

Milltronics

Speed sensors Milltronics RBSS

Operating Instructions

<u>Introduction</u>	1
<u>Description</u>	2
<u>Installing/mounting</u>	3
<u>Connection</u>	4
<u>Service and maintenance</u>	5
<u>Technical specifications</u>	6
<u>Dimension drawings</u>	7
<u>Product documentation and support</u>	A

7MH7134-.....(RBSS)

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Table of contents

1	Introduction	4
1.1	Operating instructions scope	4
1.2	Industrial use note	4
2	Description.....	5
2.1	Milltronics RBSS overview	5
3	Installing/mounting	6
3.1	Location	6
3.2	Device without mounting bracket	7
3.3	Device with mounting bracket	8
3.4	Installation steps.....	8
3.4.1	Device without mounting bracket	8
3.4.2	Device with mounting bracket	9
4	Connection.....	10
5	Service and maintenance	11
5.1	Inspection.....	11
5.2	Unit repair and excluded liability	11
5.3	Wheel and bearing repair	11
6	Technical specifications.....	14
6.1	Power	14
6.2	Temperature.....	14
6.3	Input	14
6.4	Output	14
6.5	Cable.....	14
6.6	Construction.....	14
6.7	Approvals	15
7	Dimension drawings.....	16
7.1	RBSS	16
7.2	Mounting bracket	17
A	Product documentation and support.....	18
A.1	Product documentation	18
A.2	Technical support	19
	Index.....	20

Introduction

1.1 Operating instructions scope

This instruction manual covers the installation, operation and maintenance of the RBSS Speed Sensor Integrator.

1.2 Industrial use note

Note

- The RBSS is to be used only in the manner outlined in this instruction manual.
 - This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.
-

Description

2.1 Milltronics RBSS overview

The Milltronics RBSS is a high-resolution, wheel-driven return belt speed sensor that provides speed input to an integrator when used on a belt scale system.

The RBSS has a toothed gear, wheel, and trailing arm assembly, that rides along the return belt. The gear and wheel rotate on a shaft fixed to the trailing arm. The internal magnetic sensor detects the gear rotation and generates a signal proportional to the belt speed. The output signal is transmitted via cable connection to the integrator to determine the rate of the conveyed material.

