

Rosemount 9732 Magnetic Flow Meter Quick Start Guide



Product documents can be located by selecting the search tool magnifier icon at the top of www.emerson.com and then select the "Serial Number" lookup button in the pop-up menu.

For Additional Product Information:

Please scan the QR code on this document for your local language safety messages. Escaneie o código QR acima para obter as mensagens de segurança no idioma local. Bitte scannen Sie den QR-Code oben nach den Sicherheitshinweisen Ihrer Landessprache.

Veuillez scanner le code QR ci-dessus pour obtenir vos messages de sécurité en langue locale.

Lea el código QR anterior para ver sus mensajes de seguridad en el idioma local.

Eseguire la scansione del codice QR sopra indicato per i messaggi di sicurezza nella lingua locale.

Отсканируйте QR-код выше, чтобы получить сообщения о безопасности на местном языке.

請掃描上面的QR代碼以了解您的本地語言安全消息。

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현재 언어 안전 메시지를 보려면 위의 QR 코드를 스캔하세요

1 Safety messages

DANGER

Powering up the transmitter

For hazardous area installations, applying power while housing covers are removed or loose can cause an explosion, resulting in death.

To prevent ignition of flammable or combustible atmospheres, ensure that all covers and seals are tightly closed.

WARNING

Physical Access

Unauthorized personnel can potentially cause significant damage and/or misconfiguration of end users' equipment. Protect against all intentional or unintentional unauthorized use.

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

WARNING

Installation checklist

Mounting the transmitter in a hazardous area without taking precautions could result in serious injury or death.

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.

If the transmitter is to be mounted in a hazardous area:

Verify that the transmitter has the appropriate hazardous area approval. Each transmitter has a hazardous area approval tag attached to the transmitter housing.

Ensure that the installation of any cable used between the transmitter and the sensor meets the hazardous area requirements.

For all hazardous area installations, strictly adhere to the safety instructions documented in the ATEX/IECEx and North American approvals documentation available at [Emerson.com/flowmeasurement](https://www.emerson.com/flowmeasurement), and /or with requirements specified by the local Authority Having Jurisdiction (AHJ) over the installation.

WARNING

Ground the meter components

Failure to comply with requirements for intrinsic safety in a hazardous area could result in an explosion causing death or serious injury.

Ground all meter components.

WARNING

Disconnect power before rotating the transmitter.

Removing the metal clamping ring while the unit is powered on violates safety and intrinsic safety protection methods and could result in serious injury or death.

The metal clamping ring provides a safety earth ground connection.

WARNING

Wiring output

Failure to follow these instructions can cause an explosion resulting in injury or death.

Meter installation and wiring should be performed only by suitably-trained personnel using the appropriate government and corporate safety standards.

Disconnect power before servicing. If the transmitter is in a hazardous area, do not remove the housing cover while the transmitter is powered up.

If the transmitter is in a hazardous area, wait five minutes after disconnecting the power.

If the transmitter is in a hazardous area, do not reapply power to the transmitter with the housing cover removed.

ELECTRIC SHOCK HAZARD: Power off before lifting unit

CAUTION

Mounting and sensor wiring

Moisture in the electronics can cause measurement error or flow meter failure.

Ensure that the connection between the transmitter and the sensor is moisture-proof.

Conduit fittings or seals must be installed to maintain the enclosure ingress rating.

ESD protection methods help avoid damage to sensitive electronics.

NOTICE

Installation checklist

Installing the transmitter with the conduit openings or transmitter display facing upward risks condensation moisture entering the transmitter housing, which could damage the transmitter.

The proper selection of the mounting configuration is critical.

Emerson does not recommend conversion in the field.

NOTICE

Ground the meter components

Improper grounding could cause inaccurate measurements or meter failure.

Rotate the transmitter on the sensor

Excessive rotation can damage the wiring and cause measurement error or flow meter failure.

Do not rotate the housing more than 270° in one direction.

2 Product certifications

Please use the QR code link, or enter your product's serial number into the search tool at MyEmerson.com, to access the *Rosemount 9732 Magnetic Flow Meter Transmitter* that can be found by searching for the Rosemount 9732 product page.

Scroll down to **Documents & Drawings** and click **Certificates & Approvals**.

3 Planning

This manual provides information on planning, mounting, wiring, and initial setup of the Rosemount 9732 Magnetic Flow transmitter. For information on full configuration, maintenance, troubleshooting, or service of the transmitter, see the appropriate configuration and use manual.

3.1 About this document

The information in this document assumes that users understand basic transmitter and sensor installation, configuration, and maintenance concepts and procedures.

