Rosemount[™] 8732EM Transmitter with Modbus Protocol

Includes support for 8750W





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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 Transmitter to a non-Rosemount sensor when installed in an "Ex" environment, explosive atmosphere, hazardous area, or classified area.
- 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.

A CAUTION

 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 basic installation guidelines for the Rosemount 8732EM field-mount transmitter.

- For sensor installation, refer to the Rosemount[™] 8700 Magnetic Flow Meter Sensor Quick Installation Guide.
- For additional installation information, configuration, maintenance, and troubleshooting, refer to the Rosemount[™] 8732EM Transmitter with Modbus Protocol 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

3 Pre-installation

Before installing the transmitter, there are several pre-installation steps that should be completed to make the installation process easier:

- Identify options and configurations that apply to your application
- Set the hardware switches if necessary
- Consider mechanical, electrical, and environmental requirements

Note

Refer to the product reference manual for more detailed requirements.

Identify options and configurations

The typical transmitter installation includes a device power connection, a Modbus RS-485 output connection, and sensor coil and electrode connections. Other applications may require one or more of the following configurations or options:

- Pulse output
- Discrete input/discrete output

Hardware switches

The transmitter has two user-selectable hardware switches. These switches set the internal/external pulse power and transmitter security. The standard configuration for these switches when shipped from the factory is as follows:

Table 3-1: Hardware switch default settings

Setting	Factory configuration
Internal/external pulse power	External
Transmitter security	Off

In most cases, it is not necessary to change the setting of the hardware switches. If the switch settings need to be changed, refer to the product reference manual.

Be sure to identify any additional options and configurations that apply to the installation. Keep a list of these options for consideration during the installation and configuration procedures.

Mechanical considerations

The mounting site for the transmitter should provide enough room for secure mounting, easy access to conduit entries, full opening of the transmitter covers, and easy readability of the Local Operator Interface (LOI) screen (if equipped).

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Figure 3-1: Rosemount 8732EM dimensional drawing

- A. Conduit entry ½–14 NPT or M20
- B. LOI cover
- C. Mounting screws

Dimensions are in inches [mm].

Electrical considerations

Before making any electrical connections to the transmitter, consider national, local, and plant electrical installation requirements. Be sure to have the proper power supply, conduit, and other accessories necessary to comply with these standards.

The transmitter requires external power. Ensure access to a suitable power source.

Table 3-2: Electrical data

Rosemount 8732EM Flow Transmitter		
Power input	AC power: 90–250 VAC, 0.45 A, 40 VA	
	Standard DC power: 12–42 VDC, 1.2 A, 15 W	
	Low power DC: 12–30 VDC, 0.25 A, 4 W	
Pulsed circuit	Internally powered (Active): Outputs up to 12 VDC, 12.1 mA, 73 mW Externally powered (Passive): Input up to 28 VDC, 100 mA, 1 W	
Modbus output circuit	Internally powered (Active): Outputs up to 3.3 VDC, 100 mA, 100 mW	
Termination resisters	Typically 120 ohms. Refer to the MODBUS over Serial Line Specification & Implementation Guide (http://www.modbus.org) for more details.	
Um	250 V	
Coil excitation output	500 mA, 40 V max, 9 W max	

Environmental considerations

To ensure maximum transmitter life, avoid extreme temperatures and excessive vibration. Typical problem areas include the following:

- · High-vibration lines with integrally mounted transmitters
- Tropical or desert installations in direct sunlight
- Outdoor installations in arctic climates

Remote mounted transmitters may be installed in the control room to protect the electronics from the harsh environment and to provide easy access for configuration or service.

