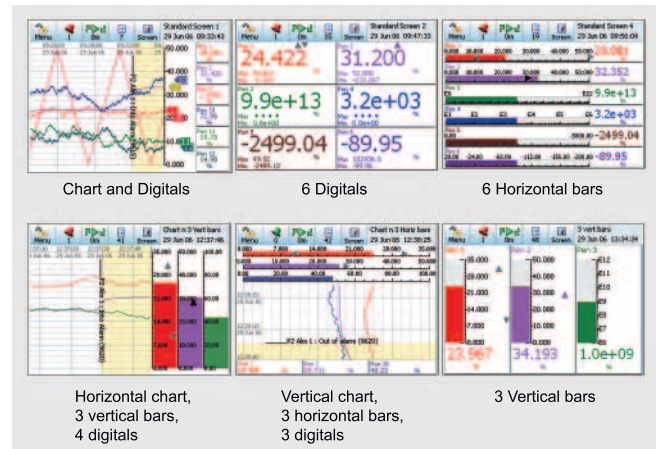
Navigation through the menus and text entry are direct and intuitive:



Example of a recorder menu path from the Main Menu to Pen Scale configuration with clear and rapid navigation

#### Standard Screens

Up to 10 screens displaying multiple combinations of Charts, Bars and Digitals can be configured, 6 examples below.



#### Help Files

A complete contextual help system can be accessed and visualised on the screen of the recorder.

#### Logarithmic Scales

All displayed scales can be set as linear or logarithmic.

### Replay with Zoom

Select replay mode and zoom-in on a specific area on the screen. The data can easily be replayed at the recorder with the ability to "zoom". The touch screen makes it fast to review and analyse historical data. A "jump" function allows you to go from any message list directly to the trend showing the occurrence of the alarm.

### Language Support

Standard language prompts for

- English UK & US
- French
- German
- Italian
- Spanish
- Portuguese (Braz)
- Polish
- Slovakian
- Czech
- Turkish
- Romanian
- Hungarian
- Russian

### **Communications**

The recorder supports FTP, Modbus TCP/IP (slave mode), web and email over Ethernet (DHCP standard) communications port and Modbus RTU (slave mode) via an RS485 port (option). USB ports allow the use of an ASCII barcode reader. Email sent to your network connected PC triggered by an Alarm or an Event.

### Ethernet Connectivity

The Ethernet (DHCP standard) connection, with support for various protocols, provides unlimited connectivity to local area networks (LANs). The standard Ethernet interface makes networking of the recorder to a LAN or the world wide web fast and convenient. Dynamic Host Configuration Protocol (DHCP) automatically acquires the settings (IP address) for network communications from a DHCP server.

### Simple Network Time Protocol (SNTP)

The recorder can be synchronised over the ethernet network via a SNTP client or synchronise other recorders via a Server.

### Web Server

With the recorder connected to a LAN, all process variables, alarm and messages can be viewed from an internet browser; values are automatically refreshed.

### USB Ports

Front and rear USB host ports for data and setup transfers or remote screen through this port. Front USB port is standard and the rear USB port is available with the Communications card option. Use these ports to attach external devices (keyboard or mouse), for direct interfacing with the recorder.

### Remote Viewer

Extends the user interface of the recorder onto the desktop PC. Providing remote viewing of the unit launched from a web browser. Full remote control is available as an option. Compatible with Microsoft™ Internet explorer 6 and higher.

### **Data Storage**

#### Internal Data Storage

70 MByte to 400 MByte expandable internal non-volatile flash memory is available for data storage and chart history.

Pens	70 MByte	400 MByte
6	32 Days	182 Days
12	16 Days	91 Days
24	8 Days	45 Days

Internal memory (Logging rate = 1 s)

#### Data Export

Removable USB flash storage device. Data is stored in a secure binary encrypted format, with the recorder's configurations, providing added security of the data files

#### Events

Certain conditions or operations can be set up and logged according to the time and date of the occurrence. Subsequently events can be reviewed in a list or represented on a graph.

#### Batch

Batch enhances the management of data collected in non-continuous process, known as batch processing, used in thermal treatment, sterilisation, food processing and chemical reactions.

#### Soft Alarms

6 "software" alarms per pen are easily set up to display and record selected out-of-limit conditions. These can be tied to the relay or digital outputs to activate the user's external equipment.

#### Independent Display Chart Speeds and Logging rates

Logging rates can be programmed completely separate from the chart display speed, allowing the data to be displayed and stored at the rates that best suits the application.

#### Fuzzy Logging

This standard feature provides a unique method to increase the storage capacity of the recorder. The data is monitored to determine changes in process data; if no changes are observed data is logged periodically. If data is changing rapidly, it is recorded normally at the programmed rate. By not logging data that is static, data compression of up to 100:1 or more can be achieved saving valuable memory.

#### Pulse Inputs

The 8 Digital I/O option card has 4 channels that can be set as pulse inputs (first 4 channels). The operating frequency for pulse inputs on the Digital I/O card is 1 kHz max.

### **Data Security**

#### Total Data Integrity

Data is stored in secure encrypted files making it easy to retrieve the data dependent on process information. Data is automatically recognised without having to remember file names.

#### Password Protection

Up to 4 levels of password protection with up to 50 different users are available. Multiple levels of password protection and an audit trail of actions enhance the security of the data.

#### Extended Security System (option)

ESS provides extended features including entry of unique User ID's and associate passwords, time-out of password entry, password expiration, and traceability of user actions. ESS is compatible with the requirements of 21CFR part 11.

# SIREC D Display Recorder

## SIREC D200

### Safety Standards

#### CE Mark

Conformity with 73/23/EEC, Low Voltage Directive and 89/336/EEC EMC Directive.

#### Enclosure rating

standard NEMA 3/IP54 type front face protection. NEMA 4X/IP66 available as an option.

#### Security tag

"Wire seal provision" that provides added security to seal the front door and rear wiring when using optional rear cover to prevent undetected entry to these areas of the recorder.

### Technical specifications

#### Design Attributes

Display size and Type	5" diagonal, color Diagonal, Digital Colour LCD (TFT) with Touch Screen Industrial grade with brightness adjustment and wide viewing angle
Resolution	QVGA (320 x 240 pixels)
Screen Saver	Set in minutes from 1 ... 720, can be set to dim the screen or to switch off. Automatic wake-up facility in the case of an alarm
Brightness adjustment	Adjustable between 10 and 100%, default set to 80% brightness
Backlight life time	40,000 hours to half brightness when used at 100% (62,500 h if used at 80%). Maximum luminosity 450 cd/m <sup>2</sup>
Touch Screen life	1,000,000 touches
Display Update Rate	Display values updated every second
Status Display	A status bar, at the top of the recorder's screen, displays the real-time icons of the recorder status, such as recording time left and alarm active.
Communications	Ethernet 10/100 base - T with RJ45 connector supporting Modbus/TCP, FTP, Internet, DHCP or fixed IP address. RS485 Modbus RTU (up to 115200 Baud Rate). RS485 is available as an option on the Comms card
Mathematics	Basic maths include Add, Subtract, Multiply, Divide, Modulo and power. Full Maths (option) support up to 100 character free form math expression for each pen. Like SINE, COS, TAN, Log, Parenthesis (eg. A1 + A2), comm variables, free memory, and access to any data item variable (A1, P1, D1 etc.)
Front (standard) and Rear (option) USB Ports	USB host ports front (standard) and rear (option) for data and setup transfers through these ports. External devices keyboard or mouse, Barcode reader, or external mass storage device. (USB 1.1 compliant)

#### Standard Screens

Fully programmable display values in engineering units. Time & date stamp on every division.

Sets of Standard screens are available to display data on a chart, digital reading, bargraphs or numerous combinations thereof. Screen properties can be modified on the recorder and customised to suit.

Digital values displayed include

- alarms on bars,
- engineering units,
- pen name,
- tag, time and date,
- 20 character description and
- totalised values.

#### Data Storage

##### • Local Mass Storage Options

- USB memory key - up to 2 GByte
- USB hard drive - up to 120 GByte

##### • Internal Data Buffer

Non-volatile, 70 MByte (16 million acquisition values) and 400 MByte ( up to 90 Million points)

##### • Setup and screens

Stored internally on non-volatile memory

##### • Manual Saving

Data saving by inserting USB memory stick

##### • Data Saving Period

Related to log rate, number of pens, totals and alarms. Each pen is capable of its own independent storage rate (200 ms ... 60 h)

##### • Data Format

Binary encoded format

##### • Recycling Mode

Internal memory has FIFO (First In First Out) capability where the newest data over-writes the oldest data

#### Power Requirements

##### • Voltage (VRMS)

100 V AC ... 250 V AC (auto select)

##### • Frequency

50/60 Hz

##### • Power Consumption

< 40 W

##### • 24 V optional instrument power

20 ... 30 V DC / 20 ... 25 V AC Power Consumption: < 40 W

#### Battery

Battery backed up for clock, replaceable lithium battery Type 6032, 3.0 V – 10 years life (Recorder powered), 4 years life, typical (Recorder unpowered).

#### Password Protection

Multiple Administrator control of password setup and management with four levels of password protection for – Engineer, Supervisor, Technician, and Operator. Up to 50 different users are available. Password protection restricts user entry to the recorder set up and specific screens.

##### • Engineer

Highest access to all levels, Supervisor, Technician and Operator

##### • Supervisor

2nd highest level including Technician and Operator access

##### • Technician

3rd level including Operator access

##### • Operator

4th and lowest level of access

Languages	<ul style="list-style-type: none"> <li>• English UK &amp; US</li> <li>• French</li> <li>• German</li> <li>• Italian</li> <li>• Spanish</li> <li>• Polish</li> <li>• Portuguese (Braz)</li> <li>• Slovakian</li> <li>• Czech</li> <li>• Turkish</li> <li>• Romanian</li> <li>• Hungarian</li> <li>• Russian</li> </ul>	CE Conformity (CE Mark)	This product conforms with the protection requirements of the following European Council Directives: 73/23/EEC, the Low Voltage Directive, and 89/336/EEC, the EMC Directive. Conformity of this product with any other "CE Mark" Directive(s) shall not be assumed.
Temperature Units	°C, °F, K	Immunity Product Classification	Complies with EN 61326 Class I: Cord Connected, Panel Mounted Industrial Control Equipment with protective earthing (grounding), (EN 61010-1)
Recorder Identification	Status bar: Alternately displays Recorder ID and Recorder Screen Name, Displays Time and Date	Enclosure Rating	Front panel designed to NEMA 3/ IP54 (Optional NEMA 4X/IP66)
Clock		Installation Requirements	Category II: Overvoltage (EN 61010-1) Pollution Degree 2
• Accuracy	<p>± 29 ppm (± 1 minute/month) at 25 °C</p> <p>Summer/Winter manual or automatic time adjustment or via communications. SNTP Client and/or Server included for synchronising over Ethernet</p>	EMC Standards	Emissions - EN 61326 Class B Immunity - EN 61326 Industrial Levels
Alarm Set Points	6 per pen integral "soft" alarm set points easily set by user to announce selected out of limit conditions; user can select if an alarm triggers a change in the chart background colour	Safety	Complies with EN 61010-1: 2001 Panel Mounted Equipment, Terminals must be enclosed within the panel
• Alarm triggers	Alarm triggers can be set for Hi, Lo, Deviation. Latched alarms require acknowledgement from the operator	<b>Analog Inputs</b>	
• Alarm Damping	1 s ... 24 h	Number of Inputs	3, 6, 9 or 12 input channels
• Hysteresis	± 100% of pen scale An alarm can change the log rate on the affected pen	Input Types	mV, V, mA with external shunt (provided as standard), Thermocouple, RTD and ohms
Data Replay Mode	Data replay facility on chart displays at normal, fast or slow speeds with zoom and cursor. Jump facility from the alarm history list directly to the occurrence on the chart	Minimum Input Span	Range is fully configurable with span limitation of the operating range selected with 4% under range to 4% over-range capability (50 V Range 2%)
Display Chart Speeds		Burnout (T/C)	Active (High or Low), Passive and Health watch/maintenance (option)
• Chart rates	<ul style="list-style-type: none"> <li>• 1 mm/h</li> <li>• 5 mm/h</li> <li>• 10 mm/h</li> <li>• 20 mm/h</li> <li>• 30 mm/h</li> <li>• 60 mm/h</li> <li>• 120 mm/h</li> <li>• 600 mm/h</li> <li>• 1200 mm/h</li> <li>• 6000 mm/h</li> </ul> <p>Combinations of rates can be mixed and chart speeds can be set independently for each chart. Display speeds are independent of logging rate</p>	Cold Junction Compensation	Internal compensation with the ability to manually adjust values, External Input for compensation, External CJC value specified
Messages Screen	The message screen displays system information and records any setup activity that has been changed. It also provides warning and error message updates, lists alarm activity and will display user defined marks on a chart	Input Resolution	0.0015% (16 Bit ADC)
		Input Impedance	
		• Current loop resistance	10 Ω, use ± 0.1% external resistor, Volts > 1 MΩ, all other > 10 MΩ
		Source Impedance	
		• T/C and RTD	100 Ω per lead maximum (a single point cal on Slot A will improve accuracy for a lead resistance above 10 Ω)
		Square Root Extraction	Available as standard on Volts and mA input types
		Sensor Compensation	Single point and Dual point for every input type
		Input Sampling Rate	Recorder has 2 available slots with up to 6 analog inputs each; first slot fixed
		• Analog Input card (standard)	200 ms (5 Hz), 500 ms (2 Hz)
		• Analog Input expansion card (option)	100 ms (10 Hz), 200 ms (5 Hz), 500 ms (2 Hz)
		Linear Scales	<ul style="list-style-type: none"> <li>• Normal and Scientific notation</li> <li>• Decimal Point automatic or programmable</li> <li>• Engineering units, user definable (10 characters)</li> </ul>



