

Rosemount™ 1408H Level Transmitter

Non-Contacting Radar with IO-Link
Protocol



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1 About this guide

This Quick Start Guide provides basic guidelines for the Rosemount 1408H Level Transmitter. Refer to the Rosemount 1408H [Reference Manual](#) for more instructions.

1.1 Safety messages

⚠ WARNING

Failure to follow safe installation and servicing guidelines could result in death or serious injury.

Ensure the transmitter is installed by qualified personnel and in accordance with applicable code of practice.

Use the equipment only as specified in this Quick Start Guide and the Reference Manual. Failure to do so may impair the protection provided by the equipment.

Repair, e.g. substitution of components, etc. may jeopardize safety and is under no circumstances allowed.

⚠ WARNING

Process leaks could result in death or serious injury.

Handle the transmitter carefully.

Install and tighten process connectors before applying pressure.

Do not attempt to loosen or remove process connectors while the transmitter is in service.

⚠ WARNING

Physical access

Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and needs to be protected against.

Physical security is an important part of any security program and fundamental in protecting your system. Restrict physical access by unauthorized personnel to protect end users' assets. This is true for all systems used within the facility.

⚠ CAUTION

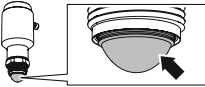
Hot surfaces

The transmitter and process seal may be hot at high process temperatures. Allow to cool before servicing.



Note

Be careful not to scratch or otherwise damage the PTFE sealing.



1.2 Product certifications

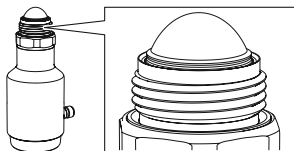
See the Rosemount 1408H [Product Certifications](#) document for detailed information on the existing approvals and certifications.

2 Cleaning the transmitter

Procedure

If needed, clean the wetted parts of the transmitter.

Use a damp cloth and a mild cleaning agent suitable for the media and wetted parts of the transmitter.



Note

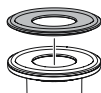
Be careful not to scratch any of the surfaces.

3 Installing on a tank

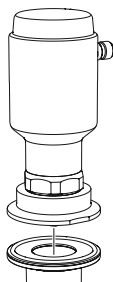
3.1 Mount the Tri Clamp version

Procedure

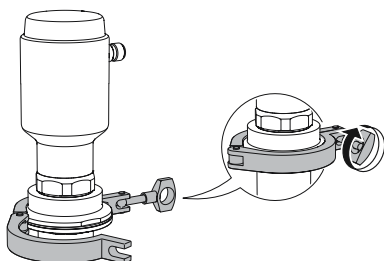
1. Place a suitable gasket on top of the tank flange.



2. Lower the transmitter into the nozzle.



3. Tighten the clamp to the recommended torque (see the manufacturer's instruction manual).



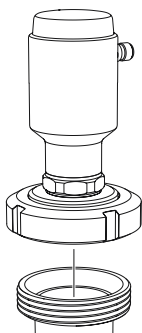
3.2 Mount the dairy coupling (DIN 11851)

Procedure

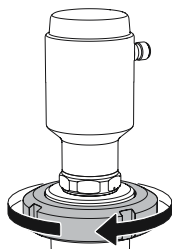
1. Place a suitable gasket on top of the tank flange.



2. Lower the transmitter into the nozzle.



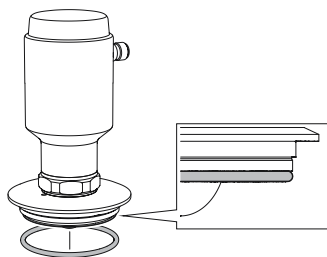
3. Tighten the lock nut to the recommended torque (see the manufacturer's instruction manual).



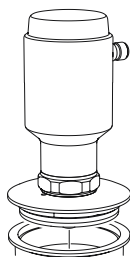
3.3 Mount the VARIVENT[®] version

Procedure

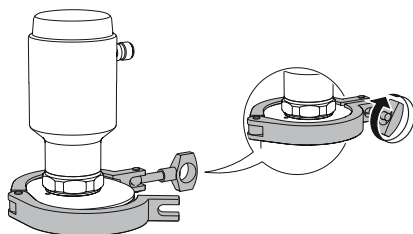
1. Mount a suitable O-ring on the adapter.