Table 3-3: Transmitter housing environmental ratings

Туре	Rating
Ingress protection	IP66, IP69
NEMA	4X

Table 3-3: Transmitter housing environmental ratings *(continued)*

Туре	Rating	
Pollution Degree	2	
Maximum altitude rating	• 13,123 ft. (4000 m) at rated input power voltage (90–250 VAC)	
	16,404 ft. (5000 m) at maximum input power voltage of 150 VAC	

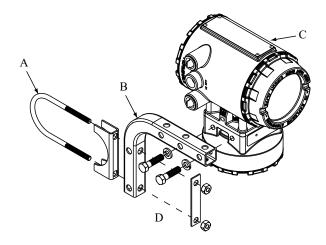
Note

For complete environmental and other specifications, see Product specifications in Rosemount[™] 8732EM Transmitter with Modbus Protocol Reference Manual.

4 Mounting

Remote-mount transmitters are shipped wth a mounting bracket for use on a 2-in. pipe or a flat surface.

Figure 4-1: Rosemount 8732 transmitter mounting hardware



- A. U-bolt
- B. Mounting bracket
- C. Transmitter
- D. Fasteners (example configuration)

Procedure

- 1. Assemble the hardware as needed to accommodate the mounting configuration.
- 2. Secure the transmitter to the mounting hardware.

Postrequisites

The LOI/Display can be rotated in 90 degree increments up to 180 degrees if desired. Do not rotate more than 180 degrees in any one direction.

5 Wiring

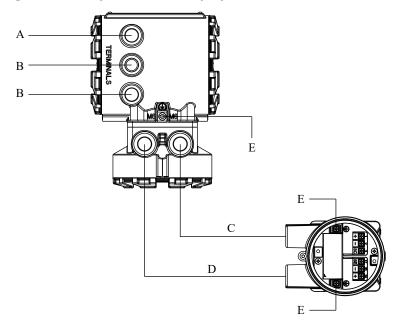
5.1 Conduit entries and connections

Transmitter conduit entry ports can be ordered with ½-14NPT or M20 female threaded connections. Conduit connections should be made in accordance with national, local, and plant electrical codes. Unused conduit entries should be sealed with the appropriate certified plugs. The plastic shipping plugs do not provide ingress protection.

5.2 Conduit requirements

- For installations with an intrinsically safe electrode circuit, a separate conduit for the coil cable and the electrode cable may be required. Refer to the product reference manual.
- For installations with non-intrinsically safe electrode circuit, or when using the combination cable, a single dedicated conduit run for the coil drive and electrode cable between the sensor and the remote transmitter may be acceptable. Removal of the barriers for intrinsic safety isolation is permitted for non-intrinsically safe electrode installations.
- Bundled cables from other equipment in a single conduit are likely to create interference and noise in the system. See Figure 5-1.
- Electrode cables should not be run together in the same cable tray with power cables.
- Output cables should not be run together with power cables.
- Select conduit size appropriate to feed cables through to the flowmeter.

Figure 5-1: Best practice conduit preparation



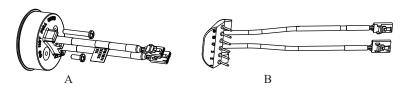
- A. Power
- B. Output
- C. Coil
- D. Electrode
- E. Safety ground

5.3 Sensor to transmitter wiring

Integral mount transmitters

Integral mount transmitters ordered with a sensor will be shipped assembled and wired at the factory using an interconnecting cable. Use only the factory supplied cable provided with the instrument. For replacement transmitters use the existing interconnecting cable from the original assembly. Replacement cables, if applicable, are available (see Figure 5-2).

Figure 5-2: Replacement interconnecting cables



- A. Socket module 08732-CSKT-0001
- B. IMS cable 08732-CSKT-0004

Remote mount transmitters

Remote cable kits are available as individual component cables or as a combination coil/electrode cable. They can be ordered directly using the kit numbers shown in Table 5-1, Table 5-2, and Table 5-3. Equivalent Alpha cable part numbers are also provided as an alternative. To order cable, specify length as quantity desired. Equal length of component cables is required.