# SIREC D Display Recorder

## SIREC D200

### Logarithmic Scales

- Logarithmic Decade limits -38 min ... +38 max, (recommend up to 20 decades on one screen to ensure clarity)

Input Isolation 300 V AC channel-to-channel, channel-to-ground (Resistance thermometers are not isolated for initial card, expansion card option RTs are isolated)

Noise Rejection At 50/60Hz  $\pm$  2%

- Analog Input card (standard)
  - Common mode 2 Hz = -120 dB, 5 Hz = -120 dB
  - Normal Mode 2 Hz = -80 dB, 5 Hz = -25 dB
- Analog Input expansion card (option)
  - Common mode 2 Hz = -120 dB, 5 Hz = -120 dB, 10 Hz = -120 dB
  - Normal Mode 2 Hz = -85 dB, 5 Hz = -80 dB, 10 Hz = -48 dB

### Input Range Performance and Accuracy

#### Input Actuation (Linear)

- mV (DC) -1000 ... +1000
- V (DC) -50 ... +50
- mA 4 ... 20, 0 ... 20
- 200  $\Omega$  0 ... 200
- 500  $\Omega$  0 ... 500
- 1000  $\Omega$  0 ... 1000
- 4000  $\Omega$  0 ... 4000

#### Thermocouples

- B 260 ... 538 °C (500 ... 1000 °F)  
538 ... 1816 °C (1000 ... 3300 °F)
- E -270 ... -200 °C (-454 ... -328 °F)  
-200 ... -70 °C (-328 ... -94 °F)  
-70 ... 1000 °C (-94 ... 1832 °F)
- J -210 ... 0 °C (-346 ... 32 °F)  
0 ... 1200 °C (32 ... 2192 °F)
- K -270 ... -70 °C (-454 ... -94 °F)  
-70 ... 1372 °C (-94 ... 2502 °F)
- R -50 ... 260 °C (-58 ... 500 °F)  
260 ... 650 °C (500 ... 1202 °F)  
650 ... 1768 °C (1202 ... 3214 °F)
- S -50 ... 260 °C (-58 ... 500 °F)  
260 ... 1000 °C (500 ... 1832 °F)  
1000 ... 1768 °C (1832 ... 3214 °F)
- T -270 ... -210 °C (-454 ... -346 °F)  
-210 ... 400 °C (-346 ... 752 °F)
- L -200 ... 0 °C (-328 ... 32 °F)  
0 ... 900 °C (32 ... 1652 °F)
- G (W<sub>W26</sub>) 0 ... 100 °C (32 ... 212 °F)  
100 ... 316 °C (212 ... 600 °F)  
316 ... 830 °C (600 ... 1526 °F)  
830 ... 1515 °C (1526 ... 2759 °F)  
1515 ... 2315 °C (2759 ... 4119 °F)
- C (W5, W26) 0 ... 180 °C (32 ... 356 °F)  
180 ... 1220 °C (356 ... 2228 °F)  
1220 ... 2315 °C (2228 ... 4199 °F)
- M (NiMo-NiCo) (NNM90) -50 ... 370 °C (-58 ... 698 °F)  
370 ... 1410 °C (698 ... 2570 °F)
- N (Nicosil Nilil) -200 ... 100 °C (328 ... 212 °F)  
100 ... 1300 °C (212 ... 2372 °F)
- Chromel/Copel -50 ... 600 °C (-58 ... 1112 °F)

- P (Platinel) 0 ... 1390 °C (32 ... 2534 °F)
- D 0 ... 180 °C (32 ... 356 °F)  
180 ... 1840 °C (356 ... 3344 °F)  
1840 ... 2490 °C (3344 ... 4515 °F)

#### Resistance thermometers

- Pt100  $\alpha$  = 0.00385 -200 ... 850 °C (-328 ... 1562 °F)
- Pt200  $\alpha$  = 0.00385 -200 ... 850 °C (-328 ... 1562 °F)
- Pt500  $\alpha$  = 0.00385 -200 ... 850 °C (-328 ... 1562 °F)
- Pt1000  $\alpha$  = 0.00385 -200 ... 850 °C (-328 ... 1562 °F)
- Nickel, 100  $\Omega$  -60 ... 180 °C (-76 ... 356 °F)
- Nickel, 120  $\Omega$  -80 ... 260 °C (-112 ... 500 °F)

### Logging

Logging Method Sample, Average, Min/Max - can be set independently per pen

Logging Types Continuous, Fuzzy

Logging Rate From 100 ms ... 60 h per Pen

Fuzzy Logging A secure data storage technique which delivers data compression ratio of 100:1 or more; self teaching, storing the data at a variable rate to match the process

### Mechanical Design

Enclosure/Bezel Zinc plated steel case with high impact resistant polycarbonate bezel; scratch resistant lens (Polyethylene Terephthalate). NEMA 3/IP54 protection rating standard. Optional NEMA 4X/IP66 (Front face only)

• Enclosure Rating Front panel designed to NEMA 3/ IP54 (Optional NEMA 4X/IP66)

• Colour Bezel: Grey

Mounting Panel Unlimited mounting angle For the best view of the display the viewing angle should not exceed:

- 55° from the left or right,
- 10° looking down and
- 30° looking up at the recorder display.

Mounting adjustable for panel thickness of 2 mm ... 20 mm. Adapter kits available for covering existing panel cutouts.

Dimensions (W x H x D) in mm

144 x 144 x 200  
(5.67 x 5.67 x 7.87")

Additional 80 mm (3.15") clearance recommended for a straight type power cable and signal connectors

Cutout (W x H) in mm

138 x 138 mm (5.43 x 5.43")

Weight

Max. 2.4 kg (5.3lb)

Wiring Connections

IEC Power Plug. Removable terminal strip for input and alarm connections

### Environmental and Operating Conditions

Ambient Temperature 0 °C ... 50 °C (32 °F ... 122 °F)

Relative Humidity (%RH) 10 ... 90

Vibration

• Frequency (Hz) 0 ... 70

• Acceleration (g) 0.1

Mechanical Shock

• Acceleration (g) 1



• Duration (ms)	30
Mounting Position from Vertical	
• Tilted Forward	40°
• Tilted Backward	65°
• Tilted to Side (±)	65°
Power Requirements	
• Mains Voltage (Vrms)	100 ... 250
• Low Voltage AC (Vrms)	20 ... 25
• DC Voltages	20 ... 30
• Frequency (Hz)	47 ... 63
Power Consumption	AC: < 40 W (max), DC: <40 W (max), typical 20 W
Warm Up	30 minutes minimum
<b>Options</b>	
Alarm Outputs	Programmable alarm set points (6 per pen) can be configured to activate up to 8 outputs
• Update rate	200 ms for all alarms
• Number/Type	<ul style="list-style-type: none"> <li>• 4 or 8 relay contacts SPDT, 3 A 240 V AC, 3 A 24 V AC/DC, 0.2A 240 V DC (non-inductive, internally suppressed)</li> <li>• 8 I/O - SPNO 1 A 24 V DC (non-inductive, internally suppressed)</li> </ul>
• Activation	Fully programmable internal alarm levels. Assignable to any relay output
Digital Input/Output	
• Quantity	<ul style="list-style-type: none"> <li>• 8 I/O</li> </ul> <p>All channels may be selected freely as either digital inputs or outputs. The Digital I/O card also has 4 channels that can be set as pulse inputs (channels 1 ... 4). The operating frequency for pulse inputs on the Digital I/O card is 1kHz max.</p>
- Inputs	Voltage free, isolated
- Outputs	4 relay outputs, all four channels are relay outputs only
• Relays/DI card	<ul style="list-style-type: none"> <li>• 8 relays/ 2 DI card</li> </ul> <p>2 outputs can be configured for use as digital inputs: A digital input is provided by a volt free contact between the normally open (NO) and the common (C) terminals of an output relay. If the 2 Digital inputs are used only 6 relay outputs are available. Closed &lt; 500 Ω, Open &gt; 300 kΩ</p>
Email	<p>Setup email accounts to send the following:</p> <p>When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser - Start, Stop or Reset, Digital Inputs - On, Off or State change, TC Burnout - on a specific Analog Input channel, Scheduled Events - Once, Interval, Specific days, Month End</p>
OPC Server	OPC DA and AE 3.0 compliant. Totalisers and up to 24 pens can be transmitted via OPC server, max poll rate 1/s

Events	User defined process events are recorded and can be set to cause particular recorder actions. Events can consist of recording start/stop, digital inputs, alarms, totalising actions, timers, bar-code, etc. Once an event has been caused it can produce a definable set of effects on the recorder which can include, mark on chart, relay outputs, recording control, acknowledge alarm, trigger an Event, set/clear Relay, Screen change, E-mail a message and Reset max/mins. Each event marker can be recorded for analysis using the SIREC D application software.
Health Watch/ Maintenance Capability	<p>The recorder keeps track of important "life actions" for improved diagnostics and preventative maintenance notification. Including</p> <ul style="list-style-type: none"> <li>• Powered On</li> <li>• Last powered On</li> <li>• Time On since power up</li> <li>• Total On time</li> <li>• Total Off time</li> <li>• Longest Off time</li> <li>• Lithium cell life</li> <li>• Backlight life left at 100% brightness</li> <li>• Hi/Lo CJC value (Hi &amp; Lo temps),</li> <li>• Analog In last factory/user cal</li> <li>• Relay operations</li> <li>• last configuration change</li> </ul>
Agency Approval	<p>• CSA</p> <p>• UL</p> <p>CSA22.2-No.1010.1-2004 Certificate Number L211230</p> <p>ANSI/UL61010-1-2004 File # 201698</p> <p>FM Class 1 Division 2 (optional)</p>
Transmitter Power	130 mA at 24 V DC ± 3 V DC
Extended Security System (ESS)	<p>Provides full support for 21 CFR Part 11.</p> <p>Includes features for entry of unique User ID's and associated passwords:</p> <ul style="list-style-type: none"> <li>• Timeout on inactivity (1 ... 10 min)</li> <li>• Password expiration (1 ... 365 days)</li> <li>• Up to 50 users</li> <li>• Password re-entry lock out for incorrect entry of password more than 3 times, no re-use of passwords (programmable 4 ... 12 times)</li> <li>• Traceability by user name</li> </ul>

# SIREC D Display Recorder

## SIREC D200

Totaliser/Sterilisation*	<p>One totaliser per input. Totaliser value must be assigned to a pen for display and storage.</p> <p>Multiple totalisations (Maths option) are possible with the use of extra pens (option). Reset may be manual or programmed. Totalisation values are 10 digits plus exponent.</p> <p>Each pen can be totalised according to the Fo or Po sterilisation* function at 121.11°C (250 °F).</p> <p>The Standard Reference Temperature and Thermal Resistance (Z Value) are fully adjustable values of X, Y, W and V. Start temp, Reference temp and Z factor are all user defined, allowing support for many different types of sterilisation applications.</p> <p><b>*Specification table for Sterilisation</b></p> <p>The definition of Fo/Po is the sterilisation/pasteurisation time in minutes required to destroy a stated number of organisms with a known z at temperature T.</p>
Batch	<p>The Batch function allows the user to segment portions of data for further analysis.</p> <p>Batch controls include</p> <ul style="list-style-type: none"><li>• Start,</li><li>• Stop,</li><li>• Pause,</li><li>• for viewing,</li><li>• Resume and Abort.</li></ul>
Print Support	<p>Network printing from status, message and replay screens.</p> <p>Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.</p>
Math Algorithms	<p>All analog input channels have a math expression block. This is a fully user programmable 100 character free form math expression for each pen. Math calculations are available on all pens, one per input plus 12 extra pens for the SIREC D200 recorder.</p>
Miscellaneous	<p>Optional customer ID Tagging (3 lines of up to 22 characters each line)</p>

### Firmware Credit System

The credits system is a flexible way of adding to the recorder features without having to upgrade the firmware. Simply purchase a number of credits to cover your current and possibly future requirements and the recorder will be delivered with the credits loaded. The credit value in each recorder is displayed in the Factory menu.