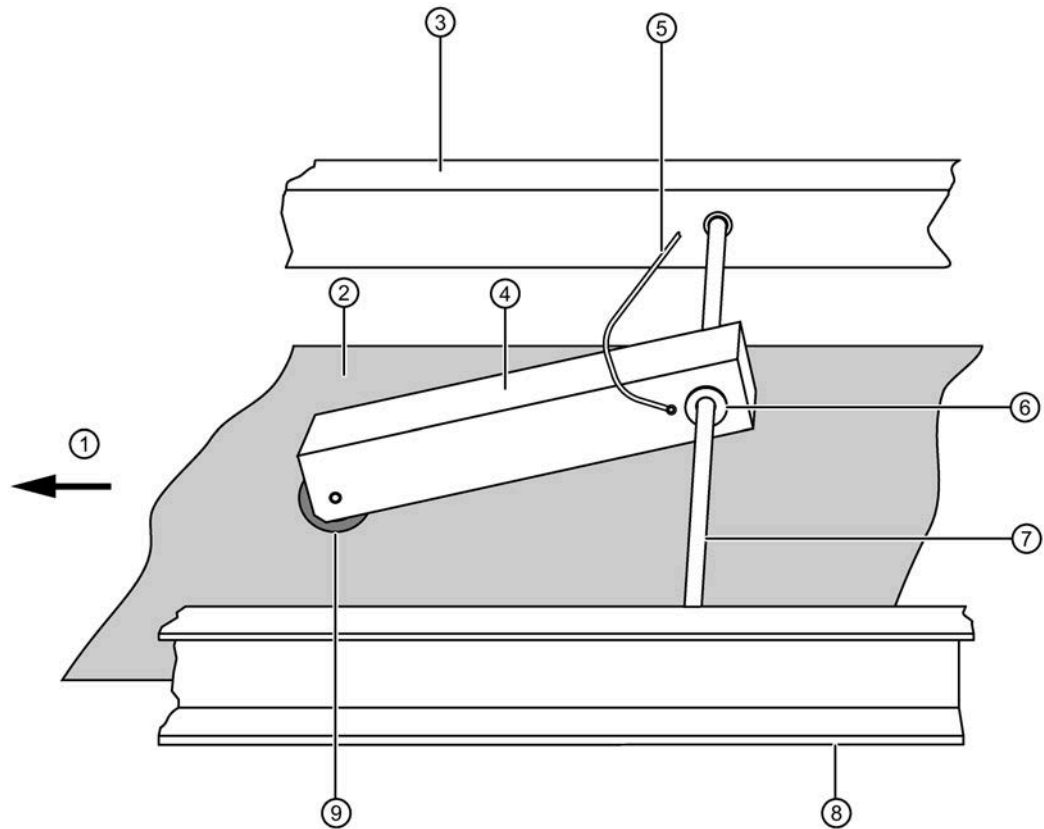
Installing/mounting

3.1 Location

The RBSS should be located near the scale assembly to simplify wiring. The wheel should ride on the return belt, either just before or just after a return belt idler.

3.2 Device without mounting bracket

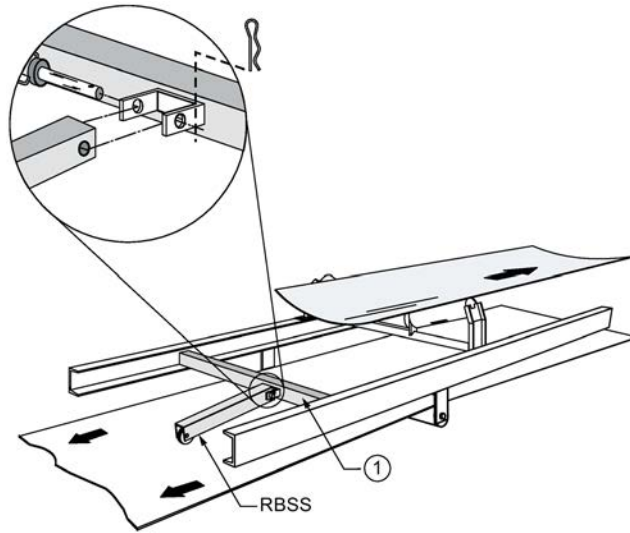
The standard RBSS mounting attaches to the conveyor stringers via a customer-supplied 1 inch cross bar, cut and fastened to the stringers.



- | | | |
|--|------------|--------------------------------------|
| ① Return belt travel | ② Belt | ③ Stringer |
| ④ RBSS | ⑤ Cable | ⑥ Washers, 2 places
(by customer) |
| ⑦ 24 mm (1 inch) dia. cross
bar (by customer) | ⑧ Stringer | ⑨ Wheel |

3.3 Device with mounting bracket

The RBSS speed sensor attaches to a customer-supplied structural cross member via a pivot and bracket assembly.