2. Lower the transmitter into the nozzle.



3. Tighten the clamp to the recommended torque (see the manufacturer's instruction manual).



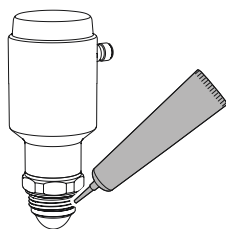
3.4 Mount on a threaded connection

Procedure

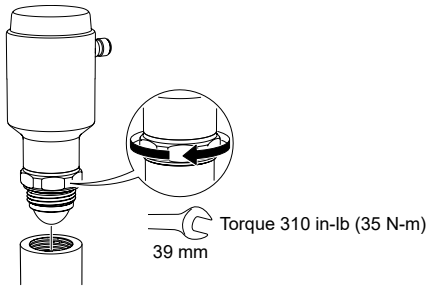
1. Apply lubricating paste on the transmitter thread.

Note

The paste must be approved for the application and compatible with the elastomers used.



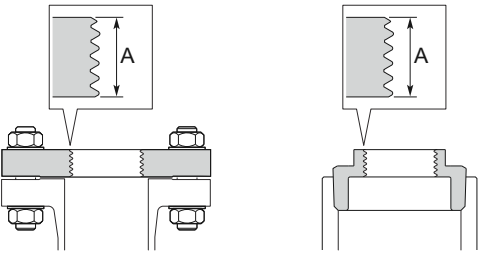
2. Mount the transmitter on the tank.



3.4.1 Thread engagement length

Refer to [Figure 3-1](#) for the required thread engagement length at the customer G1 process connection.

Figure 3-1: Thread Engagement Length

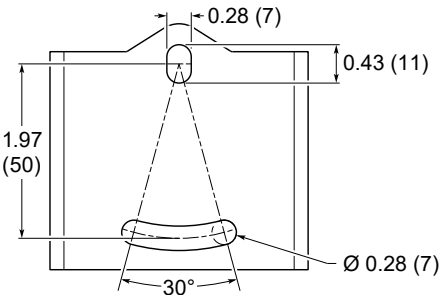


A. 0.35 to 0.63 in. (9 to 16 mm)

4 Bracket mounting

4.1 Bracket hole pattern

Figure 4-1: Hole Pattern

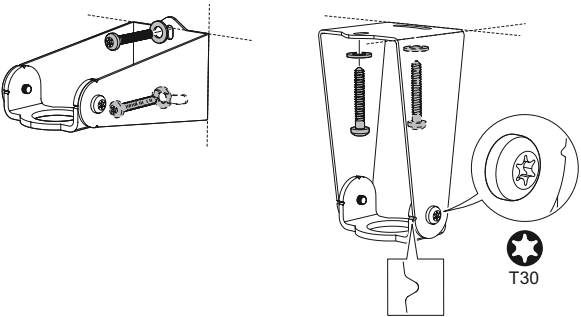


Dimensions are in inches (millimeters).

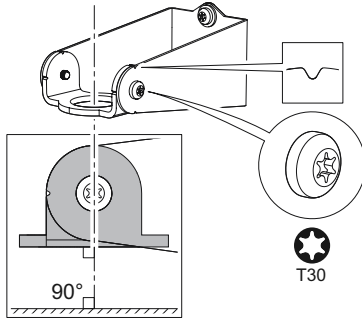
4.2 Mount the bracket

Procedure

1. Mount the bracket on the wall/ceiling or other flat surface.



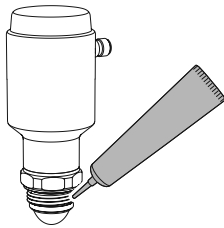
2. Ensure the adjustable holder is directed toward the ground.



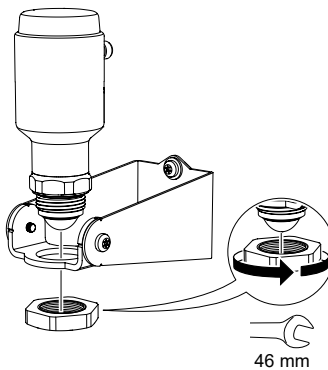
3. Apply lubricating paste on the transmitter thread.

Note

The paste must be approved for the application and compatible with the elastomers used.



4. Secure the transmitter to the bracket.



5 Prepare the electrical connections

5.1 Connector type

M12 male (A-coded)

5.2 Power supply

The transmitter operates on 18-30 Vdc at the transmitter terminals.