Examples:

- 25 feet = Qty (25) 08732-0065-0001
- 25 meters = Qty (25) 08732-0065-0002

Table 5-1: Component cable kits - standard temperature (-20 °C to 75 °C)

Cable kit #	Description	Individual cable	Alpha p/n
08732-0065-0001 (feet)	Kit, component cables, Std temp (includes Coil and Electrode)	Coil Electrode	2442C 2413C
08732-0065-0002 (meters)	Kit, component cables, Std temp (includes Coil and Electrode)	Coil Electrode	2442C 2413C
08732-0065-0003 (feet)	Kit, component cables, Std temp (includes Coil and I.S. Electrode)	Coil Instrinsically Safe Blue Electrode	2442C Not available
08732-0065-0004 (meters)	Kit, component cables, Std temp (includes Coil and I.S. Electrode)	Coil Instrinsically Safe Blue Electrode	2442C Not available

Table 5-2: Component cable kits - extended temperature (-50 °C to 125 °C)

Cable kit #	Description	Individual cable	Alpha p/n
08732-0065-1001 (feet)	Kit, Component Cables, Ext Temp. (includes Coil and Electrode)	Coil Electrode	Not available Not available
08732-0065-1002 (meters)	Kit, Component Cables, Ext Temp. (includes Coil and Electrode)	Coil Electrode	Not available Not available
08732-0065-1003 (feet)	Kit, Component Cables, Ext Temp. (includes Coil and I.S. Electrode)	Coil Intrinsically Safe Blue Electrode	Not available Not available
08732-0065-1004 (meters)	Kit, Component Cables, Ext Temp. (includes Coil and I.S. Electrode)	Coil Intrinsically Safe Blue Electrode	Not available Not available

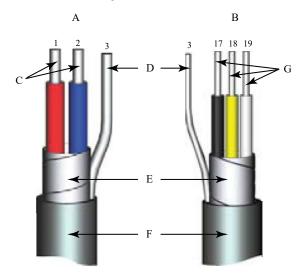
Table 5-3: Combination cable kits - coil and electrode cable (-20 $^{\circ}$ C to 80 $^{\circ}$ C)

Cable kit #	Description
08732-0065-2001 (feet)	Kit, Combination Cable, Standard
08732-0065-2002 (meters)	
08732-0065-3001 (feet)	Kit, Combination Cable, Submersible
08732-0065-3002 (meters)	(80 °C dry/60 °C Wet) (33 ft. Continuous)

Cable requirements

Shielded twisted pairs or triads must be used. For installations using the individual coil drive and electrode cable, see Figure 5-3. Cable lengths should be limited to less than 500 ft. (152 m). Consult factory for length between 500–1000 ft. (152–304 m). Equal length cable is required for each. For installations using the combination coil drive/electrode cable, see Figure 5-4. Combination cable lengths should be limited to less than 330 ft. (100 m).

Figure 5-3: Individual component cables



- A. Coil drive
- B. Electrode
- C. Twisted, stranded, insulated 14 AWG conductors
- D. Drain
- E. Overlapping foil shield
- F. Outer jacket
- G. Twisted, stranded, insulated 20 AWG conductors
- 1 = Red
- 2 = Blue
- 3 = Drain
- 17 = Black
- 18 = Yellow
- 19 = White

3 2 1 17 19 18 17 A

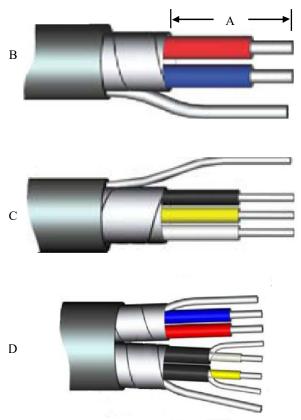
Figure 5-4: Combination coil and electrode cable

- A. Electrode shield drain
- B. Overlapping foil shield
- C. Outer jacket
- 1 = Red
- 2 = Blue
- 3 = Drain
- 17 = Reference
- 18 = Yellow
- 19 = White

Cable preparation

Prepare the ends of the coil drive and electrode cables as shown in Figure 5-5. Remove only enough insulation so that the exposed conductor fits completely under the terminal connection. Best practice is to limit the unshielded length (D) of each conductor to less than one inch. Excessive removal of insulation may result in an unwanted electrical short to the transmitter housing or other terminal connections. Excessive unshielded length, or failure to connect cable shields properly, may also expose the unit to electrical noise, resulting in an unstable meter reading.