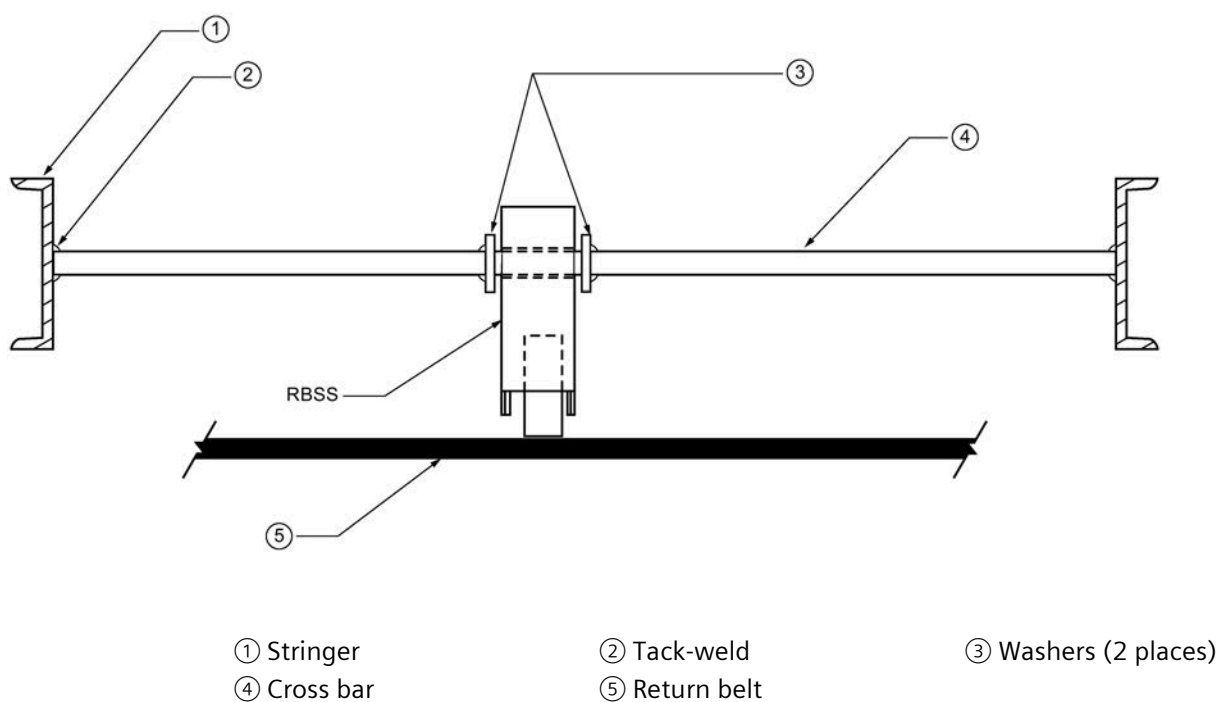


① Cross member (customer-supplied)

3.4 Installation steps

3.4.1 Device without mounting bracket

1. Measure the distance between the inside of the conveyor stringers, and then cut the 24 mm (1 inch) cross bar to the measured length.
2. Orient the return belt speed sensor. See RBSS without mounting bracket (Page 7).
3. Slide the cross bar through the hole on the end of the return belt speed sensor, and then slide one 24 mm (1 inch) washer onto either end of the cross bar.
4. Position the assembly so the sensor wheel rides in the middle of the return belt.
5. Make sure there is 3 mm (1/8 inch) clearance between the sides of the sensor and the washers, and then tack-weld the washers to the cross bar.
6. Tack-weld one end of the cross bar to one stringer.
7. Square the entire assembly with the return belt so the wheel will ride straight.
8. Tack-weld the other end of the cross bar to the opposite stringer, making sure the assembly remains square with the belt.
9. Run the belt to check that the wheel is riding straight on the belt and is not pulling to either side. If necessary, break one weld and pivot the entire assembly until the wheel runs true.



3.4.2 Device with mounting bracket

1. Position the RBSS mounting bracket against a structural cross member so the sensor wheel rides in the middle of the return belt. See RBSS with mounting bracket (Page 8).
2. Drill and fasten or tack-weld the RBSS mounting bracket in place.
3. Position the RBSS between the bracket arms, and insert pin. Insert pin clip into pin.
4. Run the belt to check that the wheel is riding straight on the belt and is not pulling to either side. If necessary, reposition the bracket until the wheel runs true.

Connection

4

Note

All wiring must be done in conjunction with approved conduit, boxes, and fittings and to procedures in accordance with all governing regulations.

Ensure that there is sufficient slack in the cabling to allow the RBSS arm to pivot freely so the wheel rides on the belt. Restriction of the arm can cause slippage or excessive contact between the belt and the wheel.