- Select the Options button and by activating and de-activating the options in the credit list, the recorder will change its functionality. Any greyed out options on the list will mean there are not enough credits available for that feature on the recorder.

Credits can be applied as desired to the Firmware functions until the total number of credits purchased has been used up. Additional credits can be purchased later if new features are to be activated and not enough credits are available to support these additional functions.

Firmware option	Credit value	Description
Full Maths	4	Full Math - this can handle math expressions that can consist of expressions up to 100 characters in length. (Note 1)
Events	6	Events are certain conditions or operations that can be set up and logged according to the time and date of an occurrence. Subsequently events can be reviewed or displayed on a graph. Events can be set up to produce the following actions: Mark on Chart, start/stop Logging, start/stop/reset Totalisers, acknowledge alarm, trigger an Event, set/clear Relay, Screen change, E-mail a message and Reset max/mins. (Note 2)
Totalisers/ Sterilisation calculation	4	Each pen can be associated with a totaliser. Using extra pens, the totalised values can be displayed and recorded; multiple totals can be calculated out of the same variable (weekly, monthly, etc.). The totaliser function can handle Fo and Po sterilisation calculation. (Note 1)
Health Watch/ Maintenance	2	The recorder keeps track of important "life actions" for improved diagnostics and preventative maintenance notification. Including Powered On, Last powered On, Time On since power up, Total On time, Total Off time, Longest Off time, Lithium cell life, Backlight life left at 100% brightness, Hi/Lo CJC value (Hi & Lo temps), Analog In last factory/user cal, Relay operations.
Print Support	2	Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.
Batch	3	The Batch function allows the user to segment portions of data for further analysis. Batch controls include Start, Stop, Pause, for viewing, Resume and Abort.
Groups	2	Groups of Pens can be specified and named with a Group number to display on the recorder.
Remote Viewer	3	Extends the user interface of the recorder onto the desktop PC. Providing full remote control of the unit launched from a web browser.
Email	3	Setup email accounts to send the following: When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser - Start, Stop or Reset, Digital Inputs - On, Off or State change, TC Burnout - on a specific Analog Input channel, Scheduled Events - Once, Interval, Specific days, Month End.
OPC Server	8	OPC (OLE for Process Control) -Software application for realtime interfacing between servers and clients. OPC is a software standard that defines common interfaces for data exchange between devices such as recorders, controllers, PLC's and Microsoft Windows™ based applications
Extra Pens	2	4 extra pens to store and display totalised values, results of calculations, etc. Maximum is up to 12 extra pens for the SIREC D200 recorder.

### Notes

- (1) Additional pens ("Extra Pens") can be used to display and store the results of calculations, totalisers, variables imported via communications, or to store values.
- (2) Event markers are required to automatically reset the totalisers, for example on a periodic basis or on an external condition. (Not necessary if the totalisers are reset manually)

Additional information is available in the Internet under:



<http://www.siemens.com/sirec>



# SIREC D Display Recorder

# SIREC D200

Selection and Ordering Data	Order No.	Accessories	Order No.
<b>SIREC D200 display recorder <sup>1)</sup></b> Front dimensions: 144 mm x 144 mm, for all standard applications/ 5 TFT display, Ethernet interface (rear side) and USB interface (front face)	7ND4121-	<b>Firmware options for SIREC D200</b> Code No. of recorder required 10 credits 20 credits 30 credits 40 credits	
<b>Power supply</b> 50 or 60 Hz, 90 ... 240 V AC 24 V DC	1 4	<b>Options/enabling of SIREC D software</b> Code No. of recorder required Enabling of SIREC D-Manager Enabling of SIREC D-Server Upgrading of SIREC D-Manager to SIREC D-Server	7ND4 801-8AD 7ND4 801-8BD 7ND4 801-8CD 7ND4 801-8DD 7ND4 800-8BA 7ND4 800-8CA 7ND4 800-8EA
<b>Signal inputs</b> Universal inputs (mA, mV, V, TC, RTD, R) • 3 inputs • 6 inputs • 12 inputs	A B C	<b>SIREC D software</b> Only for subsequent orders; software is included in delivery of recorder Evaluation software for SIREC D200/D300/D400 (on CD) incl. enabling for SIREC D-Viewer and manual for the software on CD in German, English, French	7ND4 800-8AA
<b>Switching outputs and inputs</b> None (retrofitting digital input/digital output not possible) None (retrofitting digital input/digital output possible) 4 relays (240 V) 8 relays, of which 2 can be optionally configured as binary input (240 V) 8 binary outputs and inputs (24 V relay/freely-configurable)	0 1 2 3 4	<b>Documentation</b> Included on CD-ROM in scope of delivery SIREC D200 recorder manual • German (can also be downloaded from Internet) • English (can also be downloaded from Internet) • French (can only be downloaded from Internet)	A5E01001785-03 A5E01001767-03
<b>Internal data storage</b> 70 Mbyte (standard) 400 Mbyte	1 2		
<b>Transmitter power supply/ rear side ports</b> None 24 V DC max. 200 mA/USB and RS485 (rear side)	1 2		
<b>Firmware options</b> (see table below „Firmware options and required credits“) None 10 credits 20 credits 30 credits 40 credits	A B C D E		
<b>Extended Security System (ESS)</b> IP54 protection rating standard (front face) • without ESS • with ESS IP66 (NEMA 4X) protection rating standard (front face) • without ESS • with ESS	A B C D		
<b>Documentation</b> Manual in German Manual in English	1 2		

► Available ex stock

<sup>1)</sup> Subject to export regulations AL:N, ECCN: EAR99

**Scope of delivery:**

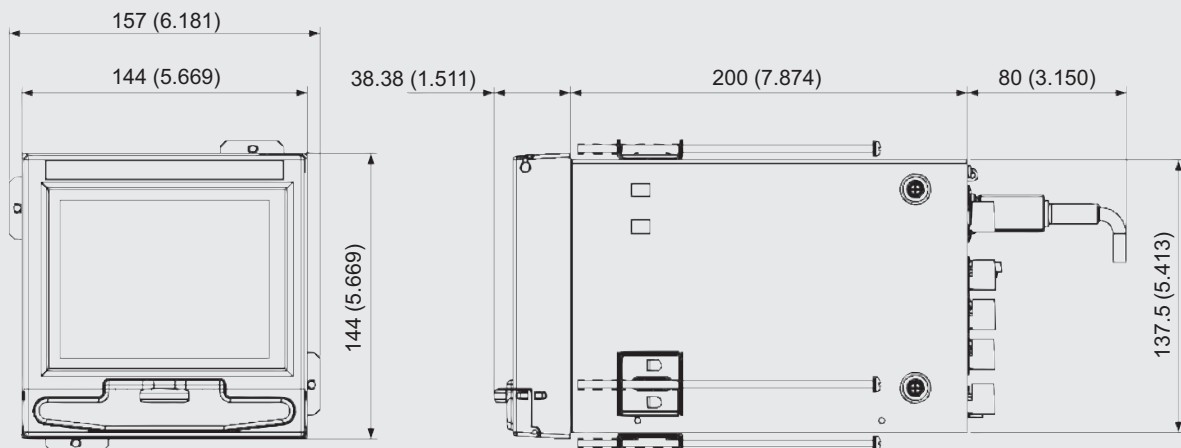
Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).

### Options

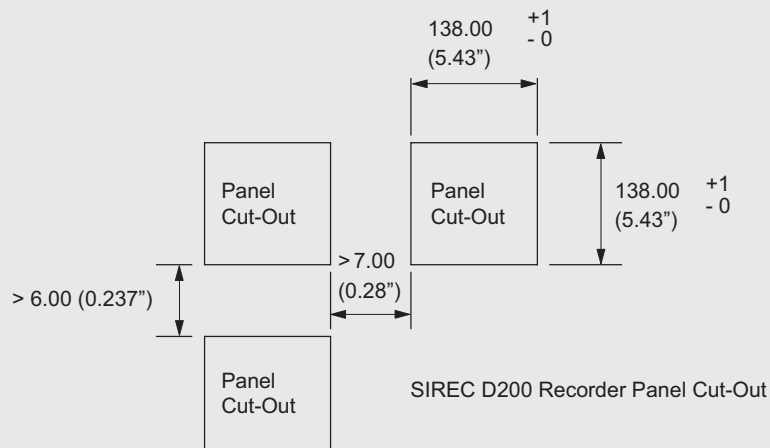
#### Options - Hardware

- Alarm Card
  - 4 or 8 outputs relay contacts SPCO 240 V
  - 8 Digital I/O - SPNO 24 V DC
  - Programmable alarm set points can be configured to activate up to 8 outputs
- RS485 Modbus
  - the RS485 connection allows process data to be transferred to other devices, or to record data received in MODBUS RTU protocol (slave mode only).
- Portable Recorders
  - Portable cases available as an accessory item
- Digital Input
  - Two digital input options are available:
    - 2 inputs on 8 channel Alarm card,
    - 8 inputs on Digital I/O card.
 The digital inputs allow users to initiate, from a remote location via a dry contact closure, selected recorder functions.
- Approvals
  - CSA and UL
- 24 V AC/DC Power Supply
  - 20 to 30 V DC
  - 20 to 25 V AC
- 24 V DC Transmitter Power Supply
  - Can supply up to 130 mA to external transmitters.
- Print Support
  - Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.

### Dimensional drawings



Two mounting brackets are supplied as standard

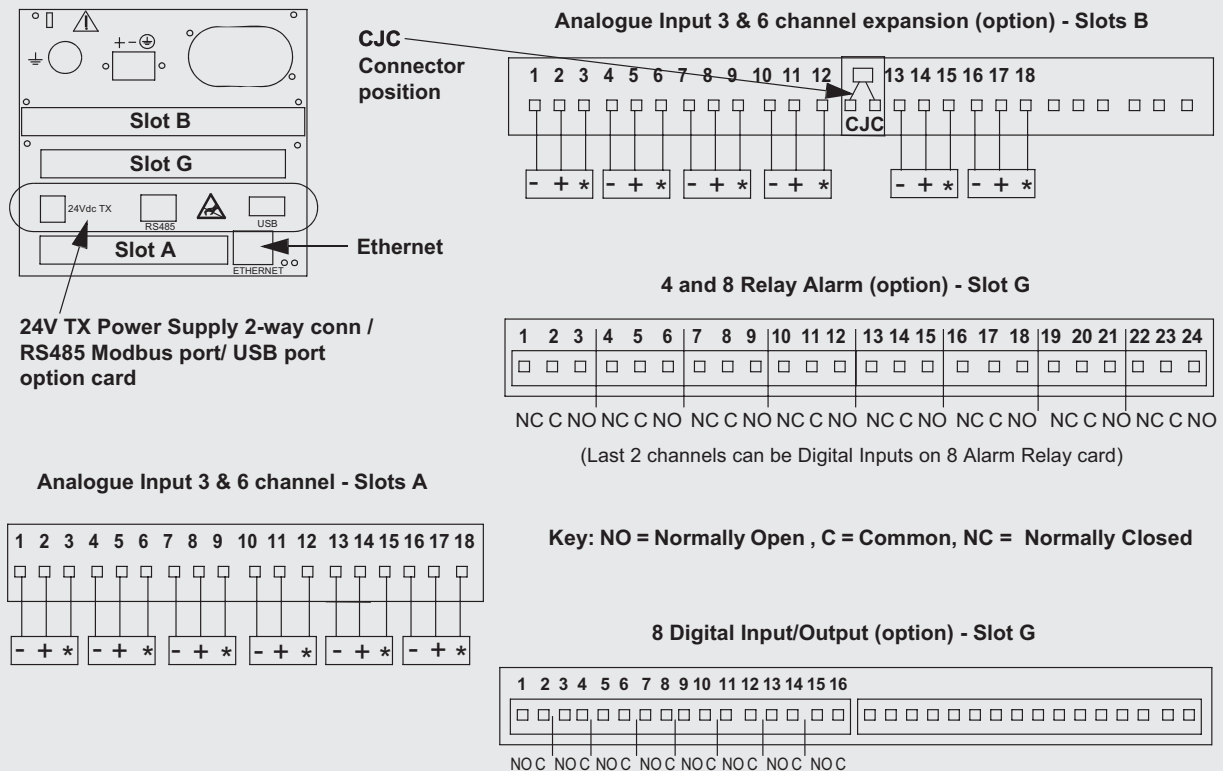


SIREC D200, dimensions in mm (inch) and panel cut-out

# SIREC D Display Recorder

## SIREC D200

### Schematics



SIREC D200 - Terminal assignments and power requirements (rear of unit)