Figure 5-5: Cable ends



- A. Unshielded length
- B. Coil
- C. Electrode
- D. Combination

▲ WARNING

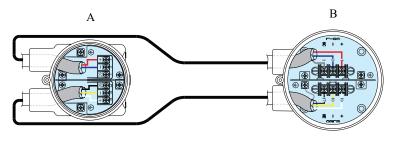
Shock hazard! Potential shock hazard across remote junction box terminals 1 and 2 (40 V).

A WARNING

Explosion hazard! Electrodes exposed to process. Use only compatible transmitter and approved installation practices. For process temperatures greater than 284 °F (140 °C), use a wire rated for 257 °F (125 °C).

Remote junction box terminal blocks

Figure 5-6: Remote junction box views



- A. Sensor
- B. Transmitter

Note

Junction box appearance and configuration may vary, but terminal numbering is consistent for all junction box types.

Table 5-4: Sensor/transmitter wiring

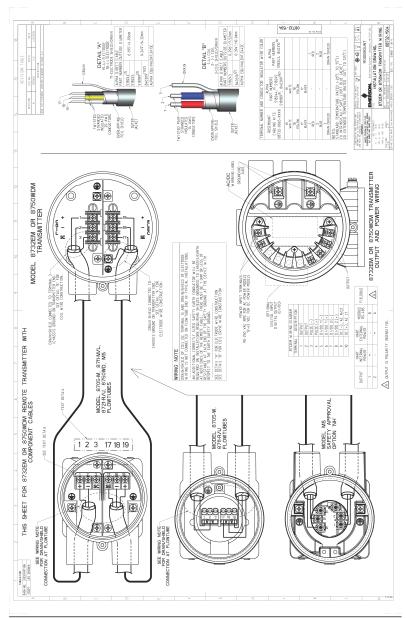
Wire color	Sensor terminal	Transmitter terminal
Red	1	1
Blue	2	2
Coil drain	3 or float	3
Black	17	17
Yellow	18	18
White	19	19
Electrode drain	er float	

Note

For hazardous locations, refer to the product reference manual.

