

Micro Motion® Filling Mass Transmitter



Safety and approval information

This Micro Motion product complies with all applicable European directives when properly installed in accordance with the instructions in this manual. Refer to the EC declaration of conformity for directives that apply to this product. The EC declaration of conformity, with all applicable European directives, and the complete ATEX Installation Drawings and Instructions are available on the internet at www.micromotion.com or through your local Micro Motion support center.

Information affixed to equipment that complies with the Pressure Equipment Directive can be found on the internet at www.micromotion.com/documentation.

For hazardous installations in Europe, refer to standard EN 60079-14 if national standards do not apply.

Other information

Full product specifications can be found in the product data sheet. Troubleshooting information can be found in the transmitter configuration manual. Product data sheets and manuals are available from the Micro Motion web site at www.micromotion.com/documentation.

Return policy

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

Information on return procedures and forms is available on our web support system at www.micromotion.com, or by phoning the Micro Motion Customer Service department.

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1 Planning

Topics covered in this chapter:

- *Meter components*
- *Accessibility for maintenance*
- *Discrete output wiring requirements*
- *Power requirements*

1.1 Meter components

The transmitter is one component of a Micro Motion device. The other major component is the sensor.

The Filling Mass Transmitter (FMT) can be paired with several different types of Micro Motion sensors. For details, refer to the FMT Product Data Sheet.

1.2 Accessibility for maintenance

Mount the meter in a location and orientation that satisfies the following conditions:

- Allows sufficient clearance to open the transmitter housing cover.
- Provides clear access for installing cabling to the transmitter.

1.3 Discrete output wiring requirements

To implement a specific fill type and fill option, the discrete outputs on the transmitter must be wired to the appropriate valves or devices.

See [Table 1-1](#) for requirements for discrete output wiring.

Notes

- The information presented here applies only to transmitters with discrete outputs.
 - Only supported options are listed.
 - The term "Configurable DO" refers to the Configurable Discrete Input/Discrete Output when configured as a discrete output. When the fill type and option do not require this output for the purge valve, the Configurable Discrete Output/Discrete Input can be used for a variety of other application purposes as needed.
 - If the internal power source is used, do not connect any terminal to ground.
-

Table 1-1: Wiring requirements for fill types and fill options

Fill type with options	Precision DO1	Precision DO2	Configurable DO
Standard one-stage	Primary valve	N/A	N/A
Standard one-stage with purge	Primary valve	N/A	Purge valve
Standard one-stage with pump	Primary valve	Pump	As needed
Standard two-stage	Primary valve	Secondary valve	As needed
Standard two-stage with purge	Primary valve	Secondary valve	Purge valve
Timed	Primary valve	N/A	As needed
Timed with purge	Primary valve	N/A	Purge valve
Dual-fillhead	Valve in Fillhead #1	Valve in Fillhead #2	As needed
Timed dual-fillhead	Valve in Fillhead #1	Valve in Fillhead #2	As needed

1.4 Power requirements

The transmitter is powered by one of the Eurofast (M-12) connectors. Refer to the wiring instructions for your output configuration.

The power supply requirements are:

- 24 VDC
- 5.5 W plus I/O requirements
- 1 A maximum at the 24 VIO passthrough

⚠ CAUTION!

Do not connect +24VDCin (-) to +24VIO (-) external to the device. The +24VIO passthrough supply should remain floating. Making this connection externally will prevent proper operation of the +24VIO current limit.

2 Wiring for All Filling Mass Transmitters

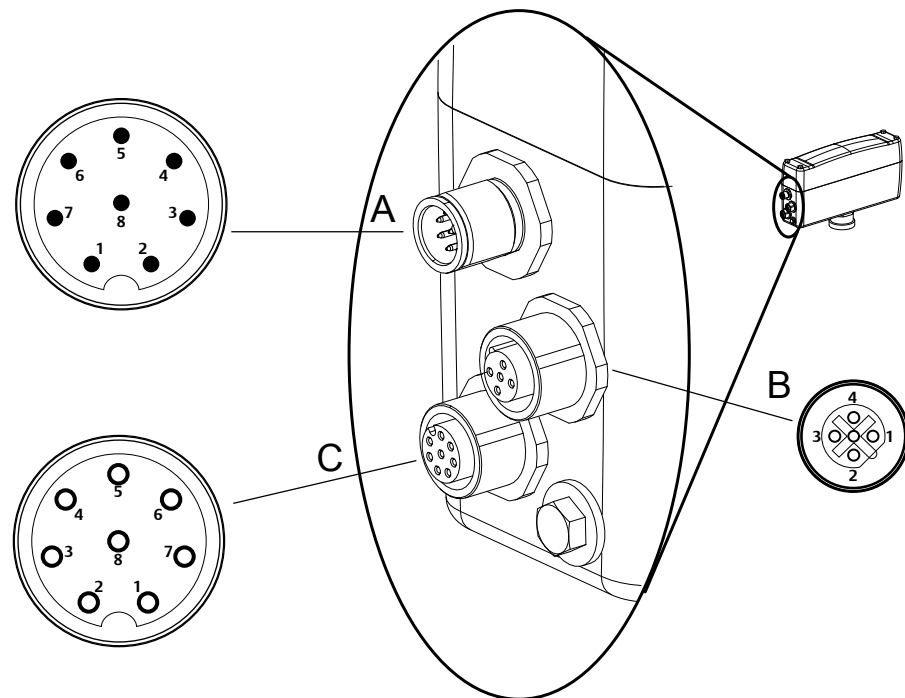
2.1 I/O wiring connectors location and identification

Use the figure below to locate and identify the three I/O wiring connectors on the transmitter. These connectors are referred to by their letter names, "A", "B", and "C".