### More information

Additional information is available in the Internet under:



<http://www.siemens.com/sirec>



### Overview



#### Crystal Clear Display

- Digital Colour LCD (TFT)
- Resolution
  - SIREC D300: QVGA Resolution (320 x 240 pixels)
  - SIREC D400: SVGA Resolution (800 x 600 pixels)
- Clear and intuitive operation
- Industrial rugged Touch Screen with rapid navigation
- Custom Screens

#### Comprehensive Connectivity

- 10/100 Ethernet (DHCP), Web, Email, OPC Server
- FTP, TCP/IP and RS485 Modbus Protocol
- USB ports for keyboard and mouse

#### Data Storage

- On-board non-volatile memory - up to 1850 MByte
- Removable Compact Flash and USB storage
- No moving parts - all solid state data storage

#### Security Stringent - Total Data integrity

- Password Protection - 21CFR Part 11
- ESS - Extended Security System

#### Plus..

- Health Watch for preventative maintenance
- Remote Access - Advanced Software Data Analysis
- Analysis at your PC
- Independent Chart and Logging speeds
- Global Language Support
- Rapid review and replay of data at recorder
- Approvals - CE, CSA, UL, FM
- NEMA 4X/IP66 (option)
- Up to 50 Hz (20 ms) Logging
- Analog Inputs
  - SIREC D300: Up to 16 Analog Inputs
  - SIREC D400: Up to 48 Analog Inputs
- Remote Viewing Tool

### Function

#### Display

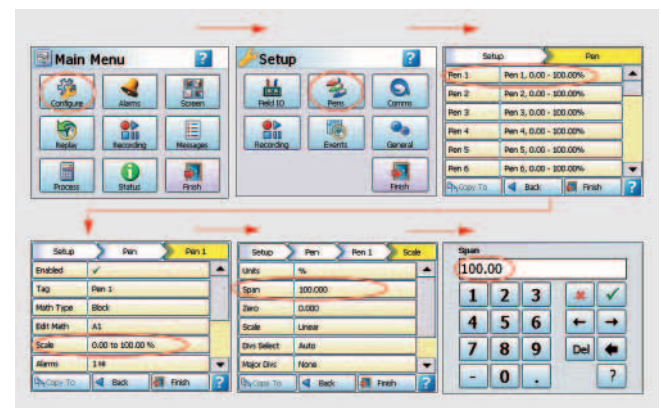
12.1" Colour Active TFT (SIREC D300)/5.5" Colour Active TFT (SIREC D400)

With more than 256,000 colours makes it easy to interpret process data and take action with the intuitive bar charts, digital values, trends or customised displays. A screen saver function can be set from 1 to 720 minutes to extend the life of the backlight.

#### Touch Screen

The heavy duty durable touch screen provides easy data entry and rapid navigation through the menus. The touch screen operator interface provides fast, easy access to the recorder menus making set up and data analysis quick and efficient.

Navigation through the menus and text entry are direct and intuitive:



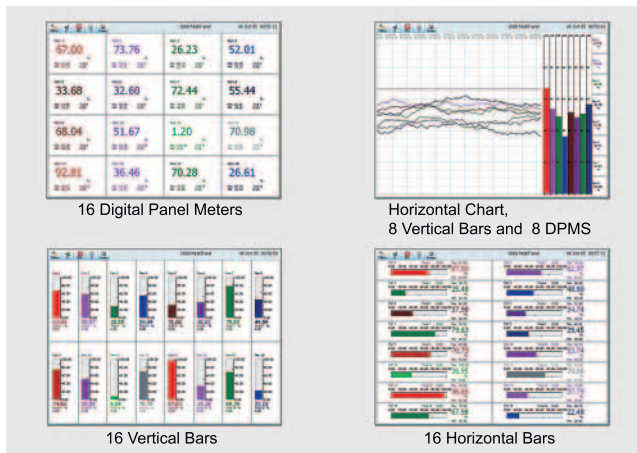
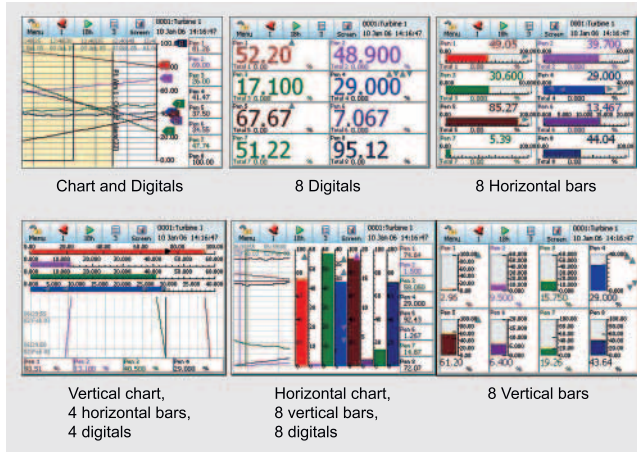
Example of a recorder menu path from the Main Menu to Pen Scale configuration with clear rapid navigation

# SIREC D Display Recorder

## SIREC D300 and SIREC D400

### Standard Screens

Up to 20 screens (SIREC D300) respectively 30 screens (SIREC D400) displaying multiple combinations of Charts, Bars and Digitals can be configured, 4 respectively 6 (SIREC D300 respectively SIREC D400) examples below.



### Help Files

A complete contextual help system can be accessed and visualised on the screen of the recorder.

### Logarithmic Scales

All displayed scales can be set as linear or logarithmic.

### Replay with Zoom

Select replay mode and zoom-in on a specific area on the screen. The data can easily be replayed at the recorder with the ability to "zoom". The touch screen makes it fast to review and analyse historical data. A "Jump" function allows you to go from any message list directly to the trend showing the occurrence of the alarm.

### Language Support

Standard language prompts for

- English UK & US
- French
- German
- Italian
- Spanish
- Portuguese
- Brazilian
- Polish
- Slovakian
- Czech
- Turkish
- Romanian
- Hungarian
- Russian

### Communications

The recorder supports FTP, Modbus TCP/IP (slave mode), Web and Email over Ethernet (DHCP standard) communications port and Modbus RTU (slave mode) via an RS485 port. USB ports allow the use of an ASCII barcode reader. Email sent to your network connected PC triggered by an Alarm or an Event.

### Ethernet Connectivity

The Ethernet (DHCP standard) connection, with support for various protocols, provides unlimited connectivity to local area networks (LANs). The standard Ethernet interface makes networking of the recorder to a LAN or the world wide web fast and convenient. Dynamic Host Configuration Protocol (DHCP) automatically acquires the settings (IP address) for network communications from a DHCP server.

### RS485 Modbus

The RS485 connection allows process data to be transferred to other devices, or to record data received in MODBUS RTU protocol (slave mode only).

### Simple Network Time Protocol (SNTP)

The recorder can be synchronised over the ethernet network via a SNTP client or synchronise other recorders via a Server.

### Web Server

With the recorder connected to a LAN, all process variables, alarm and messages can be viewed from an internet browser with automatic refresh.

### USB Ports

Front and rear USB host ports for data and setup transfers or remote screen through this port. Front USB port is standard and the rear USB port is available with the Communications card option. Use these ports to attach external devices (keyboard or mouse), for direct interfacing with the recorder.

### Common Relay Output

A separate relay alarm output at the rear of the unit can be set up as an alarm output.

### Remote Viewer

Extends the user interface of the recorder onto the desktop PC. Providing remote viewing of the unit launched from a web browser. Full remote control is available as an option. Compatible with Microsoft™ Internet explorer 6 and higher.

### Data Storage

#### Internal Data Storage

70MB to 400MB expandable internal non-volatile flash memory is available for data storage and chart history.

Pens	70 MByte	180 MByte	400 MByte	890 MByte	1850 MByte
16	12 Days	30,5 Days	68,5 Days	750 Days	311 Days
32	6 Days	15 Days	34 Days	75 Days	155 Days
48	4	10 Days	22 Days	50 Days	103 Days
96	2	5 Days	11 Days	25 Days	51 Days

Internal memory (Logging rate = 1 s) - SIREC D400

Pens	70 MByte	180 MByte	400 MByte	890 MByte	1850 MByte
8	24 Days	61 Days	137 Days	301 Days	622 Days
16	12 Days	30,5 Days	68,5 Days	750 Days	311 Days
32	6 Days	15 Days	34 Days	75 Days	155 Days

Internal memory (Logging rate = 1 s) - SIREC D300

#### Data Export

Removable compact flash and USB flash storage device provides multiple data storage alternatives. Data is stored in a secure binary encrypted format, with the recorder's configurations, providing added security of the data files. Removable Compact flash and USB flash storage devices.

#### Events

Certain conditions or operations can be set up and logged according to the time and date of the occurrence. Subsequently events can be reviewed in a list or represented on a graph.

#### Batch

Batch enhances the management of data collected in non-continuous process, known as batch processing, used in thermal treatment, sterilisation, food processing and chemical reactions.

#### Soft Alarms

6 "software" alarms per pen are easily set up to display and record selected out-of-limit conditions. These can be tied to the relay or digital outputs to activate the user's external equipment.

#### Independent Display Chart Speeds and Logging rates

Logging rates can be programmed completely separate from the chart display speed, allowing the data to be displayed and stored at the rates that best suits the application.

#### Fuzzy Logging

This standard feature provides a unique method to increase the storage capacity of the recorder. The data is monitored to determine changes in process data; if no changes are observed data is logged periodically. If data is changing rapidly, it is recorded normally at the programmed rate. By not logging data that is static, data compression of up to 100:1 or more can be achieved saving valuable memory.

#### Pulse Inputs

The 8 Digital I/O option card has 4 channels that can be set as pulse inputs (first 4 channels). The operating frequency for pulse inputs on the Digital I/O card is 1kHz max.

### Data Security

#### Total Data Integrity

Data is stored in secure encrypted files making it easy to retrieve the data dependent on process information. Data is automatically recognised without having to remember file names.

#### Password Protection

Up to 4 levels of password protection with up to 50 different users are available. Multiple level of password protection and an audit trail of actions enhance the security of the data.

#### Extended Security System (option)

ESS provides extended features including entry of unique User ID's and associate passwords, time-out of password entry, password expiration, and traceability of user actions. ESS is compatible with the requirements of 21CFR part 11.

### Safety Standards

#### CE Mark

Conformity with 73/23/EEC, Low Voltage Directive and 89/336/EEC EMC Directive.

#### Enclosure rating

Standard NEMA 3/IP54 type front face protection. NEMA 4X/IP66 available as an option.

#### Security tag

"Wire seal provision" that provides added security to seal the front door and rear wiring when using optional rear cover to prevent undetected entry to these areas of the recorder.



# SIREC D Display Recorder

## SIREC D300 and SIREC D400

### Technical specifications

#### Design Attributes

Display size and Type	Diagonal, Digital Colour LCD (TFT) with Touch Screen Industrial grade with brightness adjustment and wide viewing angle
• SIREC D300	5.5" (14 cm) diagonal, color
• SIREC D400	12.1" (30.7 cm) diagonal, color
Resolution	
• SIREC D300	QVGA (320 x 240 pixels)
• SIREC D400	SVGA (800 x 600 pixels)
Screen Saver	Set in minutes from 1 ... 720, can be set to dim the screen or to switch off
Brightness adjustment	Adjustable between 10 and 100%, default set to 80% brightness.
Backlight life time	
• SIREC D300	55,000 hours to half brightness when used at 100% (86,000 h if used at 80%). Maximum luminosity 400 cd/m <sup>2</sup>
• SIREC D400	43,000 hours to half brightness when used at 100% (67,000 h if used at 80%). Maximum luminosity 400 cd/m <sup>2</sup>
Display Update Rate	Display values updated every second
Status Display	A status bar, at the top of the recorder's screen, displays the real-time icons of the recorder status, such as Recording Time left and alarm active
Communications	Ethernet 10/100 base -T with RJ45 connector supporting Modbus/TCP, FTP, Internet, DHCP or fixed IP address. RS485 Modbus RTU (up to 115200 Baud Rate)
Mathematics	Basic Maths include Add, Subtract, Multiply, Divide, Modulo and power. Full Maths and Scripting (option) support up to 100 character free form math expression for each pen. For example SINE, COS, TAN, Log, Parenthesis (eg. A1 + A2), comm variables, free memory, and access to any data item variable (A1, P1, D1 etc.).
Front and Rear USB Ports	USB host ports front and rear for data and setup transfers through these ports. External devices (keyboard or mouse), Barcode reader, or external mass storage device. (USB 1.1 compliant)

#### Standard Screens and Custom Screens

Fully programmable display values in engineering units. Time & date stamp on every division.