5.4 Wiring sensor to transmitter

Figure 5-7: Wiring 8732EM using component cable



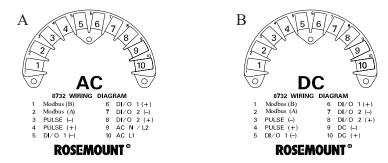
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87325P. OR 8750W DM. TRANSHITTER W. IRING. ROSEMOUNT 10 D → → → → A ERMINAL NUMBER AND CONDUCTOR INSULATOR WIRE COLOR NOTES OF ALL PART NAME OF ALL PART NAME OF STATES OF ALL PART NAME OF TOOL OF ALTER ACT TO BOTH OF TO BATH OF ALTER ACT TO BOTH OF TO BATH OF ALTER ACT TO BOTH OF TO BATH OF ALTER ALTER ACT TO BOTH OF TO BATH UBMERSIBLE 08732-0065-3002⁽²⁾ (METERS) STANDARD 08732-0065-2002⁽¹⁾ (METERS) SUBMERSIBLE 08732-0065-3001⁽²⁾ (FEET) ROSEMOLAT COMBINATION COIL/ELECTRODE CABLE COLOR CODING PART NUMBERS STANDARD 08732-0065-2001⁽¹⁾ (FEET) DRAIN CLECTRODE SHIELDI DETAIL "C" AND REST OF MARKET ACTOR SOCIAL SECONDARY ACTOR SECONDARY ACT AC/DC WARNING LABEL SROUND ING MODEL 8732EM OR 8750WDM TRANSMITTER 8732EM OR 8750WDM TRANSMITTER OUTPUT AND POWER WIRING • AN ADDITIONAL CORRECTLY SZZD SAFTY EARTH CHADICTOR WILL BE SEGRETH AT AT BOTH BOTH OF MASSING FROMEN TO ELSES SCARRING REQUIRED TO ELSES SCARRING AT BOTH CALL. THERE WAST BE TONN OF LISS OF RESISTING AND OF THE SAFTY GROUND AT THE DEVICE WITH BESENT TO THE MARCH SAFTY GROUND. DRAIN/SHELD OF COLL ISC TERMINAL 33 AND DRAIN/SHELD OF ELECTRODE. WIRING IS NOT CONNECTED ON FLOWINGE DID IN TYPICAL INSTALLATIONS. DRAIN/SHIELD COMECTED TO TERMINAL 3-(CHASSIS GROUND) ON TRANSMITTER END. SEE DETAIL 'C'FOR COIL WIRE CONSTRUCTION. POWER INPUT TERMINALS 90-250 VAC RMS FOR AC POWER MODEL 12-42 VOC FOR DC POWER MODELS SEE DETAIL "C" FOR WIRE CONSTRUCTION MODBUS FIELDBUS RS-485 ⋖ THIS SHEET FOR 8732EM OR 8750WDM REMOTE TRANSMITTER WITH COMBINATION ELECTRODE AND COIL DRIVE CABLE A CUTPUT IS POLARITY INSENSITIVE. WIRING NOTE MODEL 8705-M. 8711-M/L, 8721-R/U, 8750WD, FLOWTUBES TUPITU MODEL 8705-W, 8711-R/U FLOWTUBES SEE TEXT DETAIL 2 17 18 19 3 ⊕ **(B) (E)** SEE WIRING NOTE-FOR DRAIN/SHIELD CONNECTION AT FLOWTUBE SEE WIRING NOTE-FOR DRAIN/SHIELD CONNECTION AT FLOWTUBE

Figure 5-8: Wiring 8732EM using combination cable

5.5 Power and I/O terminal blocks

Remove the back cover of the transmitter to access the terminal block.

Figure 5-9: Terminal blocks



- A. AC version
- B. DC version

Table 5-5: Power and I/O terminals

Terminal number	AC version	DC version
1	Modbus (B)	Modbus (B)
2	Modbus (A)	Modbus (A)
3	Pulse (-)	Pulse (-)
4	Pulse (+)	Pulse (+)
5 ⁽¹⁾	Discrete I/O 1 (-)	Discrete I/O 1 (-)
6 ⁽¹⁾	Discrete I/O 1 (+)	Discrete I/O 1 (+)
7 ⁽¹⁾	Discrete Out 2 (–)	Discrete Out 2 (–)
8 ⁽¹⁾	Discrete Out 2 (+)	Discrete Out 2 (+)
9	AC (Neutral)/L2	DC (-)
10	AC L1	DC (+)

(1) Only available with ordering code AX.

5.6 Powering the transmitter

Before connecting power to the transmitter, be sure to have the necessary electrical supplies and required power source:

- The AC powered transmitter requires 90–250 VAC (50/60 Hz).
- The DC (standard) powered transmitter requires 12–42 VDC.
- The DC low power transmitter requires 12–30 VDC.

Wire the transmitter according to national, local, and plant electrical requirements.

If installing in a hazardous location, verify that the meter has the appropriate hazardous area approval. Each meter has a hazardous area approval tag attached to the top of the transmitter housing.

Supply wire requirements

Use 10–18 AWG wire rated for the proper temperature of the application. For wire 10–14 AWG, use lugs or other appropriate connectors. For connections in ambient temperatures above 122 °F (50 °C), use a wire rated for 194 °F (90 °C). For DC powered transmitters with extended cable lengths, verify that there is a minimum of 12 VDC at the terminals of the transmitter with the device under load.