Note

The pin numbers are not labeled on the transmitter or connectors. Compare the pin positions in the figure with the positions on the transmitter and connectors to determine the proper pin numbering.

Figure 2-1: I/O wiring connectors



- A. 8-pin male power and Modbus connector
- B. 5-pin female Profibus connector
- C. 8-pin female discrete I/O connector or frequency output and I/O power (depending upon configuration option)

3 Wiring for Filling Mass Transmitters with PROFIBUS-DP

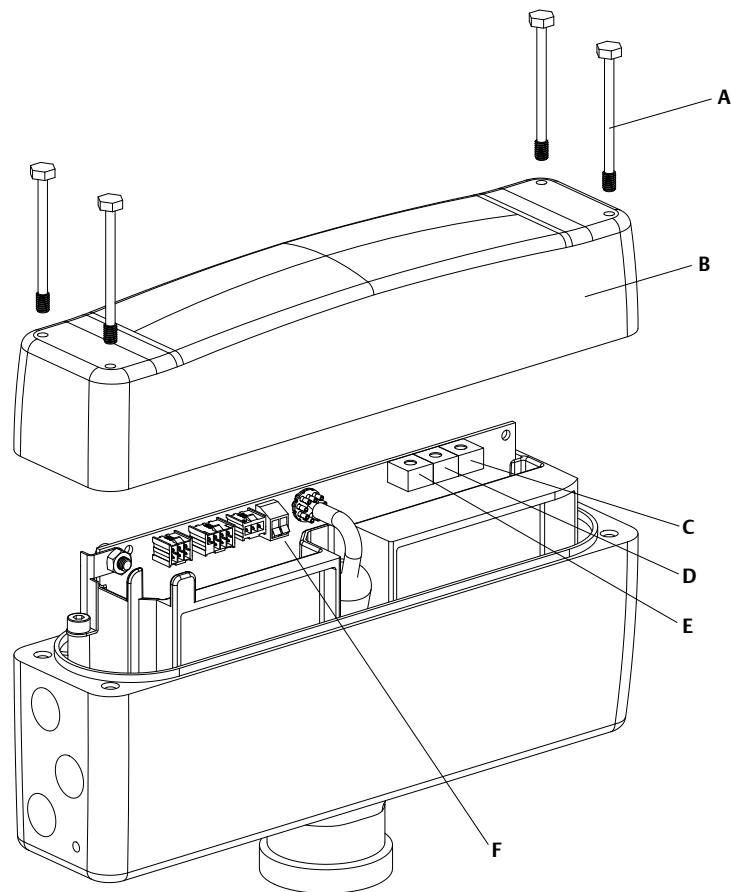
Topics covered in this chapter:

- *Set the PROFIBUS-DP network switches*
- *Connect wires for output option Q*
- *Connect wires for output option U*
- *Connect wires for output option V*

3.1 Set the PROFIBUS-DP network switches

Before connecting the transmitter to the PROFIBUS network, you must set the device parameters using the internal PROFIBUS network address and network termination switches.

The network address and network termination switches are located inside the transmitter housing. See [Figure 3-1](#).

Figure 3-1: PROFIBUS network switches

- A. 4 x 5/16" bolts
- B. Housing cover
- C. Network address switch – ones digit
- D. Network address switch – tens digit
- E. Network address switch – hundreds digit
- F. Network termination DIP switches

Procedure

1. Loosen the four 5/16" bolts securing the housing cover.
2. Lift the housing cover straight up.
3. Set the PROFIBUS network address switches as appropriate for your network.
The allowable address range for PROFIBUS-DP devices is 000 to 126. The default address is 126.
4. Set the two network termination DIP switches. Both switches must be set the same.

Option	Description
ON/ON	Use this option when there is a termination resistor on the local network segment.
OFF/OFF	Use this option when there is not a termination resistor on the local network segment.

5. Lower the housing cover onto the base of the transmitter.
6. Tighten the four 5/16" bolts.

3.2 Connect wires for output option Q

The FMT transmitter with output option Q has a combined 24V/mA connector, a frequency output connector, and a PROFIBUS-DP connector.

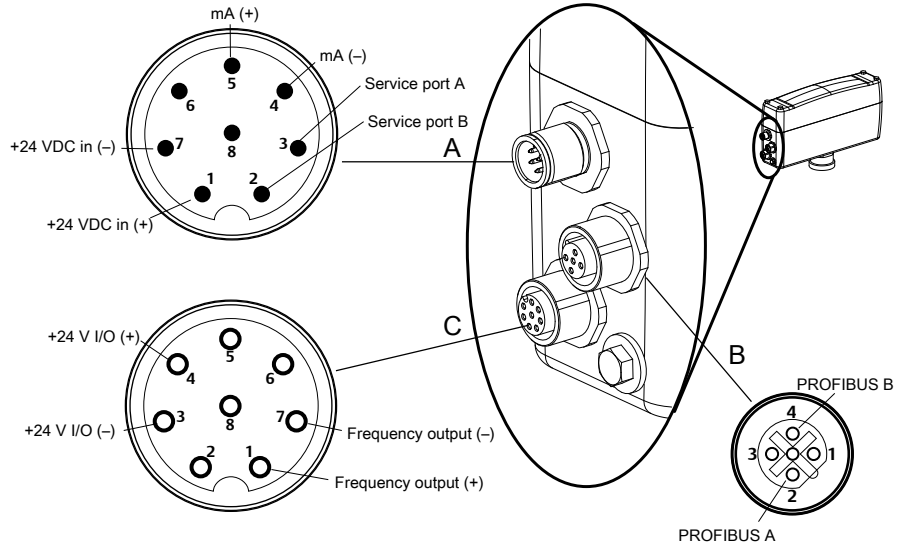
Prerequisites

Before connecting the PROFIBUS-DP plug, you must set the internal PROFIBUS network switches.