3.2 Meter components

A meter consists of the following components:

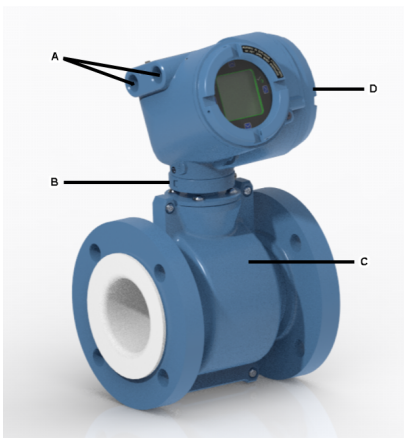
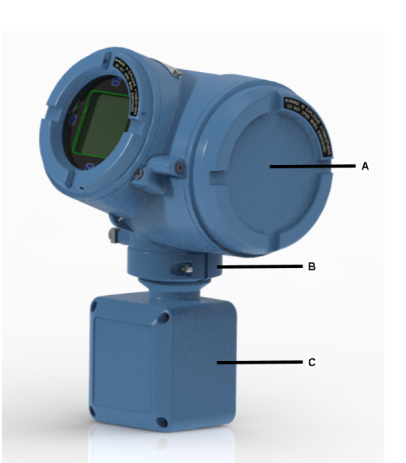
- A transmitter
- A sensor

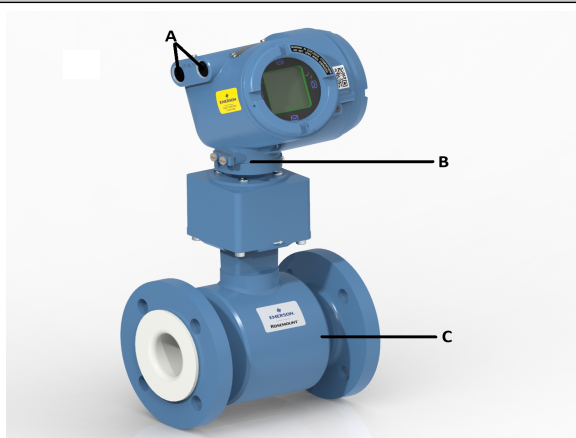
3.3 Mounting configurations

The Rosemount 9732 magnetic flow transmitter is available for integral mount or remote mount installations.

The sixth character of the transmitter model number indicates the installation type.

Installation type indication for the 9732 transmitter: **9732A****T**xxxxxxxxxx

Transmitter Painted Aluminum - 9732 Integral Field Mount	Transmitter Painted Aluminum - 9732 Remote Field Mount
 A. Conduit openings B. Clamping ring C. Sensor case D. Transmitter housing cover (hidden from view)	 A. Transmitter housing cover B. Clamping ring C. Junction box



- A. Conduit openings
- B. Clamping ring
- C. Sensor case

For both integral mount and remote mount, the power supply and inputs/outputs (I/O) must be field wired to the transmitter.

For remote mount configurations, the transmitter must be wired to the sensor with connecting cable. If the transmitter is installed remotely from the sensor, the remote cable connection between the sensor and transmitter must be field wired.

3.4 Installation checklist

Refer to the [Safety messages](#) section for product-specific safety messages.

- Safety messages are provided throughout this content to protect personnel and equipment. Read each safety message carefully before proceeding to the next step.
- When choosing a location for components, refer to the following guidelines:
 - See the sensor installation manual for information on locating the sensor with remote-mount electronics.
 - Do not install a component in a location where its temperature, humidity, or vibration limits will be exceeded.
 - Maximum distance between components depends on the wire size, the wire type, and the power supply. Ensure that sufficient power is supplied to the transmitter terminals.
- Verify that the appropriate cable and required cable installation parts are available for installation. For wiring between the transmitter and sensor, verify the maximum cable length does not exceed 500 ft (152 m). Consult with Emerson for remote cable lengths exceeding 500 ft (152 m).
- The transmitter can be mounted in any orientation as long as the conduit openings do not point upward.
- Any fittings, adapters, or blanking elements used on either conduit entries or threaded joints that are a part of flame-proof joints must comply with the requirements of EN/IEC 60079-1 & 60079-14 or CSA C22.2 No 30 & FM 3615 for Europe/International and North America respectively.

Only qualified personnel can select and install these elements in accordance with EN/IEC 60079-14 for ATEX/IECEx or to National Electrical Code (NEC)/Canadian Electrical Code (CEC) for North America.

- Conduit fittings or seals must be installed to maintain the enclosure ingress rating.
- Minimize the amount of moisture or condensation inside the transmitter housing. Moisture inside the transmitter housing can damage the transmitter and cause measurement error or flow meter failure. To do this:
 - Ensure the integrity of all gaskets and O-rings.
 - Install drip legs on conduit or cable.
 - Seal unused conduit openings.
 - Ensure that all covers are fully tightened.
- Mount the meter in a location and orientation that satisfies the following conditions:
 - Allows sufficient clearance to open the transmitter housing cover. Install with 8–10 in. (200–250 mm) clearance at the wiring access points.
 - Provides clear access for installing cabling to the transmitter.
 - Provides clear access to all wiring terminals for troubleshooting.