Sets of Standard screens are available to display data on a chart, digital reading, bargraphs or numerous combinations thereof. Screen properties can be modified on the recorder and customised to suit. Custom screens created in the Screen Designer software can be imported into the recorder for specialist applications. Custom Screen firmware option is required.

Digital values displayed include

- alarms on bars,
- engineering units,
- pen name,
- Measuring point number
- tag, time and date,
- 20 character description and
- totalised values.

#### Data Storage

- Removable Media
- Local Mass Storage Options

Compact Flash card, supports up to 1850 MByte

- USB memory key - up to 2 GByte
- USB hard drive - up to 120 GByte

- Internal Data Buffer

Non-volatile, 70 MByte (16 million acquisition values) upwards to 1,850 MByte (400 Million points)

- Setup and screens

Stored internally on non-volatile memory

- Manual Saving

Data saving by inserting compact flash card or USB memory stick

- Data Saving Period

Related to log rate, number of pens, totals and alarms. Each pen is capable of its own independent storage rate (20 ms ... 60 h)

- Data Format

Binary encoded format

- Recycling Mode

Internal memory has FIFO (First In First Out) capability where the newest data over-writes the oldest data

#### Power Requirements

- Voltage (VRMS)
- Frequency
- Power Consumption
  - SIREC D300
  - SIREC D400
- Optional instrument power Voltage
  - SIREC D300
  - SIREC D400

100 V AC ... 250 V AC (auto select)

50/60 Hz

< 40 W

< 60 W

20 ... 55 V DC / 20 ... 30 V AC  
Power Consumption: < 40 W

20 ... 55 V DC / 20 ... 30 V AC  
Power Consumption: < 60 W

#### Common Relay Output (SPNC)

- NC common alarm relay

2 contacts, normally open when the recorder is powered (no active alarms), rating 24 V, 1 A

#### Battery

Battery backed up for clock, Lithium battery Type 6032, 3.0 V – 10 years life (Recorder powered), 4 years life, typical (Recorder unpowered)

<p>Password Protection</p> <p>• Engineer</p> <p>• Supervisor</p> <p>• Technician</p> <p>• Operator</p> <p>Languages</p> <p>Temperature Units</p> <p>Recorder Identification</p> <p>Clock</p> <p>Alarm Set Points</p> <p>• Alarm triggers</p> <p>• Alarm Damping</p> <p>• Hysteresis</p> <p>• Common relay output</p> <p>Data Replay Mode</p>	<p>Multiple Administrator control of password setup and management with 4 levels of password protection for – Engineer, Supervisor, Technician, and Operator. Up to 50 different users are available. Password protection restricts user entry to the recorder set up and specific screens.</p> <p>Highest access to all levels, Supervisor, Technician and Operator</p> <p>2nd highest level including Technician and Operator access</p> <p>3rd level including Operator access</p> <p>4th and lowest level of access</p> <p>• English UK &amp; US</p> <p>• French</p> <p>• German</p> <p>• Italian</p> <p>• Spanish</p> <p>• Portuguese</p> <p>• Brazilian</p> <p>• Polish</p> <p>• Slovakian</p> <p>• Czech</p> <p>• Turkish</p> <p>• Romanian</p> <p>• Hungarian</p> <p>• Russian</p> <p>°C, °F oder K (Kelvin)</p> <p>Status bar: Alternately displays Recorder ID and Recorder Screen Name. Displays Time and Date.</p> <p>Accuracy: <math>\pm 29</math> ppm (<math>\pm 1</math> minute/month) at 25°C.</p> <p>Summer/Winter manual or automatic time adjustment or via communications. SNTP Client and/or Server included for synchronising over Ethernet.</p> <p>6 per pen integral "soft" alarm set points easily set by user to announce selected out of limit conditions; user can select if an alarm triggers a change in the screen background colour</p> <p>Alarm triggers can be set for Hi, Lo, Deviation (latched or unlatched) for alarm acknowledgement</p> <p>1 s ... 24 h</p> <p><math>\pm 100\%</math> of pen scale</p> <p>1 A , 24 V; can be activated on any alarm</p> <p>Data replay facility on chart displays at normal, fast or slow speeds with zoom and cursor</p>	<p>Display Chart Speeds</p> <p>• Chart rates</p> <p>• 1 mm/h</p> <p>• 5 mm/h</p> <p>• 10 mm/h</p> <p>• 20 mm/h</p> <p>• 30 mm/h</p> <p>• 60 mm/h</p> <p>• 120 mm/h</p> <p>• 600 mm/h</p> <p>• 1200 mm/h</p> <p>• 6000 mm/h</p> <p>Combinations of rates can be mixed and chart speeds can be set independently for each chart. Display speeds are independent of logging rate.</p> <p>Messages Screen</p> <p>CE Conformity (CE Mark)</p> <p>Immunity Product Classification</p> <p>Enclosure Rating</p> <p>Installation Requirements</p> <p>EMC Standards</p> <p>Safety</p> <p><b>Analog Inputs</b></p> <p>Number of Inputs</p> <p>• SIREC D300</p> <p>• SIREC D400</p> <p>Input Types</p> <p>Minimum Input Span</p> <p>Burnout (T/C)</p> <p>Cold Junction Compensation</p> <p>The message screen displays system information and records any setup activity that has been changed. It also provides warning and error message updates, lists alarm activity and will display user defined marks on a chart.</p> <p>This product conforms with the protection requirements of the following European Council Directives: 73/23/EEC, the Low Voltage Directive, and 89/336/EEC, the EMC Directive. Conformity of this product with any other "CE Mark" Directive(s) shall not be assumed.</p> <p>Complies with EN 61326 Class I: Cord Connected, Panel Mounted Industrial Control Equipment with protective earthing (grounding), EN 61010-1</p> <p>Front panel designed to NEMA3/IP54 (Optional NEMA 4X/IP66)</p> <p>Category II: Overvoltage (EN 61010-1) Pollution Degree 2</p> <p>Emissions - EN 61326 Class B Immunity - EN 61326 Industrial Levels</p> <p>Complies with EN 61010-1: 2001 Panel Mounted Equipment, Terminals must be enclosed within the panel</p> <p>4, 6, 8, 12 or 16 input channels</p> <p>4, 6, 8, 12, 16, 24, 32, 40 or 48 input channels</p> <p>mV, V, mA with external shunt (provided as standard), Thermocouple, RTD and ohms</p> <p>Range is fully configurable with span limitation of the operating range selected with 4% under range to 4% over-range capability (50 V Range 2%)</p> <p>Active (High or Low), Passive and Health watch/maintenance (option).</p> <p>Internal compensation with the ability to manually adjust values, External Input for compensation, External CJC value specified</p>
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# SIREC D Display Recorder

## SIREC D300 and SIREC D400

Input Resolution	0.0015% (16 Bit ADC)
Input Impedance	
• Current loop resistance	10 $\Omega$ , use $\pm 0.1\%$ external resistor, Volts > 1 M $\Omega$ , all other > 10 M $\Omega$
Source Impedance	
• T/C and RTD	100 $\Omega$ per lead maximum (Cu10 = 15 $\Omega$ )
Square Root Extraction	Available as standard on every input type
Sensor Compensation	Single point and Dual point
Input Sampling Rate	
• SIREC D300	Recorder has 2 available slots with up to 8 analog inputs each; the input sampling rate is dependent on actuation type
• SIREC D400	Recorder has 6 available slots with up to 8 analog inputs each; the input sampling rate is dependent on actuation type
• All Inputs	100 ms (10 Hz), 200 ms (5 Hz), 500 ms (2 Hz)
• Fast Sampling	20 ms (50 Hz) - mA, mV, Volts and Ohms only
Linear Scales	<ul style="list-style-type: none"> <li>• Normal and Scientific notation</li> <li>• Decimal Point automatic or programmable</li> <li>• Engineering units, user definable (10 characters)</li> </ul>
Logarithmic Scales	Logarithmic Decade limits: -38 min, to +38 max, (recommend up to 20 decades on one screen to ensure clarity)
Input Isolation	300 V AC channel-to-channel, channel-to-ground
Noise Rejection	At 50/60Hz $\pm 2\%$
• Common mode	2 Hz = -120 dB, 5 Hz = -120 dB, 10 Hz = -120 dB
• Normal Mode	2 Hz = -85 dB, 5 Hz = -80 dB, 10 Hz = -48 dB
<u>Input Actuation (Linear)</u>	<u>Range</u>
• mV (DC)	-1000 ... +1000
• V (DC)	-50 ... +50
• mA	4 ... 20, 0 ... 20
• 200 $\Omega$	0 ... 200
• 500 $\Omega$	0 ... 500
• 1000 $\Omega$	0 ... 1000
• 4000 $\Omega$	0 ... 4000
<u>Thermocouples</u>	<u>Temperatur range</u>
• B	260 ... 538 °C (500 ... 1000 °F) 538 ... 1816 °C (1000 ... 3300 °F)
• E	-270 ... -200 °C (-454 ... -328 °F) -200 ... -70 °C (-328 ... -94 °F) -70 ... 1000 °C (-94 ... 1832 °F)
• J	-210 ... 0 °C (-346 ... 32 °F) 0 ... 1200 °C (32 ... 2192 °F)
• K	-270 ... -70 °C (-454 ... -94 °F) -70 ... 1372 °C (-94 ... 2502 °F)
• R	-50 ... 260 °C (-58 ... 500 °F) 260 ... 1768 °C (500 ... 3214 °F)
• S	-50 ... 260 °C (-58 ... 500 °F) 260 ... 1768 °C (500 ... 3214 °F)
• T	-270 ... -210 °C (-454 ... -346 °F) -210 ... 400 °C (-346 ... 752 °F)

• L	-200 ... 0 °C (-328 ... 32 °F) 0 ... 900 °C (32 ... 1652 °F)
• G (W <sub>W26</sub> )	0 ... 100 °C (32 ... 212 °F) 100 ... 316 °C (212 ... 601 °F) 316 ... 2315 °C (601 ... 4199 °F)
• C (W5, W26)	0 ... 180 °C (32 ... 356 °F) 180 ... 1220 °C (356 ... 2228 °F) 1220 ... 2315 °C (2228 ... 4199 °F)
• M (NiMo-NiCo) (NNM90)	-50 ... 370 °C (-58 ... 698 °F) 370 ... 1410 °C (698 ... 2570 °F)
• N (Nicosil Nisil)	-200 ... 100 °C (328 ... 212 °F) 100 ... 1300 °C (212 ... 2372 °F)
• Chromel/Copel	-50 ... 600 °C (-58 ... 1112 °F)
• P (Platinel)	0 ... 1390 °C (32 ... 2534 °F)
• D	0 ... 180 °C (32 ... 356 °F) 180 ... 1840 °C (356 ... 3344 °F) 1840 ... 2490 °C (3344 ... 4515 °F)
<u>Resistance thermometers</u>	
• Pt100 $\alpha = 0,00385$	-200 ... 850 °C (-328 ... 1562 °F)
• Pt200	-200 ... 850 °C (-328 ... 1562 °F)
• Pt500	-200 ... 850 °C (-328 ... 1562 °F)
• Pt1000	-200 ... 850 °C (-328 ... 1562 °F)
• Nickel, 100 $\Omega$	-60 ... 180 °C (-76 ... 356 °F)
• Nickel, 120 $\Omega$	-80 ... 260 °C (-112 ... 500 °F)
• Cu10	-200 ... 260 °C (-328 ... 500 °F)
• Cu53	0 ... 150 °C (32 ... 302 °F)

### Logging

Logging Method	Sample, Average, Min/Max - can be set independently per pen
Logging Types	Continuous, Fuzzy
Logging Rate	From 200 ms ... 60 h per Pen
Fuzzy Logging	A secure data storage technique which delivers data compression ratio of 100:1 or more; self teaching, storing the data at a variable rate to match the process

### Mechanical Design

Enclosure/Bezel	Zinc plated steel case with high impact resistant polycarbonate bezel; scratch resistant lens
• Enclosure Rating	<ul style="list-style-type: none"> <li>• NEMA 3/IP54 protection rating standard</li> <li>• Optional NEMA 4X/IP66 (Front face only)</li> </ul>
• Colour	Bezel: Grey
Mounting Panel	Unlimited mounting angle For the best view of the display the viewing angle should not exceed: <u>SIREC D300</u> <ul style="list-style-type: none"> <li>• 55° from the left or right,</li> <li>• 40° looking down and</li> <li>• 50° looking up at the recorder display.</li> </ul> <u>SIREC D400</u> <ul style="list-style-type: none"> <li>• 70° from the left or right,</li> <li>• 45° looking down and</li> <li>• 55° looking up at the recorder display.</li> </ul> Mounting adjustable for panel thickness of 2 mm ... 20 mm. Adapter kits available for covering existing panel cutouts.