Procedure

Insert an appropriate cable into each of the connectors shown in [Figure 3-2](#).

Figure 3-2: Option Q connectors



- A. 8-pin male power and Modbus connector
- B. 5-pin female Profibus connector
- C. 8-pin female frequency output and I/O power connector

Table 3-1: Option Q - power and Modbus connector

Pin identification	Wire color	Outputs
Pin 1	White	+24 VDC in (+)
Pin 2	Brown	RS-485B/Universal Service Port (USP)
Pin 3	Green	RS-485A/Universal Service Port (USP)
Pin 4	Yellow	mA (-)
Pin 5	Gray	mA (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 VDC in (-)
Pin 8	Red	Inactive

Table 3-2: Option Q - Profibus connector

Pin identification	Wire color	Outputs
Pin 1	Inactive	Inactive
Pin 2	Green	Profibus A

Table 3-2: Option Q - Profibus connector (continued)

Pin identification	Wire color	Outputs
Pin 3	Inactive	Inactive
Pin 4	Red	Profibus B
Pin 5	Inactive	Inactive

Table 3-3: Option Q - frequency output and I/O power connector

M12 pin	Wire color	Outputs
Pin 1	White	Frequency output (+)
Pin 2	Brown	Inactive
Pin 3	Green	+24 V I/O (-)
Pin 4	Yellow	+24 V I/O (+)
Pin 5	Gray	Inactive
Pin 6	Pink	Inactive
Pin 7	Blue	Frequency output (-)
Pin 8	Red	Inactive

Note

Inactive outputs should not be used for this configuration.

3.3 Connect wires for output option U

The FMT with output option U has a combined 24V/mA connector, a discrete output/discrete input connector, and a PROFIBUS-DP connector. This output configuration enables direct wiring to the valve, including power output to the valve.

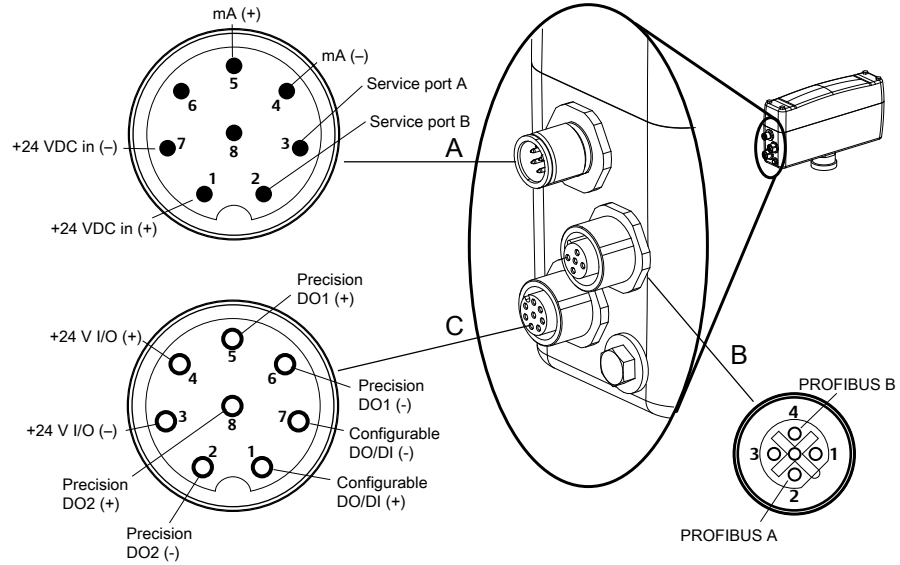
Prerequisites

Before connecting the PROFIBUS-DP plug, you must set the internal PROFIBUS network switches.

Procedure

Insert an appropriate cable into each of the connectors shown in [Figure 3-3](#).

Figure 3-3: Option U connectors



- A. 8-pin male power and Modbus connector
- B. 5-pin female Profibus connector
- C. 8-pin female discrete I/O connector

Table 3-4: Option U - power and Modbus connector

Pin identification	Wire color	Outputs
Pin 1	White	+24 VDC in (+)
Pin 2	Brown	RS-485B/Universal Service Port (USP)
Pin 3	Green	RS-485A/Universal Service Port (USP)
Pin 4	Yellow	mA (-)
Pin 5	Gray	mA (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 VDC in (-)
Pin 8	Red	Inactive

Table 3-5: Option U - Profibus connector

Pin identification	Wire color	Outputs
Pin 1	Inactive	Inactive
Pin 2	Green	Profibus A

Table 3-5: Option U - Profibus connector (continued)

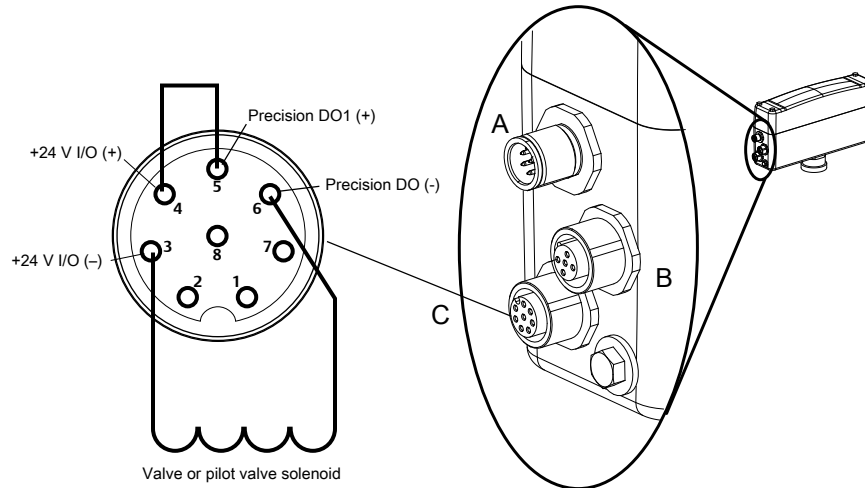
Pin identification	Wire color	Outputs
Pin 3	Inactive	Inactive
Pin 4	Red	Profibus B
Pin 5	Inactive	Inactive