5.3 Outputs

The transmitter provides two configurable outputs:

- Output 1** Digital output / IO-Link mode
- Output 2** Digital output or active 4-20 mA analog output

5.4 Internal power consumption

- < 2 W (normal operation at 24 Vdc, no outputs)
- < 3.6 W (normal operation at 24 Vdc, digital and analog outputs active)

5.5 Wiring diagram

Figure 5-1: Connection

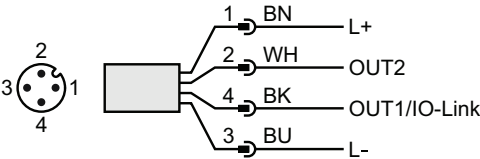
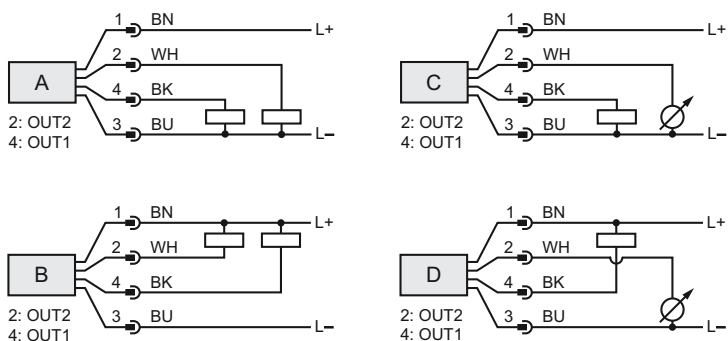


Table 5-1: Pin Assignment

Pin	Wire color ⁽¹⁾		Signal	
1	BN	Brown	L+	24 V
2	WH	White	OUT2	Digital output or active 4-20 mA analog output
3	BU	Blue	L-	0 V
4	BK	Black	OUT1/IO-Link	Digital output or IO-Link mode

(1) According to IEC 60947-5-2.

Figure 5-2: Example Circuits

- A. 2 x Digital output PnP
 B. 2 x Digital output NPN
 C. 1 x Digital output PNP / 1 x Analog output
 D. 1 x Digital output NPN / 1 x Analog output

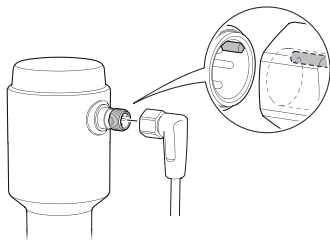
6 Power up transmitter

Procedure

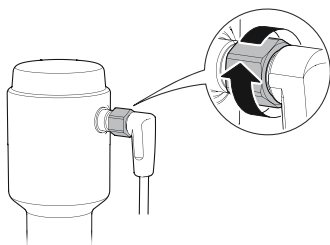
1. ⚠ Verify the power supply is disconnected.
2. Insert the M12 connector gently.

Note

Do not force the connector into place. Check that it is aligned properly.



3. Once fully inserted, turn the screw ring until tight.
See the manufacturer's instruction manual for recommended torque.



4. Connect the power supply.

7 Connect the transmitter to the IO-Link

IO-Link devices can be set using an IO-Link USB Communicator, through the IO-Link master, or via the PLC.

Procedure

Start the configuration software and connect the transmitter.

Figure 7-1: Connection via the IO-Link USB Communicator

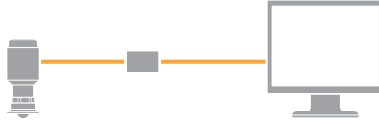


Figure 7-2: Connection via the IO-Link Master

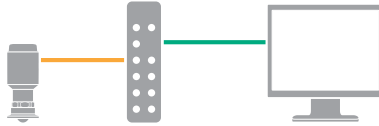
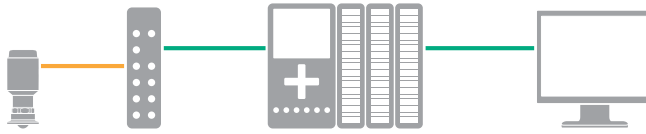


Figure 7-3: Connection via the PLC



8 Get started with your preferred configuration tool

8.1 Configuration tools

- IO-Link Device Descriptor (IODD) compliant systems
- Device Type Manager (DTM™) compliant systems (an IODD DTM Interpreter is required)

8.2 Rosemount IO-Link Assistant

8.2.1 Get the latest IODD files

The Rosemount IO-Link Assistant software checks and lets you download the latest IODDs for your device catalog.

Prerequisites

For an online update, an internet connection is required.

Procedure

1. Click the  icon.
2. In the **Vendor** list, select **Rosemount Inc.**, and then select the check box for the devices to be installed/updated.
Alternatively, browse to an already downloaded IODD zip file, and select **Open**.
3. Select **OK**.