## SIREC D300 and SIREC D400

Dimensions (W x H x D) in mm	Additional 80 mm (3.15") clearance recommended for a straight type power cable and signal connectors
• SIREC D300	144 x 144 x 200 (5.67 x 5.67 x 7.87")
• SIREC D400	288 x 288 x 247 (11.34 x 11.34 x 9.72")
Cutout (W x H) in mm	
• SIREC D300	138 x 138 mm (5.43 x 5.43")
• SIREC D400	281 x 281 mm (11.06 x 11.06")
Weight	
• SIREC D300	Max. 3.5 kg (7.7lb)
• SIREC D400	Max. 10 kg (22 lb)
Wiring Connections	IEC Power Plug. Removable terminal strip for input and alarm connections

### Environmental and Operating Conditions

Ambient Temperature	0 °C ... 50 °C (32 °F ... 122 °F)
Relative Humidity (%RH)	10 ... 90
Vibration	
• Frequency (Hz)	0 ... 70
• Acceleration (g)	0.1
Mechanical Shock	
• Acceleration (g)	1
• Duration (ms)	30
Mounting Position from Vertical	
• Tilted Forward	40°
• Tilted Backward	65°
• Tilted to Side (±)	65°
Power Requirements	
• Mains Voltage (Vrms)	100 ... 250
• Low Voltage AC (Vrms)	20 ... 30
• DC Voltages	20 ... 55
• Frequency (Hz)	47 ... 63
Power Consumption	
• SIREC D300	AC: < 40 W (max), DC: < 40 W (max). Typical 20 W
• SIREC D400	AC: < 60 W (max), DC: < 60 W (max). Typical 30 W
Warm Up	30 minutes minimum
Seismic Qualification	Complies with IEEE 323-1974 and/or 1983 and IEEE 344-1975 and/or 1987 (optional)

### Options

Pulse Input	
• Quantity	4 isolated inputs per board
• Frequency	1 Hz ... 25 kHz, updated once per second
• Input	Low < 1V, High > 4 V ... < 50 V or Volt free input: Low = short circuit, High = open circuit.
Alarm Outputs	Programmable alarm set points (6 per pen) can be configured to activate up to 16 (SIREC D300) respectively 48 outputs (SIREC D400)
• Update rate	200 ms for all alarms

• Number/Type	<ul style="list-style-type: none"> <li>• 4 or 8 relay contacts SPDT, 3 A 240 V AC, 3 A 24 V AC/DC, 0.2A 240 V DC (non-inductive, internally suppressed)</li> <li>• 8 I/O or 16 I/O - SPNO, 1 A 24 V DC (non-inductive, internally suppressed)</li> </ul>
• Activation	Fully programmable internal alarm levels. Assignable to any relay output
Digital Input/Output	
• Quantity	<ul style="list-style-type: none"> <li>• 8 I/O or 16 I/O</li> </ul> <p>All channels may be selected freely as either digital inputs or outputs. The Digital I/O card also has 4 channels that can be set as pulse inputs (channels 1 ... 4). The operating frequency for pulse inputs on the Digital I/O card is 1kHz max.</p>
• Relay Outputs	<ul style="list-style-type: none"> <li>• 4 relay outputs</li> </ul> <p>All four channels are relay outputs only</p>
• Relays/DI card	<ul style="list-style-type: none"> <li>• 8 relays/ 2 DI card</li> </ul> <p>2 outputs can be configured for use as digital inputs: A digital input is provided by a volt free contact between the normally open (NO) and the common (C) terminals of an output relay. If the 2 Digital inputs are used only 6 relay outputs are available. Closed &lt; 500 Ω, Open &gt; 300 kΩ.</p>
Custom Screens	Provides the capability in the recorder to accept custom screen designs from the Screen Designer.
Email	Setup email accounts to send the following: When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser - Start, Stop or Reset, Digital Inputs - On, Off or State change, TC Burnout - on a specific Analog Input channel, Scheduled Events - Once, Interval, Specific days, Month End
OPC Server	OPC 3.0 DA and AE compliant. Totalisers and up to 96 pens can be transmitted via OPC server, max poll rate 1/s
Event marker	User defined process events are recorded and can be set to cause particular recorder actions. Events can consist of recording start/stop, digital inputs, alarms, totalising actions, timers, bar-code, etc. Once an event has been caused it can produce a definable set of effects on the recorder which can include, mark on chart, relay outputs, recording control, acknowledge alarm, trigger an Event, set/clear Relay, Screen change, E-mail a message and Reset max/mins. Each event marker can be recorded for analysis using the SIREC D application software.
Analog Outputs (Re-transmission Outputs)	Re-transmission outputs available; a pen drives each output. Analog inputs, totalised values or any mathematical result can be re-transmitted.

# SIREC D Display Recorder

## SIREC D300 and SIREC D400

• Quantity	2 or 4 re-transmission outputs
- SIREC D300	2, 4, 6 or 8 re-transmission outputs
- SIREC D400	2, 4, 6 or 8 re-transmission outputs
• Update Rate	250 ms all channels
• Accuracy	± 0.1% (0 ... 500 $\Omega$ load), ± 0.25% (500 $\Omega$ , 1 k $\Omega$ load)
• Type	0 ... 20 mA, 4 ... 20 mA
• Maximum Load Resistance	1 k $\Omega$
• Resolution	0,002%
• Isolation	300 V AC
Health Watch/Maintenance Capability	The recorder keeps track of important "life actions" for improved diagnostics and preventative maintenance notification. Including <ul style="list-style-type: none"> <li>• Powered On</li> <li>• Last powered On</li> <li>• Time On since power up</li> <li>• Total On time</li> <li>• Total Off time</li> <li>• Longest Off time</li> <li>• Hardware/Firmware updates</li> <li>• Lithium cell life</li> <li>• Backlight life left at 100% brightness</li> <li>• Compact Flash insertions,</li> <li>• Hi/Lo CJC value (Hi &amp; Lo temps),</li> <li>• Analog In last factory/user calibration</li> <li>• Relay operations</li> </ul>
Agency Approval	
• CSA	CSA22.2-No. 1010.1-2004 Certificate Number L211230
• UL	ANSI/UL61010-1-2004 File # 201698 FM Class 1 Division 2 (optional)
Transmitter Power (optional)	
• SIREC D300	200 mA at 24 V DC ± 3 V DC
• SIREC D400	1 A at 24 V DC ± 3 V DC
Extended Security System (ESS)	Provides full support for 21 CFR Part 11. Includes features for entry of unique User ID's and associated passwords: <ul style="list-style-type: none"> <li>• Timeout on inactivity (1 ... 10 min)</li> <li>• Password expiration (1 ... 365 days)</li> <li>• Up to 50 users</li> <li>• Password re-entry lock out for incorrect entry of password more than 3 times, no re-use of passwords (programmable 4 ... 12 times)</li> <li>• Traceability by user name</li> </ul>

Totaliser/Sterilisation	One totaliser per input. Totaliser value must be assigned to a pen for display and storage. Multiple totalisations (Maths option) are possible with the use of extra pens (option). Reset may be manual or programmed. Totalisation values are 10 digits plus exponent. Each pen can be totalised according to the Fo or Po sterilisation function at 121.11°C (250 °F). The Standard Reference Temperature and Thermal Resistance (Z Value) are fully adjustable values of X, Y, W and V. Start temp, Reference temp and Z factor are all user defined, allowing support for many different types of sterilisation applications.
Batch	<b>Specification table for Sterilisation</b> The definition of Fo/Po is the sterilisation/pasteurisation time in minutes required to destroy a stated number of organisms with a known z at temperature T. The Batch function allows the user to segment portions of data for further analysis. Batch controls include <ul style="list-style-type: none"> <li>• Start,</li> <li>• Stop,</li> <li>• Pause,</li> <li>• for viewing,</li> <li>• Resume and Abort.</li> </ul>
Print Support	Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.
Math Algorithms	All analog input channels have a math expression block. This is a fully user programmable 100 character free form math expression for each pen. Math calculations available on all pens, one per input plus 16 extra pens for the SIREC D300 and 48 extra pens for the SIREC D400 recorder. Scripting maths includes conditions and multi-line scripting in pen maths expressions. Allow functions, permanent variables and constants, timers. 500 characters maximum per pen.
Miscellaneous	Optional customer ID Tagging (3 lines of up to 22 characters each line)

### Firmware Credit System

The credits system is a flexible way of adding to the recorder features without having to upgrade the firmware. Simply purchase a number of credits to cover your current and possibly future requirements and the recorder will be delivered with the credits loaded. The credit value in each recorder is displayed in the Factory menu.

- Select the Options button and by activating and de-activating the options in the credit list, the recorder will change its functionality. Any greyed out options on the list will mean there are not enough credits available for that feature on the recorder.

Credits can be applied as desired to the Firmware functions until the total number of credits purchased has been used up. Additional credits can be purchased later if new features are to be activated and not enough credits are available to support these additional functions.

Firmware option	Credit value	Description
Full Maths	4	Full Math - this can handle math expressions that can consist of expressions up to 100 characters in length. (Note 1)
Full Maths with Scripting	6	A powerful multi-line scripting ability available to solve complex state based applications. Eg.: "If .. X happens, then Y will happen, <b>else</b> .. Z will occur. (Note 1)
Events	6	Events are certain conditions or operations that can be set up and logged according to the time and date of an occurrence. Subsequently events can be reviewed or displayed on a graph. Events can produce the following actions: Mark on Chart, start/stop Logging, Start/stop/reset Totalisers, Set/clear Relay (Digital), Acknowledge alarm, trigger an Event, Screen change, E-mail a message and Reset max/mins. (Note 3)
Fast Scanning mode	5	For fast processes, the scan rate and recording of the data can be set for up to 50 times per second (20 ms) for <ul style="list-style-type: none"> <li>• SIREC D300: up to 8 inputs</li> <li>• SIREC D400: up to 16 inputs</li> </ul>
Totalisers/ Sterilisation calculation	4	Each pen can be associated with a totaliser. Using extra pens, the totalised values can be displayed and recorded; multiple totals can be calculated out of the same variable (weekly, monthly, etc.). The totaliser function can handle Fo and Po sterilisation calculation. (Note 1)
Custom Screens	4	Import custom built screens that have been created in SIREC D-Designer. (Note 2)
Health Watch/ Maintenance	2	The recorder keeps track of important "life actions" for improved diagnostics and preventative maintenance notification. Including Powered On, Last powered On, Time On since power up, Total On time, Total Off time, Longest Off time, Lithium cell life, Backlight life left at 100% brightness, Compact Flash insertions, Hi/Lo CJC value (Hi & Lo temps), Analog In last factory/user cal, Relay operations
Print Support	2	Enables the printer option to print text from various screens using a basic USB standard PCL printer.
Batch	3	The Batch function allows the user to segment portions of data for further analysis. Batch controls include Start, Stop, Pause, for viewing, Resume and Abort.
Groups	2	Groups of Pens can be specified and named with a Group number to display on the recorder.
Remote Viewer	3	Extends the user interface of the recorder onto the desktop PC. Providing full remote control of the unit launched from a web browser.
Email	3	Setup email accounts to send the following: When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser - Start, Stop or Reset, Digital Inputs - On, Off or State change, TC Burnout - on a specific Analog Input channel, Scheduled Events - Once, Interval, Specific days, Month End.
OPC Server	8	OPC (OLE for Process Control) -Software application for realtime interfacing between servers and clients. OPC is a software standard that defines common interfaces for data exchange between devices such as recorders, controllers, PLC's and Microsoft Windows™ based applications
Extra Pens (4)	2	4 extra pens to store and display totalised values, results of calculations, etc. <ul style="list-style-type: none"> <li>• SIREC D300: Maximum is up to 16 extra pens</li> <li>• SIREC D400: Maximum is up to 48 extra pens</li> </ul>

### Notes

- (1) Additional pens ("Extra Pens") can be used to display and store the results of calculations, totalisers, variables imported via communications, or to store values.
- (2) Screens from Screen Designer for SIREC D300 and SIREC D400 cannot be imported.
- (3) Event markers are required to automatically reset the totalisers, for example on a periodic basis or on an external condition. (Not necessary if the totalisers are reset manually).

