

Rosemount™ 8714D (Calibration Standard) Magnetic Flowtube Simulator



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1 Introduction

The Rosemount™ 8714D Magnetic Flowtube Simulator is a high precision calibration standard. It is intended to be used to verify accuracy and / or to re-calibrate an Emerson magmeter transmitter. It can be used with transmitter models:

- 8712 C / D / ES / EM
- 8732 C / ES / EM
- 8742 C

1.1 Safety

⚠ CAUTION

Do not use the 8714D with the model 8712H or 8782 transmitters. Damage to the calibrator will result.

NOTICE

This document provides basic guidelines for the Rosemount 8714D. It does not provide instructions for detailed configuration, diagnostics, maintenance, service, troubleshooting. This QSG is also available electronically on Emerson.com.

⚠ WARNING

Explosions could result in death or serious injury

Installation of this device in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Please review the Product Certifications section for any restrictions associated with a safe installation.

- Before connecting a Field Communicator in an explosive atmosphere, ensure the instruments are installed in accordance with intrinsically safe or non-incendive field wiring practices.

⚠ WARNING

Electrical shock can result in death or serious injury.

Avoid contact with the leads and terminals. High voltage that may be present on leads can cause electrical shock.

1.2 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.

1.3 Emerson Flow customer service

Note

If NIST traceability is required, then Emerson recommends the 8714D be factory calibrated on a yearly basis. If you need to return your device for calibration, or if the device does not operate properly, then contact Flow Support at one of the email links shown below.

Email:

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

2 Step 1: Change transmitter parameters

1. Use a Field Communicator or Local Operator Interface (LOI) to change the parameters of the transmitter to the following:

Tube Calibration Number:	1000015010000000
Units:	ft/s
Analog Output range:	20 mA = 30.00 ft/s
Analog Output Zero:	4 ma = 0 ft/s
Coil Pulse Mode:	5 Hz (6 Hz 8712C only)

2. Set the loop to manual (if necessary).
3. Power down the transmitter.

3 Step 2: Connect wiring and power-up

Select the proper cable assembly for your transmitter type:

Wall mount Use the cable assembly with the six contact pin flying leads. Emerson part number 08714-0205-0003

Field mount Use the cable assembly with the two black plastic amp connectors. Emerson part number 08714-0205-0002

1. Insert the metal end of the wiring assembly into the 8714D Calibration Standard.
2. Connect the transmitter.

Wall mount		Field mount	
8712C	Figure 3-1	8732C	Figure 3-3
8712D		8742C	
8712ES		8732ES	
8712EM	8732EM		
8750WDM	Figure 3-2	8750WDM	

3.1 Wall mount transmitters

Use the six contact pin terminal plug-style wiring assembly. Follow the numeric convention for the 8712 so the plugs match the terminal block.

Figure 3-1: 8712C/8712D/8712ES Terminal block

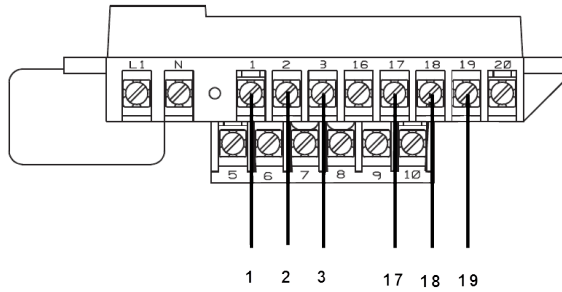
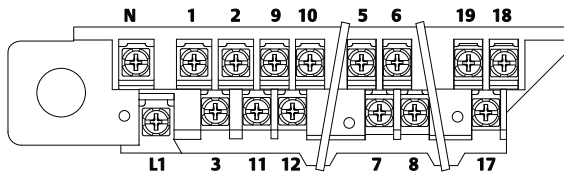


Figure 3-2: 8712EM/8750DMW Terminal blocks



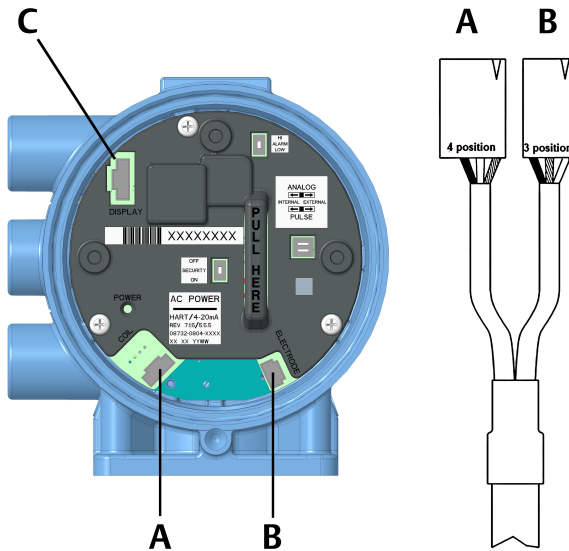
3.2 Field mount transmitters

If you do not have a LOI, the coil and electrode connectors will be clearly visible on the bottom side of the board.

If you have a LOI, remove the three mounting screws from the LOI assembly and pull the assembly away from the circuit board beneath.

You can also unplug the LOI cable, connector "C" from the circuit board beneath, . Using the cable assembly with the 2 plastic connectors, insert the connectors "A" and "B" into the appropriate receptacles. The barrel end inserts in to the calibrator.

Figure 3-3: Field mount Coil/Electrode connections



- A. Coil connection (four-position connector)
- B. Electrode connection (three position connector)
- C. LOI Cable Connector

4 Step 3: Perform electronics trim

⚠ CAUTION

Attempting an electronics trim without a Rosemount 8714D may result in an inaccurate transmitter. It may also generate a DIGITAL TRIM FAILURE message. If this message appears, no values were changed in the transmitter. Simply power down the transmitter to clear the message. If the trim was completed, or no error message was generated, correction requires a Rosemount 8714D.

1. Set the Rosemount 8714D to simulate a flow rate of 30 ft/s.
2. Power up the transmitter with the Rosemount 8714D connected. Allow the electronics 30 minutes to warm-up before reading the flow rate.
3. Read the flow rate. It should be between 29.97 and 30.03 ft/s. If the reading is within this range, then no electronics trim is required. Return the transmitter to the original configuration. If the reading is not within this range, then continue to step 4.
4. Initiate an electronics trim with the LOI or Field communicator. Please see the appropriate transmitter manual for detailed instructions.

Note

The electronics trim takes about six minutes to complete.



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