RBSS CE and UKCA

RBSS	Integrator
Red	Excitation
White	Signal
Black	Common

Service and maintenance

5.1 Inspection

- Inspect the RBSS periodically to ensure that it can rotate freely about the pivot pin or cross bar.
- Inspect the proximity switch area periodically and remove any material build-up.

5.2 Unit repair and excluded liability

All changes and repairs must be done by qualified personnel and applicable safety regulations must be followed. Please note the following:

- The user is responsible for all changes and repairs made to the device.
- All new components must be provided by Siemens Milltronics Process Instruments Inc.
- Restrict repair to faulty components only.
- Do not re-use faulty components.

5.3 Wheel and bearing repair

Case 1

For tube housings with through holes for bolt and bushings of 22 mm (7/8 inch).

Parts required:

- 1 - wheel assembly, complete with sealed bearings and 60 tooth gear
- 2 - bushings
- 1 - M12 washer (optional - see ⑪ on diagram below)
- 2 - stepped washers
- 1 - hex head bolt M12 x 1.75, 120 mm long
- 1 - locking hex nut M12 x 1.75

5.3 Wheel and bearing repair

Case 2

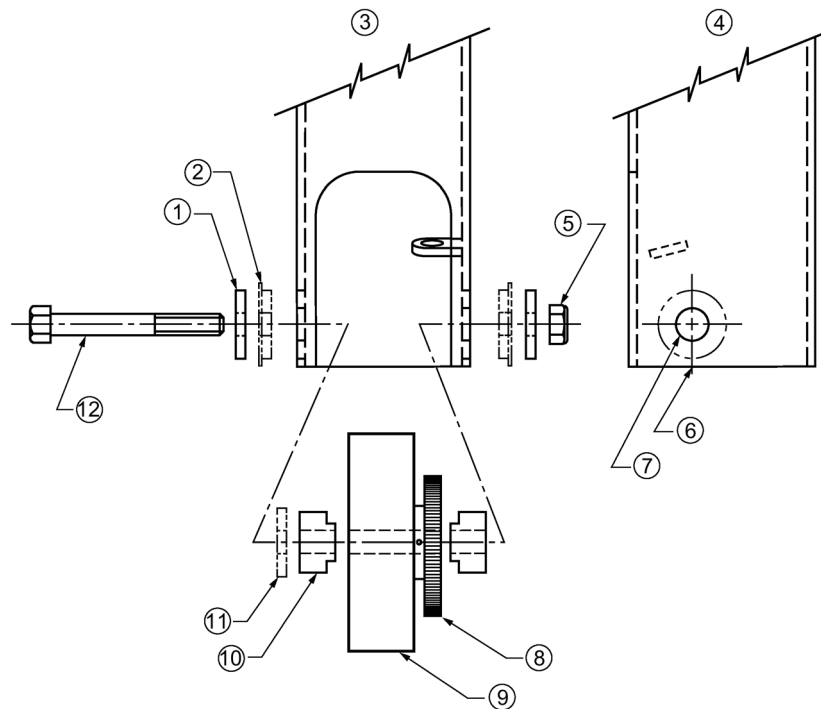
For tube housings with through holes for bolt of 13 mm (1/2 inch).

Parts required:

- 1 - wheel assembly, complete with sealed bearings and 60 tooth gear
- 2 - bushings
- 3 - M12 washers (1 of 3 washers is optional - see ⑪ on diagram below)
- 1 - hex head bolt M12 x 1.75, 120 mm long
- 1 - locking nut M12 x 1.75

Note

Spare parts kit 7MH7723-1FX contains parts for both Case 1 and Case 2. Extra M12 washers and stepped washers are provided.