Table 3-6: Option U - discrete I/O connector

M12 pin	Wire color	Outputs
Pin 1	White	Configurable DO/DI (+)
Pin 2	Brown	Precision DO2 (-)
Pin 3	Green	+24 V I/O (-)
Pin 4	Yellow	+24 V I/O (+)
Pin 5	Gray	Precision DO1 (+)
Pin 6	Pink	Precision DO1 (-)
Pin 7	Blue	Configurable DO/DI (-)
Pin 8	Red	Precision DO2 (+)

Example: Isolated output wiring

Figure 3-4 shows an example wiring arrangement for a primary fill valve.

Figure 3-4: Example isolated output wiring

- A. 8-pin male power and Modbus connector
- B. 5-pin female Profibus connector
- C. 8-pin female discrete I/O connector

3.4 Connect wires for output option V

The FMT with output option V has a combined 24V/mA connector, a discrete output/discrete input connector, and a PROFIBUS-DP connector. This output configuration enables direct wiring to the valve, including power output to the valve.

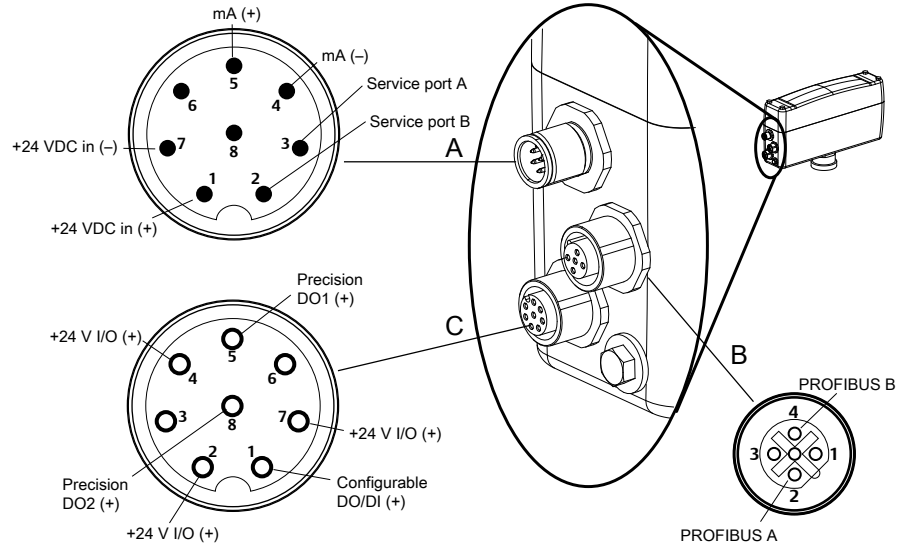
Prerequisites

Before connecting the PROFIBUS-DP plug, you must set the internal PROFIBUS network switches.

Procedure

Insert an appropriate cable into each of the connectors shown in [Figure 3-5](#).

Figure 3-5: Option V connectors



- A. 8-pin male power and Modbus connector
- B. 5-pin female Profibus connector
- C. 8-pin female discrete I/O connector

Table 3-7: Option V - power and Modbus connector

Pin identification	Wire color	Outputs
Pin 1	White	+24 VDC in (+)
Pin 2	Brown	RS-485B/Universal Service Port (USP)
Pin 3	Green	RS-485A/Universal Service Port (USP)
Pin 4	Yellow	mA (-)
Pin 5	Gray	mA (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 VDC in (-)
Pin 8	Red	Inactive

Table 3-8: Option V - Profibus connector

Pin identification	Wire color	Outputs
Pin 1	Inactive	Inactive
Pin 2	Green	Profibus A

Table 3-8: Option V - Profibus connector (continued)

Pin identification	Wire color	Outputs
Pin 3	Inactive	Inactive
Pin 4	Red	Profibus B
Pin 5	Inactive	Inactive

Table 3-9: Option V - discrete I/O connector

M12 pin	Wire color	Outputs
Pin 1	White	Configurable DO/DI (+)
Pin 2	Brown	+24 V I/O (+)
Pin 3	Green	Inactive
Pin 4	Yellow	+24 V I/O (+)
Pin 5	Gray	Precision DO1 (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 V I/O (+)
Pin 8	Red	Precision DO2 (+)

Note

Valves are connected between the +24V I/O and the DO. If the valve is polarity sensitive, then Valve + goes to 24V I/O (+).

4 Wiring for Filling Mass Transmitters with Modbus

Topics covered in this chapter:

- *Connect wires for output option P*
- *Connect wires for output option R*
- *Connect wires for output option S*
- *Connect wires for output option T*

4.1 Connect wires for output option P

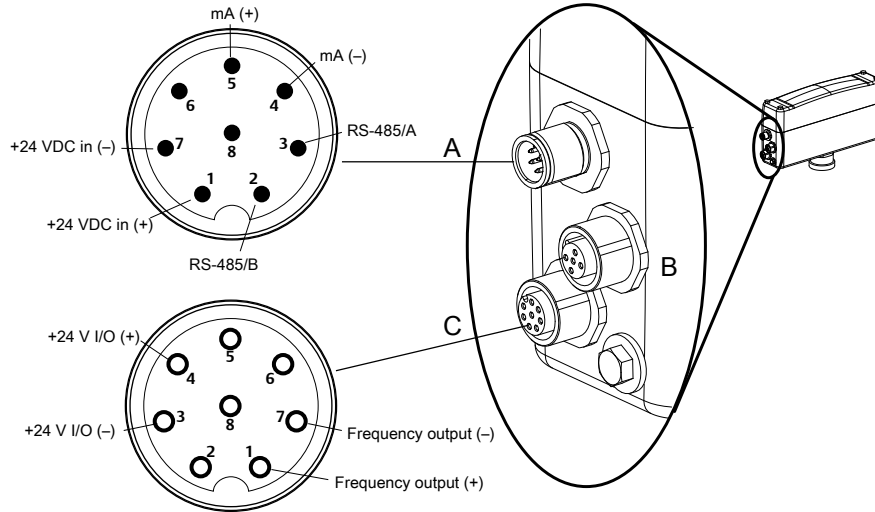
The FMT transmitter with output option P has a combined 24V/RS-485/mA connector and a frequency output connector.

