Supplemental Guide
00825-1100-8782, Rev AB
December 2020

Replacing a Rosemount™ 8712H Transmitter with a Rosemount 8782 Transmitter

Wiring to an existing Rosemount 8707 sensor

ROSEMOUNT™

EMERSON

1 Safety

⚠ WARNING

- Failure to follow these installation guidelines could result in serious injury or death.
- Installation and servicing instructions are for use by qualified personnel only. Do not perform any servicing other than that contained in the operating instructions, unless qualified.
- Potential electrostatic charging hazard: Rosemount Magnetic flow meters ordered with non-standard paint options or non-metallic labels may be subject to electrostatic discharge. To avoid electrostatic charge build-up, do not rub the flow meter with a dry cloth or clean with solvents.
- Verify that the operating environment of the sensor and transmitter is consistent with the appropriate Agency Approval.
- If installed in an explosive atmosphere, verify that the device certification and installation techniques are suitable for that particular environment.
- To prevent ignition of flammable or combustible atmosphere, disconnect power before servicing circuits.
- Explosion hazard: Do not disconnect equipment when a flammable or combustible atmosphere is present.
- Do not connect a Rosemount 8782 Transmitter to a non-Rosemount sensor.
- Follow national, local, and plant standards to properly earth ground the transmitter and sensor. The earth ground must be separate from the process reference ground.
- Shock hazard: Shut off power before servicing. Do not operate without power compartment cover.

⚠ CAUTION

- The sensor liner is vulnerable to handling damage. Liner damage can render the sensor useless. Failure to observe these instructions could result in severe damage to the sensor lining and possible sensor replacement.
- To avoid possible damage to the sensor liner ends:
  - Do not use metallic or spiral-wound gaskets. If spiral wound or metallic gaskets are required for the application, lining protectors must be used.
  - If frequent removal is anticipated, attach short spool pieces to the sensor ends.
  - Tighten bolts in the proper sequence to the specified torque limits. Correct flange bolt tightening is crucial for proper sensor operation and life.
- In cases where high voltage/high current are present near the meter installation, ensure proper protection methods are followed to prevent stray voltage/current from passing through the meter. Failure to adequately protect the meter could result in damage to the transmitter and lead to meter failure.
- Completely remove all electrical connections from both sensor and transmitter prior to welding on the pipe. For maximum protection of the sensor, consider removing it from the pipeline.

2 Introduction

This document provides specific instructions for replacing a Rosemount 8712H transmitter with a Rosemount 8782 Magnetic Slurry wall-mount transmitter, when used with a Rosemount 8707 sensor only.

- For additional transmitter installation information, configuration, maintenance, and troubleshooting, refer to the *Rosemount™ 8782 Magnetic Slurry Flow Meter with HART Protocol Reference Manual*
- For sensor installation refer to the *Rosemount™ 8700 Series Magnetic Flowmeter Sensors Reference Manual*

All user documentation can be found at www.emerson.com. For more contact information see Emerson Flow customer service.

2.1 Return policy

Emerson procedures must be followed when returning equipment. These procedures ensure legal compliance with government transportation agencies and help provide a safe working environment for Emerson employees. Failure to follow Emerson procedures will result in your equipment being refused delivery.

2.2 Emerson Flow customer service

Email:

- Worldwide: flow.support@emerson.com
- Asia-Pacific: APflow.support@emerson.com

Telephone:

North and South America		Europe and Middle East		Asia Pacific	
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Canada	+1 303 527 5200	The Netherlands	+31 (0) 704 136 666	New Zealand	099 128 804
Mexico	+41 (0) 41 7686 111	France	0800 917 901	India	800 440 1468
Argentina	+54 11 4837 7000	Germany	0800 182 5347	Pakistan	888 550 2682
Brazil	+55 15 3413 8000	Italy	8008 77334	China	+86 21 2892 9000
Venezuela	+58 26 1731 3446	Central & Eastern Europe	+41 (0) 41 7686 111	Japan	+81 3 5769 6803
		Russia/CIS	+7 495 995 9559	South Korea	+82 2 3438 4600
		Egypt	0800 000 0015	Singapore	+65 6 777 8211
		Oman	800 70101	Thailand	001 800 441 6426
		Qatar	431 0044	Malaysia	800 814 008
		Kuwait	663 299 01		
		South Africa	800 991 390		
		Saudi Arabia	800 844 9564		
		UAE	800 0444 0684		

3 Replacement

Review the entire transmitter Quick Start Guide that was shipped with the transmitter. If you do not have the Quick Start Guide, contact an Emerson Flow representative (see back page) before performing this procedure.

1. Put the loop in manual control and record the current flow rate on the existing transmitter.

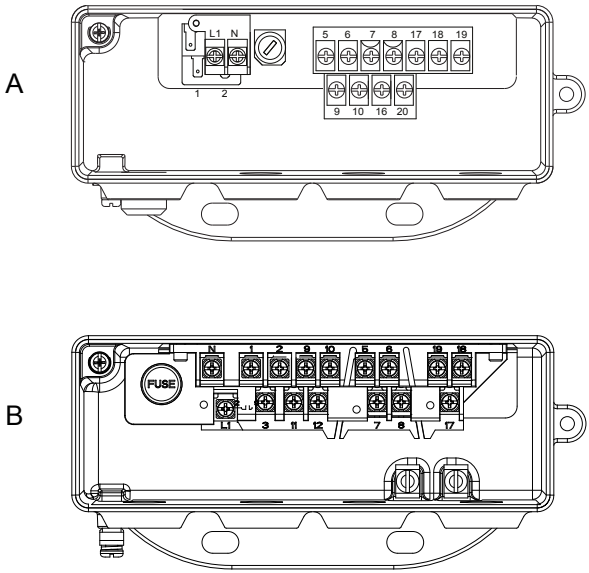
   The recorded value will be necessary to calculate the meter factor (correction) for the new transmitter. If the existing transmitter is inoperable, you will need to run the process at a known flow rate to calculate the meter factor during configuration.