① M12 flat washer (2)²⁾

④ Side view

⑦ 13 mm (1/2 inch) hole²⁾

⑩ Bushing (2)

② Stepped washer (2)¹⁾

⑤ M12 x 1.75 locking hex nut³⁾

⑧ 60 tooth gear

⑪ Optional M12 washer:

- Required of housing is imperial 4 x 3/16 inch square tubing

- Not required if housing is metric

100 x 100 x 5 mm square tubing

③ Front view

⑥ 22 mm (7/8 inch) hole¹⁾

⑨ Wheel assembly

¹⁾ Case 1

²⁾ Case 2

³⁾ Torque to 34 Nm (25 ft/lb)

6

Technical specifications

6.1 Power

RBSS CE and UKCA	4.5 ... 28 V DC, 16 mA max.
------------------	-----------------------------

6.2 Temperature

RBSS CE and UKCA	-40 ... +110 °C (-40 ... +230 °F)
------------------	-----------------------------------

6.3 Input

	Shaft rotation 2 ... 450 rpm, bi-directional
--	--

6.4 Output

	60 pulses per revolution, 2 ... 450 Hz, 45.8 pulses/foot (150.4 pulses/meter)
RBSS CE and UKCA	Open collector sinking output, 25 mA

6.5 Cable

RBSS CE and UKCA	3 m (10 ft), 3 conductor 22 AWG (0.324 mm ²), PVC shielded cable 300 m (1 000 ft) maximum cable run
------------------	---

6.6 Construction

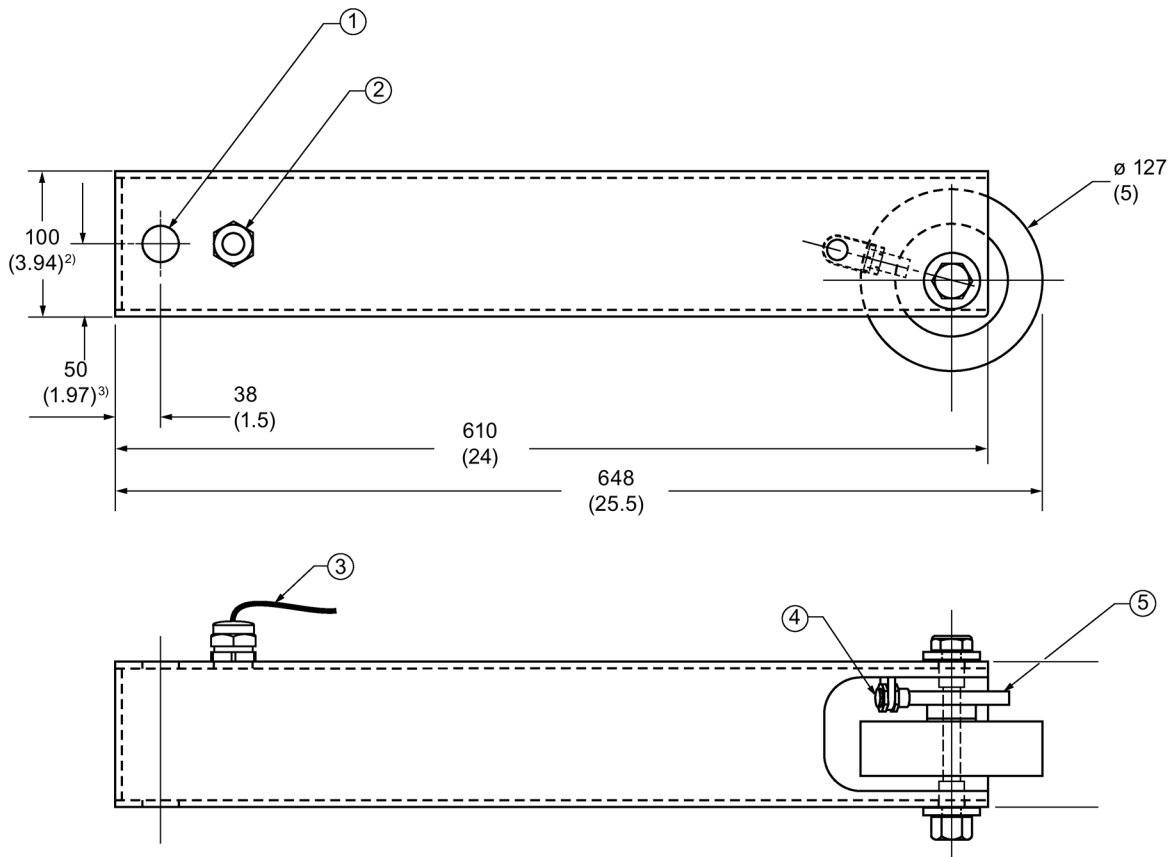
Trailing arm	Painted mild steel
Sensor wheel	127 mm (5 inch) diameter, polyurethane tread