Electrical disconnect requirements

Connect the device through an external disconnect or circuit breaker per national and local electrical code.

Overcurrent protection

The transmitter requires overcurrent protection of the supply lines. Fuse rating and compatible fuses are shown in Line power fuses. Refer to the product reference manual for more information.

Installation category

The installation category for the transmitter is OVERVOLTAGE CAT II.

AC power system installation requirements

Neutral-earth power requirements

The power system must have a neutral that is locally bonded to earth, or provide both line to earth and neutral to earth voltage limitation of no more than 250 VAC.

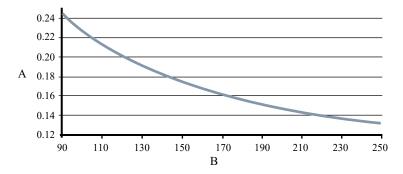
Power line impedance

Sources of inductance on the AC power system, such as isolation transformers, must be limited to less than 1 mH at 120 VAC, and 2 mH at 240 VAC.

AC power supply requirements

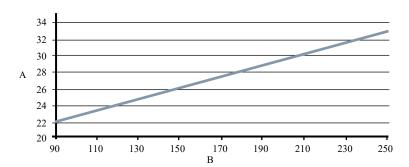
Units powered by 90 - 250 VAC have the following power requirements. Peak inrush is 35.7 A at 250 VAC supply, lasting approximately 1 ms. Inrush for other supply voltages can be estimated with: Inrush (Amps) = Supply (Volts) / 7.0

Figure 5-10: AC current requirements



- A. Supply current (amps)
- B. Power supply (VAC)

Figure 5-11: Apparent power

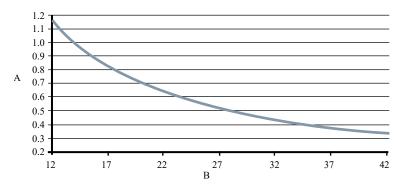


- A. Apparent power (VA)
- B. Power supply (VAC)

DC power supply requirements

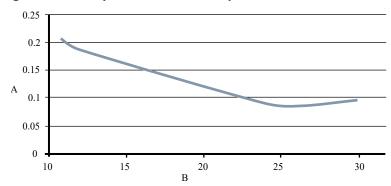
Standard DC units powered by 12 VDC power supply may draw up to 1.2 A of current steady state. Low power DC units may draw up to 0.25 A of current steady state. Peak inrush is 42 A at 42 VDC supply, lasting approximately 1 ms. Inrush for other supply voltages can be estimated with: Inrush (Amps) = Supply (Volts) / 1.0

Figure 5-12: DC current requirements



- A. Supply current (amps)
- B. Power supply (VDC)

Figure 5-13: Low power DC current requirements



- A. Supply current (amps)
- B. Power supply (VDC)

Table 5	-6: Fuse	requi	irements
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Power system	Power supply	Fuse rating	Manufacturer
AC power	90-250 VAC	2 Amp quick acting	Bussman AGC2 or equivalent
DC power	12-42 VDC	3 Amp quick acting	Bussman AGC3 or equivalent
DC low power	12-30 VDC	3 Amp quick acting	Bussman AGC3 or equivalent

Power terminals

For AC powered transmitter (90–250 VAC, 50/60 Hz):

 Connect AC Neutral to terminal 9 (AC N/L2) and AC Line to terminal 10 (AC/L1).

For DC powered transmitter:

- Connect negative to terminal 9 (DC -) and positive to terminal 10 (DC +).
- DC powered units may draw up to 1.2 A.

Cover jam screw

For flow meters shipped with a cover jam screw, the screw should be installed after the instrument has been wired and powered up. Follow these steps to install the cover jam screw:

- 1. Verify the cover jam screw is completely threaded into the housing.
- 2. Install the housing cover and verify the cover is tight against the housing.
- 3. Using a 2.5 mm hex wrench, loosen the jam screw until it contacts the transmitter cover.
- 4. Turn the jam screw an additional ½ turn counterclockwise to secure the cover.