Note

The frequency output is passive.

Insert an appropriate cable into each of the connectors shown in [Figure 4-1](#).

Figure 4-1: Option P connectors



- A. 8-pin male power and Modbus connector
- B. Not used with output option P
- C. 8-pin female frequency output and I/O power connector

Table 4-1: Option P - power and Modbus connector

Pin identification	Wire color	Outputs
Pin 1	White	+24 VDC in (+)
Pin 2	Brown	RS-485B/Universal Service Port (USP)
Pin 3	Green	RS-485A/Universal Service Port (USP)
Pin 4	Yellow	mA (-)
Pin 5	Gray	mA (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 VDC in (-)
Pin 8	Red	Inactive

Note

Connector B is inactive with Option P.

Table 4-2: Option P - frequency output and I/O power connector

M12 pin	Wire color	Outputs
Pin 1	White	Frequency output (+)
Pin 2	Brown	Inactive
Pin 3	Green	+24 V I/O (-)
Pin 4	Yellow	+24 V I/O (+)
Pin 5	Gray	Inactive
Pin 6	Pink	Inactive
Pin 7	Blue	Frequency output (-)
Pin 8	Red	Inactive

Note

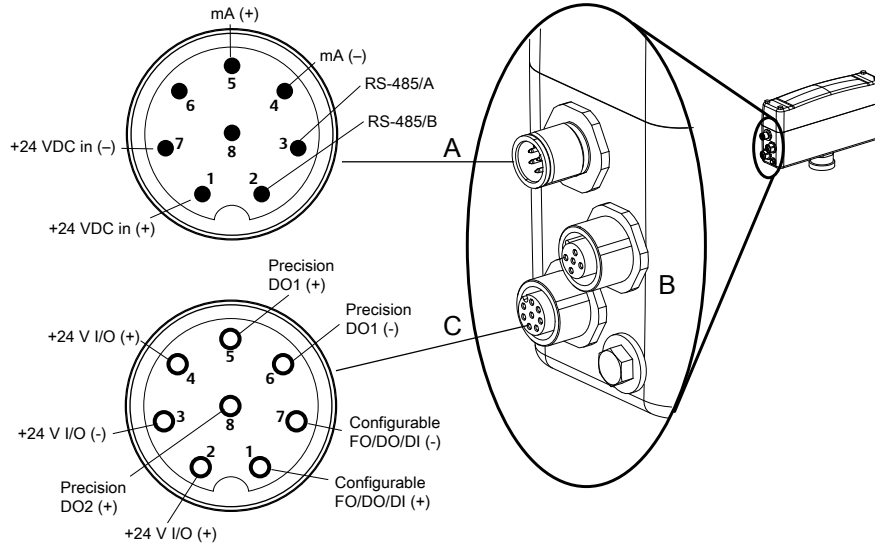
Connector C, pins 2, 5, 6, and 8 should not be used with Option P.

4.2 Connect wires for output option R

The FMT transmitter with output option R has a combined 24V/RS-485/mA output connector and a high-precision discrete output connector.

Insert an appropriate cable into each of the connectors shown in [Figure 4-2](#).

Figure 4-2: Option R connectors



- A. 8-pin male power and Modbus connector
- B. Not used with output option R
- C. 8-pin female discrete I/O connector

Table 4-3: Option R - power and Modbus connector

Pin identification	Wire color	Outputs
Pin 1	White	+24 VDC in (+)
Pin 2	Brown	RS-485B/Universal Service Port (USP)
Pin 3	Green	RS-485A/Universal Service Port (USP)
Pin 4	Yellow	mA (-)
Pin 5	Gray	mA (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 VDC in (-)
Pin 8	Red	Inactive

Note

Connector B is inactive with output option R.

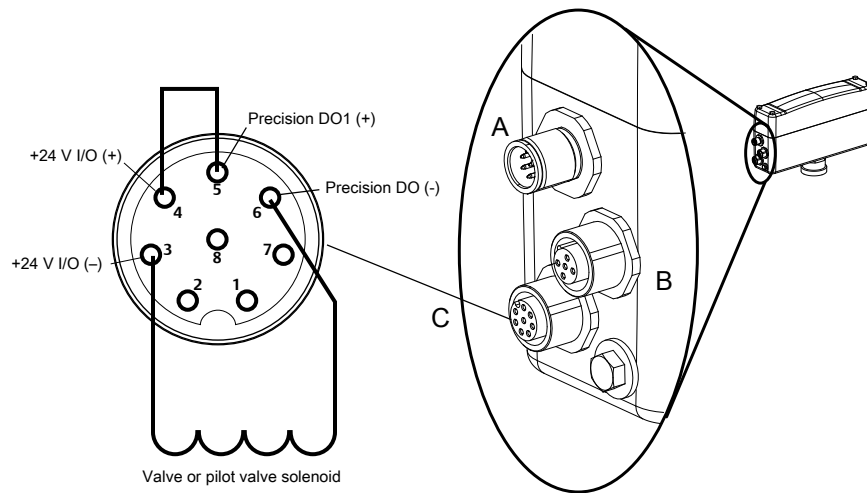
Table 4-4: Option R - discrete I/O connector

M12 pin	Wire color	Outputs
Pin 1	White	Configurable FO/DO/DI (+)
Pin 2	Brown	Precision DO2 (-)
Pin 3	Green	+24 V I/O (-)
Pin 4	Yellow	+24 V I/O (+)
Pin 5	Gray	Precision DO1 (+)
Pin 6	Pink	Precision DO1 (+)
Pin 7	Blue	Configurable FO/DO/DI (-)
Pin 8	Red	Precision DO2 (+)

Example: Isolated output wiring

Figure 3-4 shows an example wiring arrangement for a primary fill valve.