6.7 Approvals

RBSS CE and UKCA	CE, UKCA
------------------	----------

Dimension drawings

7.1 RBSS



Dimensions in mm (inch)

① $\varnothing$ 25 mm (1 inch) through both walls

② Through hole for cable gland 22 mm (0.88 inch)

③ 3 m (10 ft)¹⁾ shielded cable

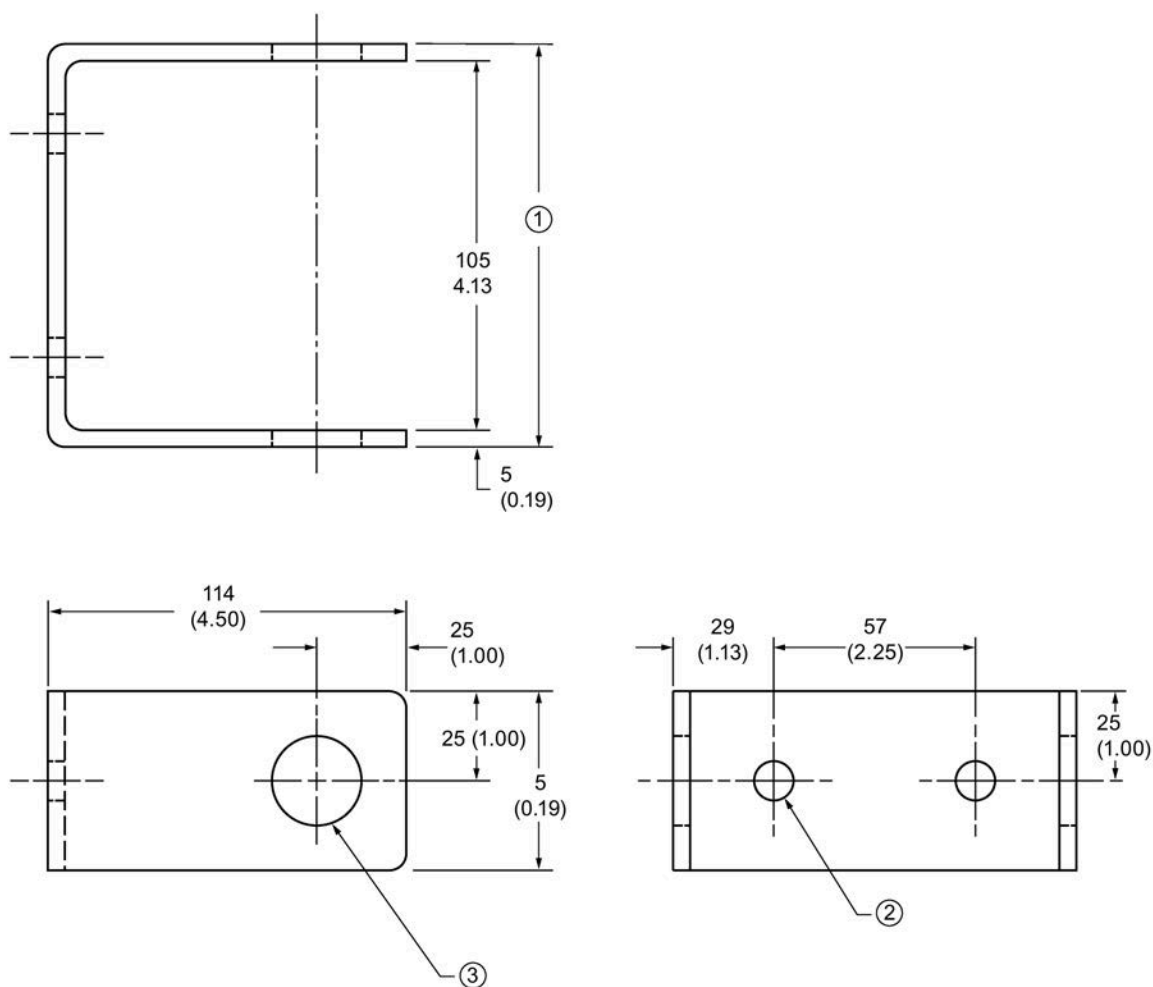
④ Sensor

⑤ 60 tooth gear

¹⁾ Dimension equals 102 mm (4 inch) if manufactured in Canada.

²⁾ Dimension equals 51 mm (2 inch) if manufactured in Canada.

7.2 Mounting bracket



Dimensions in mm (inch)

- ① 114 (4.5 inch) ref.
- ② $\varnothing$ 11 mm (0.44 inch), 2 places
- ③ $\varnothing$ 25 mm (1 inch) through both sides

Product documentation and support

A.1 Product documentation

Process instrumentation product documentation is available in the following formats:

- Certificates (<http://www.siemens.com/processinstrumentation/certificates>)
- Downloads (firmware, EDDs, software) (<http://www.siemens.com/processinstrumentation/downloads>)
- Catalog and catalog sheets (<http://www.siemens.com/processinstrumentation/catalogs>)
- Manuals (<http://www.siemens.com/processinstrumentation/documentation>)

You have the option to show, open, save, or configure the manual.

- "Display": Open the manual in HTML5 format
- "Configure": Register and configure the documentation specific to your plant
- "Download": Open or save the manual in PDF format
- "Download as html5, only PC": Open or save the manual in the HTML5 view on your PC

You can also find manuals with the Mobile app at Industry Online Support (<https://support.industry.siemens.com/cs/ww/en/sc/2067>). Download the app to your mobile device and scan the device QR code.

Product documentation by serial number

Using the PIA Life Cycle Portal, you can access the serial number-specific product information including technical specifications, spare parts, calibration data, or factory certificates.

Entering a serial number