Note

Application of excessive torque may strip the threads.

5. Verify the cover cannot be removed.

5.7 Modbus output

The Modbus output is a Modbus RTU signal using RS-485. Follow these cable recommendations for RS-485 interface (Modbus over serial line).

Cable characteristics

Type Shielded twisted pair cable with 2

conductors and a drain wire, or Ethernet

cable of Cat 5/5e/6

Conductor gauge 20–24 AWG for lengths up to 1000 ft.

16-20 AWG for lengths up to 4000 ft.

Characteristic impedance 100-130 ohm

Conductor-to-conductor

capacitance

<30 pF/ft.

Conductor-to-shield

capacitance

<60 pF/ft.

Voltage rating 300 V/600 V

Recommended insulation PVC (<1000 ft.) or PE (≥1000 ft.)

material

Bus cable

- Bus to be connected device to device. For example, daisy chained (not star connected).
- Maximum 4000 ft. depending on speeds, cable, and loads.
- Cable shield must be grounded at only one point.
- Due to the use of galvanically isolated Modbus connections, a third common wire is not necessary for this product. If a 3-conductor cable is used, the third wire should be left unterminated and insulated from ground.

Derivations (spurs)

Avoid derivations (spurs) when possible. If required, derivations from the bus must be as short as possible (65 ft. maximum).

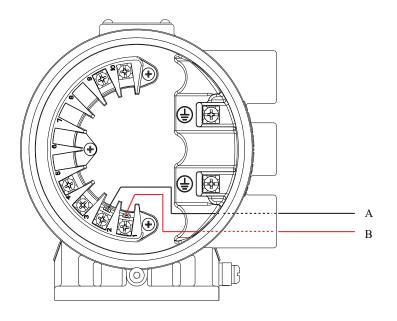
Termination

A single 120 ohm terminator should be placed at each physical end of the bus (at the two most remote bus devices) to minimize reflections in the transmission cable. Do not place terminators on a spur connection.

Modbus wiring

- The Modbus signal is a 24 VDC active output.
- Wire terminal 7 (A/D0) and terminal 8 (B/D1). See Figure 5-14.

Figure 5-14: Modbus output wiring



- A. Modbus A/D0
- B. Modbus B/D1

6 Basic configuration

Once the magnetic flowmeter is installed and power has been supplied, the transmitter must be configured through the basic setup. These parameters can be configured through either an LOI or a Modbus host. Configuration settings are saved in nonvolatile memory within the transmitter. Descriptions of more advanced functions are included in the product reference manual.

6.1 Local operator interface (LOI)

To activate the optional LOI, press the DOWN arrow.

Use the UP, DOWN, LEFT(E), and RIGHT arrows to navigate the menu structure.

A complete map of the LOI menu structure is shown in the product reference manual.

The display can be locked to prevent unintentional configuration changes. When the display lock is activated, a lock symbol will appear in the lower right hand corner of the display. To deactivate the display lock, hold the UP arrow for three seconds and follow the onscreen instructions. Once deactivated, the lock symbol will no longer appear in the lower right hand corner of the display.

6.2 Modbus configuration

Each register is identified by its address (or starting address). Depending on the PLC that will be used to communicate with the transmitter, you may need to subract 1 from the address or starting address of the register. Refer to your PLC documentation to know if this applies to you.

Address (register 109)

Configures the addresss of the transmitter for the Modbus network.

Floating point byte order (register 110)

Sets the order that information is sent by the transmitter.

Register value	Byte order
0	0-1-2-3 (default)
1	2-3-0-1
2	1-0-3-2
3	3-2-1-0

Baud rate (register 115)

Sets the communication speed of the transmitter.