Figure 4-3: Example isolated output wiring



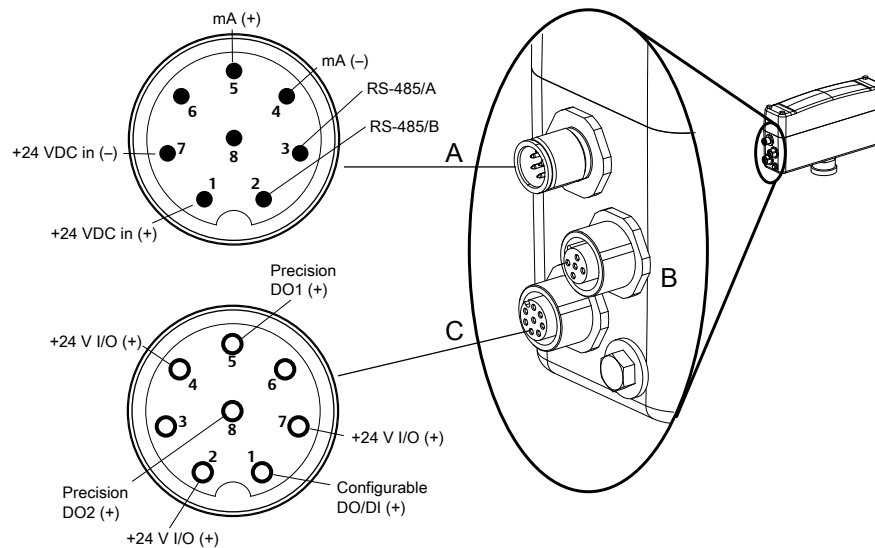
- A. 8-pin male power and Modbus connector
- B. 5-pin female Profibus connector
- C. 8-pin female discrete I/O connector

4.3 Connect wires for output option S

The FMT transmitter with output option S has a combined 24V/RS-485/mA connector and a high-precision discrete output connector. This output configuration enables direct wiring to the valve, including power output to the valve.

Insert an appropriate cable into each of the connectors shown in [Figure 4-4](#).

Figure 4-4: Option S connectors



- A. 8-pin male power and Modbus connector
- B. Not used with output option S
- C. 8-pin female discrete I/O connector

Table 4-5: Option S - power and Modbus connector

Pin identification	Wire color	Outputs
Pin 1	White	+24 VDC in (+)
Pin 2	Brown	RS-485B/Universal Service Port (USP)
Pin 3	Green	RS-485A/Universal Service Port (USP)
Pin 4	Yellow	mA (-)
Pin 5	Gray	mA (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 VDC in (-)

Table 4-5: Option S - power and Modbus connector (continued)

Pin identification	Wire color	Outputs
Pin 8	Red	Inactive

Note

Connector B is inactive with output option S

Table 4-6: Option S - discrete I/O connector

M12 pin	Wire color	Outputs
Pin 1	White	Configurable DO/DI (+)
Pin 2	Brown	+24 V I/O (+)
Pin 3	Green	Inactive
Pin 4	Yellow	+24 V I/O (+)
Pin 5	Gray	Precision DO1 (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 V I/O (+)
Pin 8	Red	Precision DO2 (+)

Note

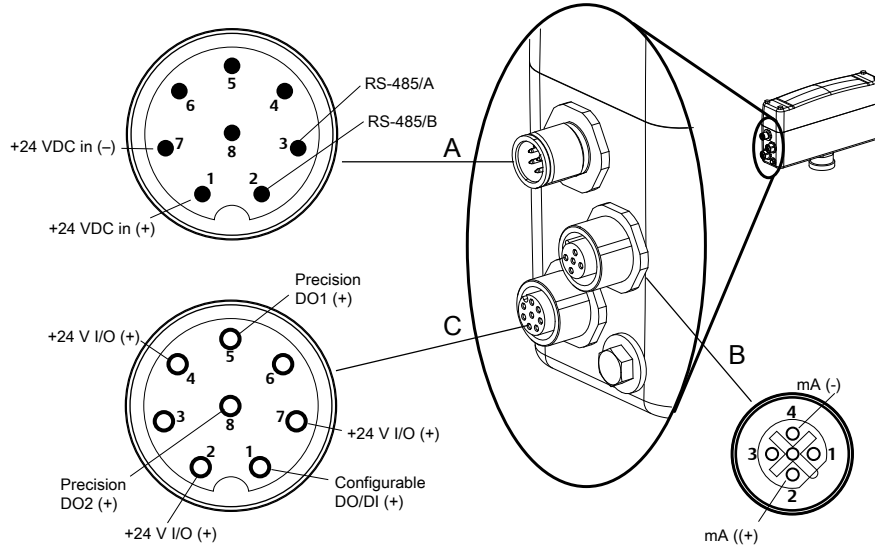
Valves are connected between the +24V I/O and the DO. If the valve is polarity sensitive, then Valve + goes to 24V I/O (+).