1. Open the PIA Life Cycle Portal (<https://www.pia-portal.automation.siemens.com>).
2. Select the desired language.
3. Enter the serial number of your device. The product documentation relevant for your device is displayed and can be downloaded.

To display factory certificates, if available, log in to the PIA Life Cycle Portal using your login or register.

Scanning a QR code

1. Scan the QR code on your device with a mobile device.
2. Click "PIA Portal".

To display factory certificates, if available, log in to the PIA Life Cycle Portal using your login or register.

A.2 Technical support

Technical support

If this documentation does not completely answer your technical questions, you can enter a Support Request (<http://www.siemens.com/automation/support-request>).

For help creating a support request, view this video here (www.siemens.com/opensr).

Additional information on our technical support can be found at Technical Support (<http://www.siemens.com/automation/csi/service>).

Service & support on the Internet

In addition to our technical support, Siemens offers comprehensive online services at Service & Support (<http://www.siemens.com/automation/service&support>).

Contact

If you have further questions about the device, contact your local Siemens representative at Personal Contact (<http://www.automation.siemens.com/partner>).

To find the contact for your product, go to "all products and branches" and select "Products & Services > Industrial automation > Process instrumentation".

Contact address for business unit:

Siemens AG
Digital Industries
Process Automation
Östliche Rheinbrückenstr. 50
76187 Karlsruhe, Germany

Index

C

Catalog
 catalog sheets, 18
Certificates, 18
Customer Support, (Refer to Technical support)

D

Downloads, 18

H

Hotline, (Refer to Support request)

M

Manuals, 18

S

Service, 19
Service and support
 Internet, 19
Support, 19
Support request, 19

T

Technical support, 19
 partner, 19
 personal contact, 19