8.3 FDT®/DTM framework

8.3.1 Download the IODD file

Procedure

1. Download the IODD from the IODDFinder portal at Ioddfinder.io-link.com.
2. Unzip the IODD package.

8.3.2 Integrate IODDs into an FDT®/DTM framework

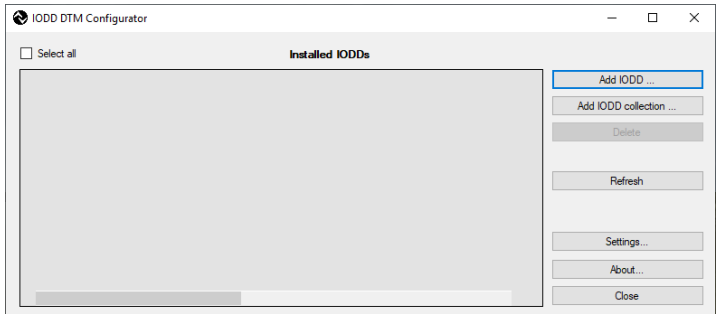
An IODD DTM Interpreter is required to integrate IODDs into an FDT/DTM environment (e.g PACTware).

Prerequisites

The IODD DTM Interpreter is usually included in the FDT/DTM software installation package. It can also be downloaded from Emerson.com/Rosemount1408H.

Procedure

1. Start the **IODD DTM Interpreter** software.
2. Select **Add IODD**.



3. Browse to the IODD file (.xml) and select **Open**.
4. Start the configuration tool and update the device catalog.

Need help?

If the new DTM is not added automatically at start-up, then select **View** → **Device Catalog** → **Update Device Catalog**.

9 Perform the basic setup

9.1 Set the engineering units

Procedure

1. Under **Menu**, select **Parameter** → **Basic Setup**.
2. In the **Engineering Units** list, select **Metric** or **Imperial**.
3. Select **Write to device**.

9.2 Enter the reference height

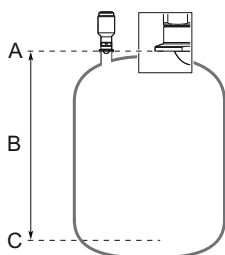
Procedure

1. Under **Menu**, select **Parameter** → **Basic Setup**.
2. Enter the Reference Height.
3. Select **Write to device**.

9.2.1 Reference height

Distance between the Device Reference Point and Zero Level.

Figure 9-1: Reference Height



- A. Device Reference Point
- B. Reference Height
- C. Zero Level

9.3 Configure the analog output

The transmitter can be set to output the level as a 4-20 mA signal.

Procedure

1. Under **Menu**, select **Parameter** → **Basic Setup**.
2. In the **OUT2 Configuration** list, select **Analog Output 4-20 mA**.
3. Select **OUT2** → **Analog Output 2**.

4. Enter the desired Upper Range Value (20 mA).
5. Enter the desired Lower Range Value (4 mA).
6. In the **Alarm Mode** list, select **Low Alarm** or **High Alarm**.
7. Select **Write to device**.

9.4 Configure the digital output

The transmitter can be set to output a switching signal for high and low level limits (using the same pin).

Procedure

1. Under **Menu**, select **Parameter** → **Basic Setup**.
2. In the **OUT1 Configuration** or **OUT2 Configuration** list, select **Digital Output Normally Open**.
3. In the **Digital Outputs P-n** list, select **PnP** or **nPn**.
4. Select **Digital Output 1** or **Digital Output 2**.
5. Set the alarm parameters as desired.
6. Select **Write to device**.

10 Advanced setup

10.1 Sweep mode

The device has two sweep modes:

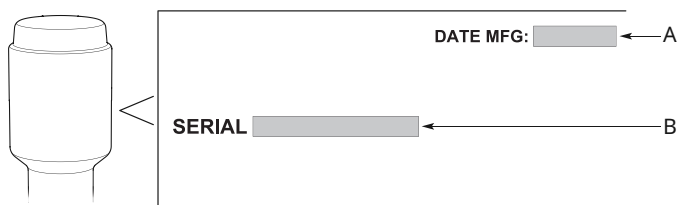
- Mode 1 (77-81 GHz)
- Mode 2 (76-77 GHz)

Sweep mode impacts metrological properties. Use mode 2 only if required by local radio spectrum regulations in your country. The default setting is mode 1.

10.2 Change the sweep mode

Contact your local Emerson representative for further instructions. You need to provide the manufacturing date and serial number.

Figure 10-1: Main Label



A. Manufacturing date

B. Serial number



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