4.4 Connect wires for output option T

The FMT with output option T has a combined 24V/RS-485 connector, a high-precision discrete output connector, and a mA output connector. This output configuration enables direct wiring to the valve, including power output to the valve.

Insert an appropriate cable into each of the connectors shown in [Figure 4-5](#).

Figure 4-5: Option T connectors



- A. 8-pin male power and Modbus connector
- B. 5-pin female Profibus connector
- C. 8-pin female discrete I/O connector

Table 4-7: Option T - power and Modbus connector

Pin identification	Wire color	Outputs
Pin 1	White	+24 VDC in (+)
Pin 2	Brown	RS-485B/Universal Service Port (USP)
Pin 3	Green	RS-485A/Universal Service Port (USP)
Pin 4	Yellow	mA (-)
Pin 5	Gray	mA (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 VDC in (-)
Pin 8	Red	Inactive

Table 4-8: Option T - Profibus connector

Pin identification	Wire color	Outputs
Pin 1	Inactive	Inactive
Pin 2	Green	mA (-)

Table 4-8: Option T - Profibus connector (continued)

Pin identification	Wire color	Outputs
Pin 3	Inactive	Inactive
Pin 4	Red	mA (+)
Pin 5	Inactive	Inactive

Table 4-9: Option T - discrete I/O connector

M12 pin	Wire color	Outputs
Pin 1	White	Configurable DO/DI (+)
Pin 2	Brown	+24 V I/O (+)
Pin 3	Green	Inactive
Pin 4	Yellow	+24 V I/O (+)
Pin 5	Gray	Precision DO1 (+)
Pin 6	Pink	Inactive
Pin 7	Blue	+24 V I/O (+)
Pin 8	Red	Precision DO2 (+)

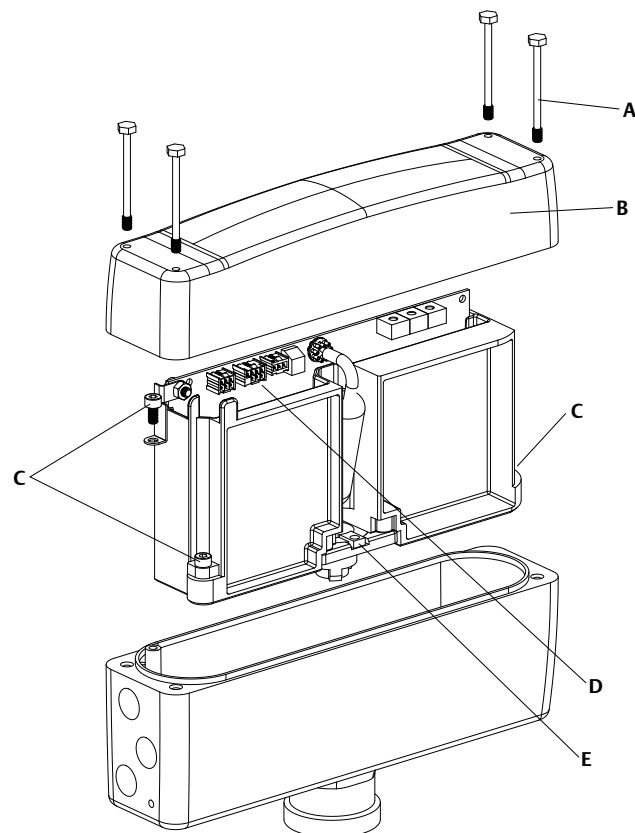
5 Supplementary information

5.1 Install a replacement electronics module

The electronics module can be removed and replaced easily.

See [Figure 5-1](#) for an illustration of the transmitter components.

Figure 5-1: Transmitter components



- A. 4 x 5/16" bolts
- B. Housing cover
- C. 3 x screws holding the module in place
- D. Circuit board harness connectors
- E. Alignment notch

Procedure

1. Loosen the four 5/16" bolts securing the housing cover.
2. Lift the housing cover straight up.
3. Disconnect the circuit board harness connectors.

4. Remove the three screws holding the electronics module in place.
5. Lift the electronics module out of the transmitter housing.
6. Slide the new module into the transmitter housing.

Tip

Use the alignment notch to help align the connector on the bottom of the electronics module with the 9-pin connector inside the transmitter housing.

7. Secure the new module with the three screws removed previously.
8. Reconnect the circuit board harness connectors.
9. Lower the housing cover onto the base of the transmitter.
10. Tighten the four 5/16" bolts.

Appendix A

Specifications

Topics covered in this appendix:

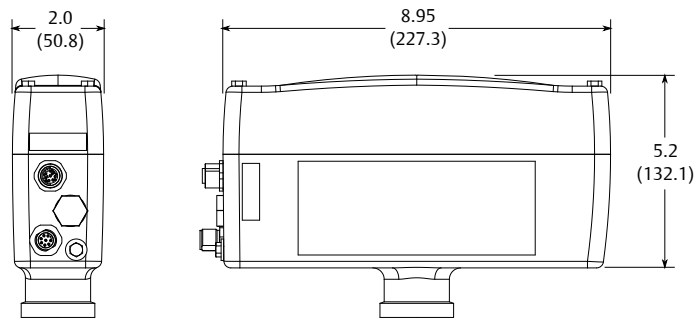
- *Physical specifications*
- *Electrical connections*
- *Input/output signals*
- *Digital communications*
- *Host interface*
- *Power supply*
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A.1 Physical specifications

Item		Description
Housing and mounting	Transmitter	316L stainless steel
		Transmitter is integrally mounted to sensor at factory. All electronics are encapsulated. <ul style="list-style-type: none"> • When mounted on a CMFS sensor, the transmitter is welded to the sensor case. • When mounted to other sensor models, the transmitter is clamped to the sensor case.
		Exterior surfaces are optionally polished to Ra 64.
	NEMA 4X (IP66/IP67)	
	Sensor	Refer to sensor specifications for sensor case materials.
Weight	Transmitter	7.1 lb (3.2 kg)
	Sensor	Refer to sensor specifications for sensor weight.
Dimensions	Transmitter	2" x 8.95" x 5.2" (50.8 x 227.3 x 101.6 mm). See Figure A-1 .
	Sensor	Refer to sensor specifications for sensor dimensions.