Additional information is available in the Internet under:



<http://www.siemens.com/sirec>

# SIREC D Display Recorder

## SIREC D300 and SIREC D400

<b>Selection and Ordering Data</b>	Order No.
<b>SIREC D300 display recorder <sup>1)</sup></b>	<b>7ND4421-</b>
Front dimensions: 144 mm x 144 mm, for all applications, Cycle time: 200 ms for mA,V,mV/500 ms for TC/RTD/R Rear side: Ethernet interface; RS485; USB Front face: slot for CF card; USB interface	 A - B C D E H J K L M
<b>Power supply</b>	
50 or 60 Hz, 90 ... 240 V AC	
• without transmitter power supply ▶	1
• 24 V DC max. 200 mA transmitter power supply	2
24/48 V DC / 24 V AC, 50/60 Hz, without transmitter power supply	4
<b>Analog inputs/ Pulse inputs</b>	
8 analog inputs	
• without analog outputs ▶	A
• 2 analog outputs	B
• 4 analog outputs	C
14 analog inputs, without analog outputs	D
16 analog inputs, without analog outputs	E
4 pulse inputs	
• without analog outputs	H
• 2 analog outputs	J
• 4 analog outputs	K
• 8 analog inputs, without analog outputs	L
8 pulse inputs, without analog outputs	M
<b>Switching outputs and inputs</b>	
None ▶	0
4 relays (240 V)	1
8 relays, of which 2 can be optionally configured as binary input (240 V)	2
8 binary outputs and inputs (24 V relay/freely-configurable)	3
16 binary outputs and inputs (24 V relay/freely-configurable)	4
<b>Internal data storage</b>	
70 Mbyte (standard) ▶	1
180 Mbyte	2
400 Mbyte	3
890 Mbyte	4
1850 Mbyte	5
<b>Extended Security System (ESS)</b>	
With ▶	1
None	2

Selection and Ordering Data		Order No.
<b>SIREC D300 display recorder <sup>1)</sup></b>		<b>7ND4421-</b>
Front dimensions: 144 mm x 144 mm, for all applications, Cycle time: 200 ms for mA, V, mV/500 ms for TC/RTD/R Rear side: Ethernet interface; RS485; USB Front face: slot for CF card; USB interface		
<b>Firmware options</b>		
(see table below "Firmware options and required credits")		
None	▶	A
10 credits		B
20 credits		C
30 credits		D
40 credits		E
50 credits		F
60 credits		G
<b>Protection rating standard (front face)</b>		
IP54		
• without earthquake-proof version	▶	A
IP66 (NEMA 4X)		
• without earthquake-proof version		D
• Earthquake-proof version		E
<b>Documentation</b>		
Manual in German	▶	1
Manual in English		2

► Available ex stock

1) Subject to export regulations AL:N, ECCN: EAR99

**Scope of delivery:**

Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).

Note: CF card is included in the scope of delivery.

Selection and Ordering Data	Order No.
<b>SIREC D400 display recorder <sup>1)</sup></b>	<b>7ND4461-</b>
Front dimensions: 288 mm x 288 mm, for all applications	
<b>Power supply</b>	
50 or 60 Hz, 90 ... 240 V AC	
• without transmitter power supply	1
• 24 V DC max. 200 mA transmitter power supply	2
24/48 V DC / 24 V AC, 50/60 Hz, without transmitter power supply	4
<b>Analog inputs (slot allocation 1 ... 4)</b>	
16 analog inputs	
• without pulse inputs	A
• 4 pulse inputs	B
• 8 pulse inputs	C
24 analog inputs	
• without pulse inputs	D
• 4 pulse inputs	E
32 analog inputs, without pulse inputs	F
without analog inputs	
• 4 pulse inputs	G
• 8 pulse inputs	H
• 12 pulse inputs	J
• 16 pulse inputs	K
<b>Analog inputs/Pulse inputs (slot allocation 5 and 6)</b>	
without analog inputs	
• without analog outputs	A
• 2 analog outputs	B
• 4 analog outputs	C
8 analog inputs	
• without analog outputs	D
• 2 analog outputs	F
16 analog inputs, without analog outputs	G
<b>Switching outputs and inputs (distributed on 3 slots)</b>	
None	0
4 relays (240 V)	1
8 relays, of which 2 can be optionally configured as binary input (240 V)	2
16 relays, of which 4 can be optionally configured as binary input (240 V)	3
24 relays, of which 6 can be optionally configured as binary input (240 V)	4
8 binary outputs and inputs (24 V relay/freely-configurable)	5
16 binary outputs and inputs (24 V relay/freely-configurable/ 1 x 16)	6
24 binary outputs and inputs (24 V relay/freely-configurable/16 + 8)	7
48 binary outputs and inputs (24 V relay/freely-configurable/3 x 16)	8

Selection and Ordering Data	Order No.
<b>SIREC D400 display recorder <sup>1)</sup></b>	<b>7ND4461-</b>
Front dimensions: 288 mm x 288 mm, for all applications	
<b>Internal data storage</b>	
70 Mbyte (standard)	1
180 Mbyte	2
400 Mbyte	3
890 Mbyte	4
1850 Mbyte	5
<b>Extended Security System (ESS)</b>	
With	1
None	2
<b>Firmware options</b> (see table "Firmware options and required credits")	
None	A
10 credits	B
20 credits	C
30 credits	D
40 credits	E
50 credits	F
60 credits	G
70 credits	H
<b>Protection rating standard (front face)</b>	
IP54	
• without earthquake-proof version	A
IP66 (NEMA 4X)	
• without earthquake-proof version	D
• Earthquake-proof version	E
<b>Documentation</b>	
Manual in German	1
Manual in English	2

► Available ex stock

<sup>1)</sup> Subject to export regulations AL:N, ECCN: EAR99

**Scope of delivery:**  
Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).  
Note: CF card is included in the scope of delivery.



# SIREC D Display Recorder

## SIREC D300 and SIREC D400

### Accessories

Order No.

#### Firmware options for SIREC D300 and SIREC D400

Code No. of recorder required

10 credits	<b>7ND4 801-8AC</b>
20 credits	<b>7ND4 801-8BC</b>
30 credits	<b>7ND4 801-8CC</b>
40 credits	<b>7ND4 801-8DC</b>
50 credits	<b>7ND4 801-8EC</b>
60 credits	<b>7ND4 801-8FC</b>
70 credits (SIREC D400 only)	<b>7ND4 801-8GC</b>

#### Options/enabling of SIREC D software

Code No. of software required

Enabling of SIREC D-Manager	<b>7ND4 800-8BA</b>
Enabling of SIREC D-Server	<b>7ND4 800-8CA</b>
Enabling of SIREC D-Designer (only for SIREC D300 and SIREC D400)	<b>7ND4 801-8DA</b>
Upgrading of SIREC D-Manager to SIREC D-Server	<b>7ND4 800-8EA</b>

#### SIREC D software

Only for subsequent orders; software is included in delivery of recorder

Evaluation software for SIREC D200/D300/D400 (on CD) incl. enabling for SIREC D-Viewer and manual for the software on CD in German, English, French

**7ND4 800-8AA**

#### Documentation

Included on CD-ROM in scope of delivery

SIREC D300 and SIREC D400 recorder manual

• German (can also be downloaded from Internet)	<b>A5E01001785-03</b>
• English (can also be downloaded from Internet)	<b>A5E01001767-03</b>
• French (can only be downloaded from Internet)	

#### Scope of delivery:

Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).

Note: CF card is included in the scope of delivery.

### Firmware options and required credits

#### SIREC D300

Options	Required credits
Groups/summarize channels	2
Diagnostic functions	2
Print support	2
8 extra pens (virtual channels)	2
16 extra pens (virtual channels)	4
Counter	2
Remote viewer	3
Batch	3
E-mail function	3
Totalisers	4
Maths (free functions)	4
Maths and Scripts (free functions)	6
Events (logical connections)	6
OPC Interface	8
Custom specified screens	4
Fast scanning (20 ms/only with mV/V/mA)	5

#### SIREC D400

Options	Required credits
Groups/summarize channels	2
Diagnostic functions	2
Print support	2
8 extra pens (virtual channels)	2
16 extra pens (virtual channels)	4
32 extra pens (virtual channels)	8
48 extra pens (virtual channels)	12
Counter	2
Remote Viewer	3
Batch	3
E-mail function	3
Full Maths	4
Maths (free functions)	4
Maths and Scripts (free functions)	6
Events (logical connections)	6
OPC Interface	8
Custom specified screens	4
Fast scanning (20 ms/only with mV/V/mA)	5

### Options

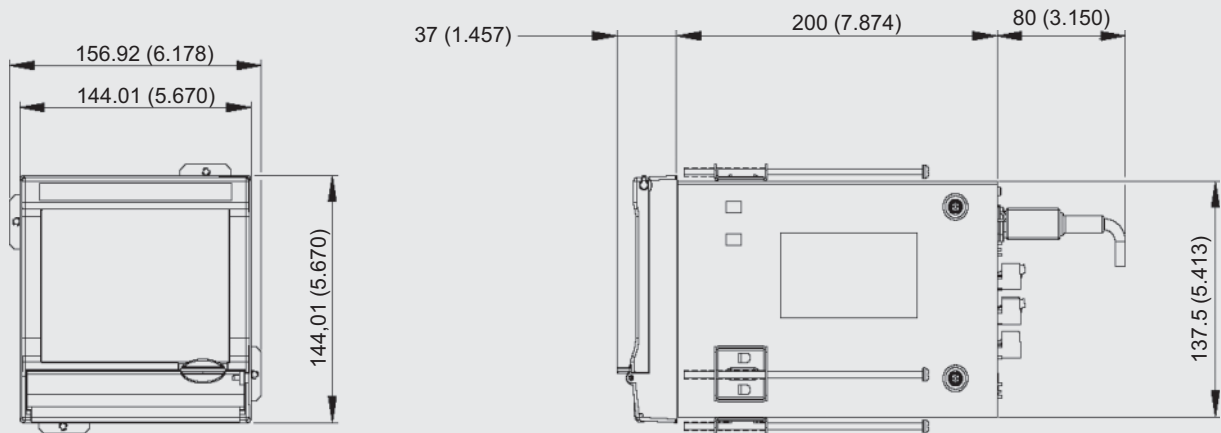
#### Options - Hardware

- Alarm Card
  - 4 or 8 outputs relay contacts SPCO 240 V
  - 8 Digital I/O or 16 Digital I/O - SPNO 24 V DC
  - Programmable alarm set points can be configured to activate up to 16 outputs for the SIREC D300 and 48 outputs for the SIREC D400.
- Analog Output
  - 2 or 4 outputs available per card
  - Output type: 0-20 mA or 4-20 mA
- Nema 4X/IP66
  - Nema 4X/IP66 protection available as an option.
- Portable Recorders
  - Portable cases available as an accessory item.
- Digital Input
 

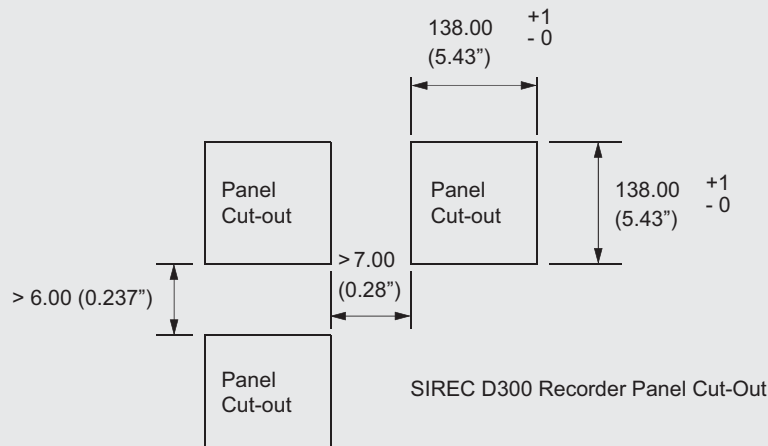
Two digital input options are available:

  - 2 inputs on 8 channel Alarm card, 8 inputs on 8 Digital I/O card and 16 inputs on a 16 Digital I/O card. The digital inputs allow users to initiate, from a remote location via a dry contact closure, selected recorder functions.
- Pulse Counting
  - Up to four counting inputs per board, are available to count signals up to 25 kHz (SIREC D300: max. 2 cards; SIREC D400: max. 6 cards).
- Approvals
  - CSA, UL and FM CL1 Div 2 approvals
- 24 V AC/DC or 48 V DC Power Supply
  - 20 to 55 V DC
  - 20 to 30 V AC
- 24 V DC Transmitter Power Supply
  - Can supply up to 200 mA (SIREC D300) respectively 1 A (SIREC D400) to external transmitters.
- Print Support
  - Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.