Register value	Baud rate
0	1200
1	2400
2	4800
3	9600
4	19200 (default)
5	38400
6	57600
7	115200

Parity (register 116)

Used to configure error-checking methodology for the data.

Register value	Parity
0	No parity
1	Odd
2	Even (default)

Stop bits (register 117)

Sets the last bit of the data packet.

Register value	Stop bits
1	1 bit (default)
2	2 bits

6.3 Basic setup

Tag (registers 68-71)

Tag is the quickest and shortest way of identifying and distinguishing between transmitters. Transmitters can be tagged according to the requirements of your application. The tag may be up to eight characters long.

Flow units (register 61)

The flow units variable specifies the format in which the flow rate will be displayed. Units should be selected to meet your particular metering needs.

Table 6-1: Volume units

Register value	Units
241	Barrels (31 gal)/sec
242	Barrels (31 gal)/min
243	Barrels (31 gal)/hour
244	Barrels (31 gal)/day
132	Barrels (42 gal)/sec
133	Barrels (42 gal)/min
134	Barrels (42 gal)/hour
135	Barrels (42 gal)/day
248	Cubic cm/minute
26	Cubic feet/second
15	Cubic feet/minute
130	Cubic feet/hour
27	Cubic feet/day
28	Cubic meters/second
131	Cubic meters/minute
19	Cubic meters/hour
29	Cubic meters/day
22	Gallons/second
16	Gallons/minute
136	Gallons/hour
23	Millions gallons/day
235	Gallons/day
137	Imperial gallons/sec
18	Imperial gallons/min
30	Imperial gallons/hour
31	Imperial gallons/day

Table 6-1: Volume units (continued)

Register value	Units
24	Liters/second
17	Liters/minute
138	Liters/hour
240	Liters/day

Table 6-2: Mass units

Register value	Units
73	Kilograms/second
74	Kilograms/minute
75	Kilograms/hour
76	Kilograms/day
77	Metric ton/minute
78	Metric ton/hour
79	Metric ton/day
80	Pounds/second
81	Pounds/minute
82	Pounds/hour
83	Pounds/day
84	Short tons/minute
85	Short tons/hour
86	Short tons/day

Table 6-3: Other units

Register value	Units
20	Feet/second (default)
21	Meters/second
253	Special units ⁽¹⁾

(1) Refer to the product reference manual.

Line size (register 65)

The line size (sensor size) must be set to match the actual sensor connected to the transmitter.

Register value	Line size
0	0.10-in. (2 mm)
1	0.15-in. (4 mm)
2	0.25-in. (6 mm)
3	0.30-in. (8 mm)
4	0.50-in. (15 mm)
5	0.75-in. (18 mm)
6	1-in. (25 mm)
7	1.5-in. (40 mm)
8	2-in. (50 mm)
9	2.5-in. (65 mm)
10	3-in. (80 mm) (default)
11	4-in. (100 mm)
12	5-in. (125 mm)
13	6-in. (150 mm)
14	8-in. (200 mm)
15	10-in. (250 mm)
16	12-in. (300 mm)
17	14-in. (350 mm)
18	16-in. (400 mm)
19	18-in. (450 mm)
20	20-in. (500 mm)
21	24-in. (600 mm)
22	28-in. (700 mm)
23	30-in. (750 mm)
24	32-in. (800 mm)
25	36-in. (900 mm)
26	40-in. (1000 mm)
27	42-in. (1050 mm)

Register value	Line size
28	44-in. (1100 mm)
29	48-in. (1200 mm)
30	54-in. (1350 mm)
31	56-in. (1400 mm)
32	60-in. (1500 mm)
33	64-in. (1600 mm)
34	66-in. (1650 mm)
35	72-in. (1800 mm)
36	78-in. (1950 mm)

Calibration number (registers 413–420)

The sensor calibration number is a 16-digit number generated at the factory during flow calibration and is unique to each sensor and is located on the sensor tag.



Quick Start Guide 00825-0400-4444, Rev. AD August 2024

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