2. Power down the existing 8712H transmitter.
3. Label and remove each wire connected to the existing transmitter terminals with the number from the terminal from which it was removed. For the Analog Output wires connected to Terminal #7 and #8, include the polarity, either negative or positive, on the labels.
4. Remove the blade connectors from the wires, and prepare the wires for use with the screw terminals on the new transmitter.

   The same wiring that was used to wire the existing transmitter can be used to wire the new transmitter. No new wiring is required. The wires can be minimally stripped or prepared with spade terminals as desired. If replacing any cabling, ensure the electrode cabling includes a separate drain wire for optimum noise mitigation.

5. Complete the removal of the cables and connectors so they are completely free of the existing transmitter housing.
6. Physically remove the existing transmitter and replace it with the new transmitter. The new transmitter can use the same mounting method as the existing transmitter without modification.
7. Run the cables with the prepared wires through the appropriate conduit openings on the new transmitter.
8. Connect the sensor to transmitter wires to the same numbered terminals to which they were connected on the existing transmitter (Terminals #1, #2, #17, #18, and #19); the coil ground (drain) wire from the existing transmitter is connected to Terminal #3 on the new transmitter. Terminal locations and identification are shown in Figure 3-1.

Figure 3-1: Compared Rosemount 8712H and 8782 terminal configurations



A. Rosemount 8712H terminal configuration
B. Rosemount 8782 terminal configuration

9. Connect any Input/Output wires to the same-labeled terminals to which they were connected on the existing transmitter, with one likely exception for the Analog Output wires.

   For the Analog Output wires, pay special attention to the polarity of the terminals, because it may be different between the 8712H and 8782. For the 8712H, Terminal #7 was positive (+) and Terminal #8 was negative (–). The polarity of the Analog Output terminals for the 8782 is dependent on the power source type, which is determined by a hardware switch. See Table 3-1 for the Analog Output terminal polarity.

Table 3-1: 8782 terminal assignment by Analog Output power source type

Power source	Terminal #7	Terminal #8
Internal	4–20 mA negative (–)	4–20 mA positive (+)
External	4–20 mA positive (+)	4–20 mA negative (–)

10. Verify that power to the transmitter is still disconnected, and then connect the power supply wires to the same labeled terminals to which they were connected on the existing transmitter.

Important
Do not connect the power supply ground wire to Terminal #3; connect it to the earth ground terminal screw in the upper left corner of the terminal compartment.

11. Seal the conduit in accordance with local and plant electrical codes.
12. Close terminal compartment, tightening the cover screw until a tight metal-to-metal contact is obtained.
13. If the 8782 is DC powered (8782AW2xxxxx) and is replacing an 8712H with F0227, ensure the power going to the 8782 is 12–24V DC.
14. Power on the transmitter and verify that there are no errors or fault messages.

4 Configuration

Review the entire transmitter Quick Start Guide that was shipped with the transmitter. If you do not have the Quick Start Guide, contact an Emerson Flow representative (see back page) before performing this procedure.

Basic configuration

Complete the basic setup as described in the transmitter Quick Start Guide, to configure the Calibration number, flow units (PV), Line size, URV, and LRV.

Advanced configuration

Advanced Configuration enhances the performance of the 8782 when paired with a legacy sensor. Perform the Advanced Configuration steps to get the most out of the 8782 without an MS sensor. Review the transmitter product reference manual, which is available online (see back page), for more information about advanced transmitter configuration.

1. If possible, perform an Auto Zero Trim. The flow must be stopped and the pipe full.
2. Restart the flow at the same known, stable flow rate that was used when the flow rate was recorded prior to removing the 8712H transmitter.
3. If the 8782 transmitter is reading a different flow rate than the 8712H, calculate the Meter Factor to correct the 8782. Use one of the following methods:
   - With the process moving at the same flow rate as earlier, when the flow rate was recorded, divide the recorded rate by the current flow rate being reported by the new transmitter.
   - With the process moving at a known flow rate, divide the known flow rate by the current flow rate being reported by the new transmitter.

   The resulting Meter Factor must be a number between 0.2000 and 1.8000, with most Meter Factors for this application being between 0.9500 to 0.9999. For example, if the recorded flow rate from the 8712H was 100 GPM, and the current flow rate reading on the 8782 is 102 GPM, the meter factor is 100 / 102 = 0.9804.
4. Enter the calculated Meter Factor into the transmitter. The menu path is **Detailed Setup → More Params → Meter Factor**. With the Meter Factor applied, the measured flow rate should match the known flow rate.
5. If the measured flow rate does not acceptably match the known flow rate, verify the calculation and entry of the Meter Factor, and repeat if necessary.

5 Product Certifications

For detailed approval certification information and installation drawings, please see the appropriate document listed below:

- Document number 00825-MA00-0009: *Rosemount 8782 and MS Approval Document - Class Division*
- Document number 00825-MA00-0010: *Rosemount 8782 and MS Approval Document - IECEx and ATEX*
- Document number 00825-MA00-0011: *Rosemount 8782 and MS Approval Document - North America Zone*
- Document number 00825-MA00-0012: *Rosemount 8785 Approval Document*
- Document number 00825-MA00-0013: *Rosemount 8782 and MS Approval Document - EAC EX*

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