### Dimensional drawings



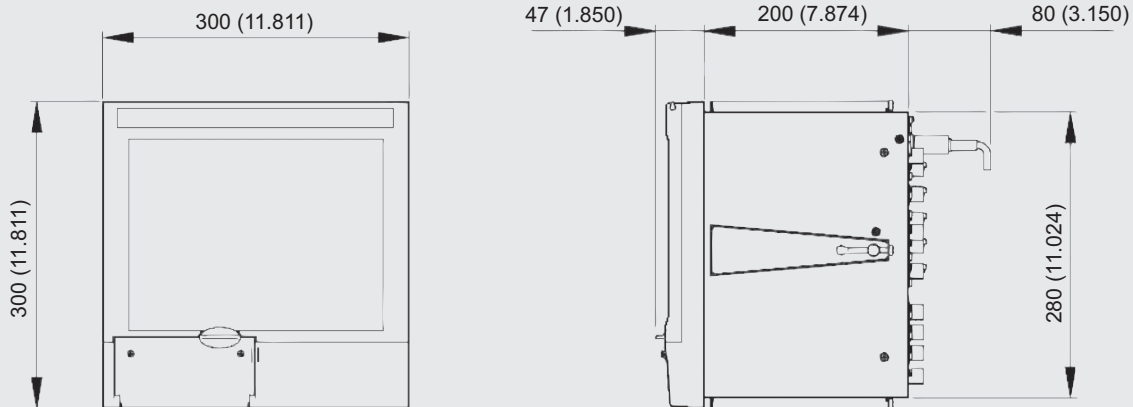
Two mounting brackets are supplied as standard



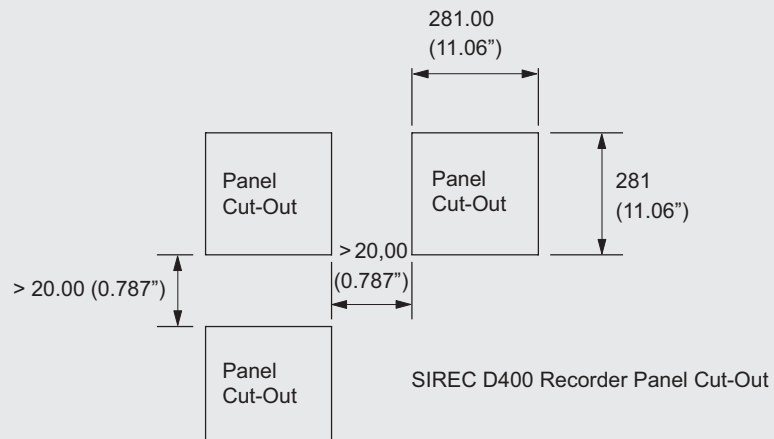
SIREC D300, dimensions in mm (inch) and panel cut-out

# SIREC D Display Recorder

## SIREC D300 and SIREC D400

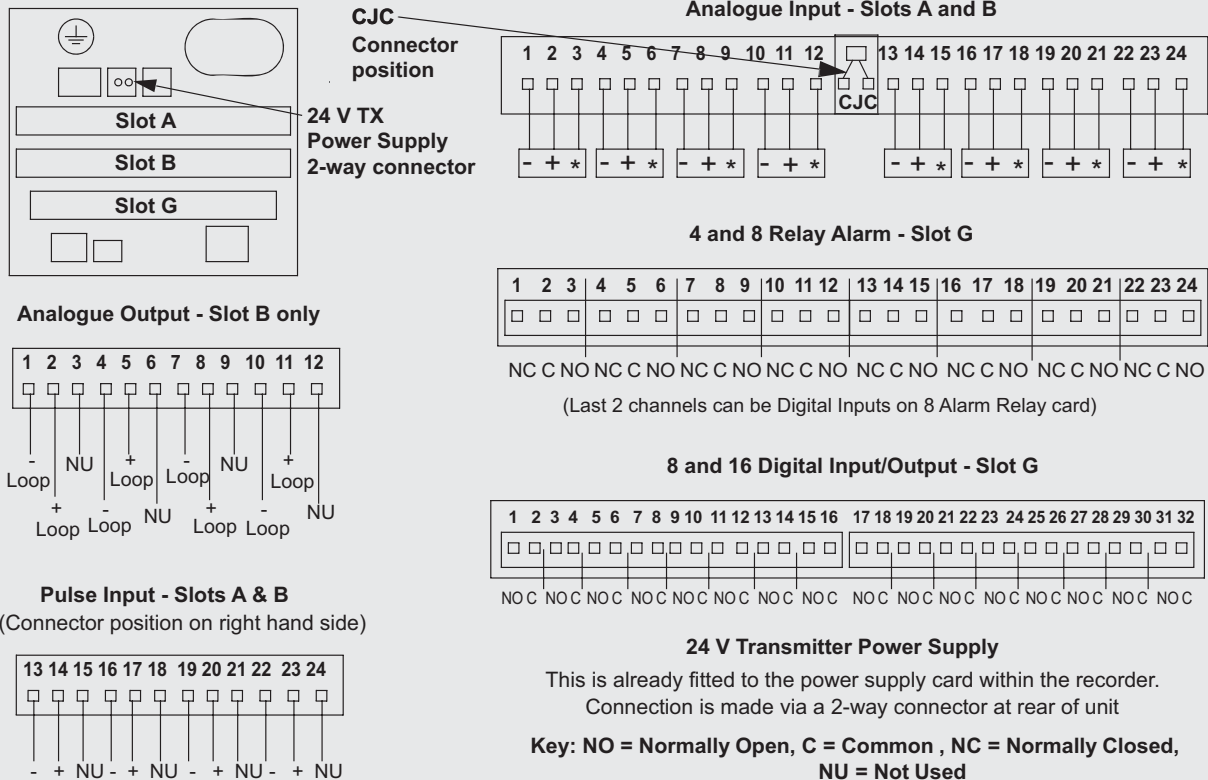


Two mounting brackets are supplied as standard



SIREC D400, dimensions mm (inch) and panel cut-out

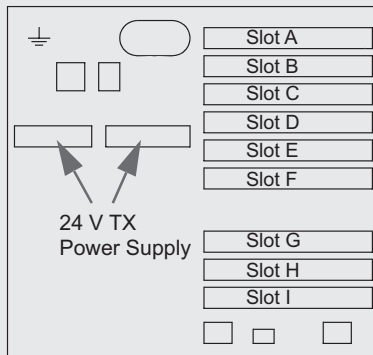
### Schematics



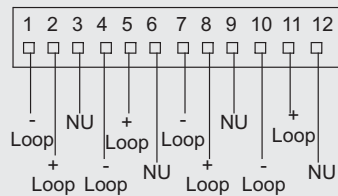
SIREC D300 - Terminal assignments and power requirements (rear of unit)

# SIREC D Display Recorder

## SIREC D300 and SIREC D400

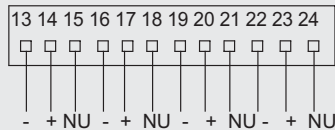


### Analogue Output - Slots E and F



### Pulse Input - Slots A to F

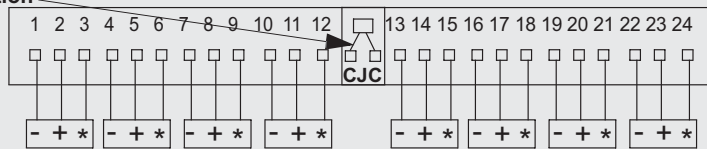
(Connector position on right hand side)



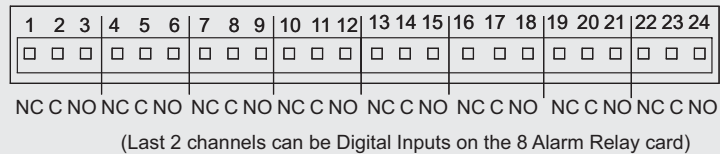
### CJC

Connector position

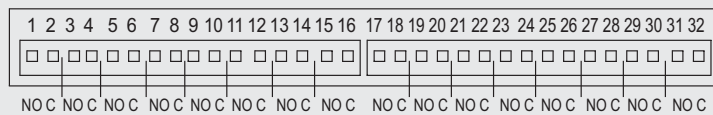
### Analogue Input - Slots A to F



### 4 and 8 Relay Alarm - Slots G to I



### 8 and 16 Digital Input/Output - Slots G to I



### 24 V Transmitter Power Supply

Connection is made via two 10-way connector at rear of unit

**Key: NO = Normally Open , C = Common , NC = Normally Closed, NU = Not Used**

SIREC D400 - Terminal assignments and power requirements (rear of unit)

### More information

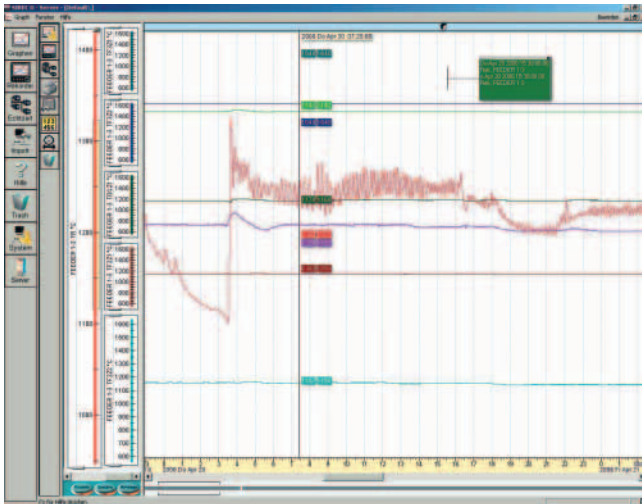
Additional information is available in the Internet under:



<http://www.siemens.com/sirec>



### Overview



#### **SIREC D-Viewer and SIREC D-Manager**

The SIREC D-Viewer software is included in the scope of delivery of the recorder. It permits the graphical or numerical display and printout of measured values and data.

The SIREC D-Manager software package permits PC-based configuration and simulation of the recorder as well as the archiving, graphic display, printing and exporting of data with CSV format.

#### **SIREC D-Server**

SIREC D-Server is a network solution for data display and archiving as well as for communication with up to 256 recorders. An RS485 network or also the Ethernet TCP/IP option of the recorder is used for this, and permits direct interfacing to existing LANs. The standard package provides archiving, e-mail, graphics, printing and export functions

An integral OPC function permits export to software from other vendors in real-time mode.

#### **Database Tool**

This software application works with SIREC D-Manager and SIREC D-Server to provide safe administration of data with tools to archive, sort, move, copy and delete the data stored in local and remote databases.

The Database Tool software is supplied with SIREC D-Server.

#### **SIREC D-Designer (only for SIREC D300 and SIREC D400)**

The SIREC D-Designer permits the user to draft own graphic pages which are subsequently output on the recorder display. Any combination of display elements can be used such as trends, digital displays, bargraphs, bitmaps, digitized displays and plant displays. Various aspects of these elements can be modified if required to obtain a truly individual display.

The SIREC D-Designer software is compatible with both SIREC D300 and SIREC D400 recorders. Complete graphic pages can be loaded via diskette/PC card into any number of recorders. In this manner it is particularly easy to achieve consistent and standardized display of the process data.

### Function

#### **Comparison of functions of SIREC D-Viewer, Manager and Server**

Functions	SIREC D-Viewer	SIREC D-Manager	SIREC D-Server
Importing of data from diskette	X	X	X
Graphic display of data	X	X	X
Upgrades available from Internet	X	X	X
Printout of all graphic data	X	X	X
Printout of all configuration data		X	X
PC-based configuration of graphic recorders		X	X
Configuration of fuzzy logging function		X	X
Configuration of event system		X	X
Archiving of data in protected databases		X	X
Exporting of measured data in CSV format		X	X
Exporting of online measured data with OPC			X
Communication with up to 256 recorders via RS485			X
Communication with recorders via Ethernet TCP/IP			X
Access to recorder data from a LAN			X
FTP and real-time Ethernet communication			X
User administration and password protection			X
Configuration of recorders via Ethernet			X
Audit trail manager			X

# SIREC D Display Recorder

## SIREC D application software

### Technical specifications

System requirements	SIREC D-Viewer, SIREC D-Manager, SIREC D-Designer	SIREC D-Server
Processor	Pentium 1 GHz or higher	Pentium 1 GHz or higher
Main memory	512 MByte RAM ( min. 512 MByte recommended)	512 MByte RAM ( min. 512 MByte recommended)
Free hard disk space	50 MByte	2 GByte
Operating system	Microsoft Windows 2000, XP	Microsoft Windows 2000, XP
Monitor screen resolution	1024 x 768 (recommended minimum), high colour (16 bit), 24 bit recommended (SIREC D-Designer only)	1024 x 768 (recommended minimum), high colour (TCP/IP installed)
Flash card reader or USB port	X	X
CD-ROM drive	X	X
Mouse	X	X
OPC server		OPC 2.0 compatible

### Selection and Ordering Data

Order No.

#### SIREC D software

Evaluation software for SIREC D200/D300/D400 incl. enabling for SIREC D-Viewer and manual for the software in German, English, French  
Software is included in delivery of recorder

**7ND4 800-8AA**

#### Options/enabling of SIREC D software

Code No. of software required

Enabling of SIREC D-Manager

**7ND4 800-8BA**

Enabling of SIREC D-Server

**7ND4 800-8CA**

Enabling of SIREC D-Designer (only for SIREC D300 and SIREC D400)

**7ND4 801-8DA**

Upgrading of SIREC D-Manager to SIREC D-Server

**7ND4 800-8EA**





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