Item		Description
Status LED		One or two status indicators on internal transmitter module (for commissioning, not visible in normal use) <ul style="list-style-type: none"> • LED1: Indicates transmitter status • LED2: Indicates PROFIBUS-DP connection status⁽¹⁾

Figure A-1: Transmitter dimensions



A.2 Electrical connections

Item	Output option	Description
Connection type		Phoenix Contact M-12 circular connectors
Power connection	P, Q, R, S, U, V	Power and mA on same connector
	T	mA on separate connector
Digital communications	P, R, S, T	Modbus
	Q, U, V	PROFIBUS-DP
Isolation	P,Q,R, U	Isolated I/O
	S,T, V	High-side common (not isolated)

(1) Available only with electronic output options Q, U, or V.

A.3 Input/output signals

Input/output	Description
One mA output	<p>Active (internally powered)</p> <p>Not intrinsically safe</p> <p>Isolated to ± 50 VDC from all other outputs and earth ground</p> <p>Maximum load limit: 820 Ω</p> <p>Uses: Report mass flow, volume flow, density, temperature, percent of fill completed⁽²⁾</p> <p>Output is linear with process from 3.8 to 20.5 mA, per NAMUR NE43 (February 2003)</p>
Two high-precision discrete outputs ⁽²⁾	<p>Passive (externally powered): 3–30 VDC max., sinking up to 500 mA at 30 VDC max.</p> <p>Not intrinsically safe</p> <p>Use: Discrete valve control</p> <p>Propagation delay:</p> <ul style="list-style-type: none"> • OFF to ON: 0.25 to 1.0 milliseconds • ON to OFF: 0.02 to 0.15 milliseconds
One standard discrete output ⁽²⁾	<p>Passive (externally powered): 3–30 VDC max., sinking up to 500 mA at 30 VDC max.</p> <p>Not intrinsically safe</p> <p>Uses: Report fill in progress or fault, or control purge valve</p>
One standard discrete input ⁽²⁾	<p>Passive (externally powered):</p> <ul style="list-style-type: none"> • Internal power: Weak 100 K internal pull-up allows contact-closing input • External power: +3–30 VDC max. <p>Not intrinsically safe</p> <p>Uses: Begin fill, end fill, pause fill, resume fill, reset mass total, reset volume total, or reset all totals (includes fill total)</p>
One standard frequency/pulse output ⁽³⁾	<p>Passive (externally powered): +3–30 VDC max., sinking up to 500 mA at 30 VDC max.</p> <p>Not intrinsically safe</p> <p>Scalability: 0 to 15,000 Hz</p> <p>Uses: Pulse input (flow rate) to PLC counter card or pulse-counting application</p>

(2) Available only with output option R, S, T, U, or V.

(3) Available only with output option P or Q.

A.4 Digital communications

Protocol	Description
Service port	Standard Micro Motion service port protocol: Modbus RTU 38,400 baud rate, one stop bit, no parity
Modbus/RS-485 ⁽⁴⁾	Auto-detects and responds to: <ul style="list-style-type: none"> • Modbus RTU protocol • All baud rates between 1200 and 38,400 • One or two stop bits • Any parity
PROFIBUS-DP ⁽⁵⁾	Digital 2-way communications protocol Automatically recognizes network baud rate

Note

There is only one physical port for both Modbus and the service port

A.5 Host interface

Output option	Interface
P, R, S, T	Micro Motion ProLink II v2.9.1 supports all functionality
Q, U, V	DPV-1 host with acyclic communication is required for basic functionality ProLink II v2.9.4 or ProLink III software, or a Siemens SIMATIC PDM are required for complete device configuration Supplied with transmitter: <ul style="list-style-type: none"> • GSD file conforming to the PROFIBUS-DP specification <ul style="list-style-type: none"> - Provides PROFIBUS Class 1 Master functions - Enables control of all input and output process data • DD file conforming to PROFIBUS EDDL specification <ul style="list-style-type: none"> - Provides PROFIBUS Class 2 Master functions - Enables device configuration

A.6 Power supply

Item		Description
Power requirements	Input supply	24 VDC
	System requirements	5.5 W (device) + I/O requirements (1 A max at 24 VIO passthrough)
Fuse	Device fuse	800 mA

(4) Available only with output option P, R, S, or T.

(5) Available only with output option Q, U, or V.

Item		Description
	24 VIO fuse	1.6 A
Safety		Reverse-polarity and short-circuit protection Complies with low voltage directive 2006/95/ EC per IEC 61010-1 Installation (overvoltage) Category II, Pollution Degree 2



A.7 Environmental limits

Type	Limits
Ambient temperature limits	-32 to +140 °F (-25 to +60 °C)
Humidity limits	5 to 95% relative humidity, non-condensing at 140 °F (60 °C)
Vibration limits	Meets IEC68.2.6, endurance sweep, 5 to 2000 Hz, 50 sweep cycles at 1.0 g

A.8 Environmental effects

Type	Effect
EMI effects	Complies with EMC directive 2008/104/EC per EN 61326-2-3 Complies with NAMUR NE21 Version: 22.08.2007
Ambient temperature effect	On mA output: $\pm 0.005\%$ of span per °C

A.9 Hazardous area classifications

Agency	Approval
CSA C-US	 Class I, Div. 2
ATEX	 ATEX III Zone 2
IECEX	Zone 2



MMI-20017127

Rev AF

2013

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