3.5 Power requirements

Universal (self-switching) AC/DC input, automatically recognizes supply voltage:

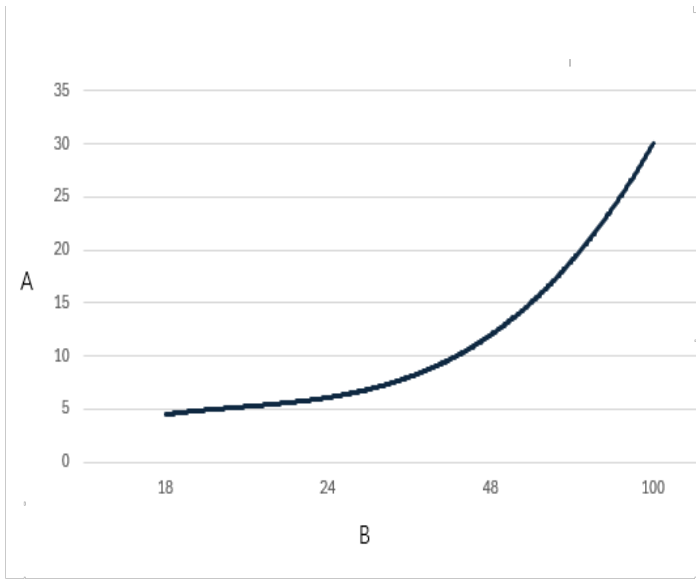
- Nominal 18 VDC to 100 VDC
- Nominal 90 VAC (RMS) to 250 VAC (RMS), 50/60 Hz
 - Accepts universal input range 85 VAC (RMS) to 264 VAC (RMS), 47-63 Hz
- One pair of wiring terminals accepts either AC or DC power
- One internal ground lug for power-supply ground wiring
- Maximum load 6W (Nominal 5W):
 - For AC power at start-up for in-rush current, the power source must provide a minimum of 30 A, lasting less than 1 ms.

Note

For DC power:

- Power requirements assume a single transmitter per cable.
 - At start-up for in-rush current, the power source must provide a minimum of 30 A at 100 VDC supply, lasting less than 1 ms. For in-rush at other DC supply voltages refer to [Figure 3-1](#).
 - Length and conductor diameter of the power cable must be sized to provide 18 VDC minimum at the power terminals, at maximum load current at 18 VDC.
-

Figure 3-1: In-rush Current Versus DC Supply Voltage



- A. In-rush current Amps (lasting less than 1 ms)
B. Power supply (VDC)
-

3.5.1 Cable sizing formula

$M = 18 V + (R \times L \times 0.5 A)$

- M: minimum supply voltage
- R: cable resistance (Ω/ft)
- L: cable length (ft)

3.5.2 Typical power cable resistance at 68 °F

Wire gauge	Resistance
14 AWG	0.0050 Ω/ft
16 AWG	0.0080 Ω/ft
18 AWG	0.0128 Ω/ft
20 AWG	0.0204 Ω/ft
2.5 mm ²	0.0136 Ω/m
1.5 mm ²	0.0228 Ω/m
1.0 mm ²	0.0340 Ω/m
0.75 mm ²	0.0460 Ω/m
0.50 mm ²	0.0680 Ω/m

3.5.3 Maximum cable lengths between sensor and transmitter

The maximum cable length between the sensor and transmitter, which are installed separately. For best performance use only the cable options shown in [Table 3-1](#).

Table 3-1: Maximum Cable Lengths

Cable options	Maximum length
RCxx	Up to 1000 ft (305 m); Consult Emerson for lengths over 500 ft (152 m)
RAxx	
CMVDSZZxxx	
CMVDAZZxxxx	

4 Mounting and sensor wiring

For instructions on mounting the transmitter and wiring the transmitter to the sensor, refer to the *Rosemount 9732 Magnetic Flow Meter Transmitter Manual* (MS-00809-0100-9732).

5 Wiring the channels

For instructions on wiring the transmitter, refer to the *Rosemount 9732 Magnetic Flow Meter Transmitter Manual* (MS-00809-0100-9732).

6 Powering up the transmitter

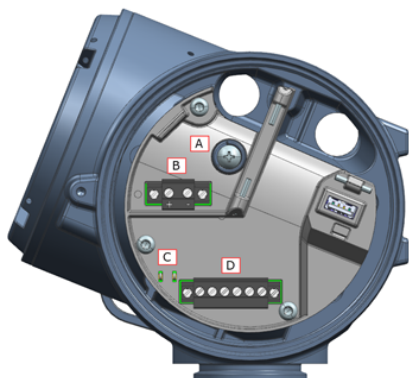
Prerequisites

The transmitter must be powered up for all configuration and commissioning tasks, or for process measurement.

Procedure

1. Ensure that all transmitter and sensor covers and seals are closed.
Refer to the [Safety messages](#) section for product-specific safety messages.

Figure 6-1: Transmitter with Power and USB Doors Hidden



- A. Ground Connection
- B. Power Connection
- C. HART Connection
- D. Output Terminal Connection

-
2. Turn on the electrical power at the power supply.
Within 30 seconds after power is applied to the transmitter, the start-up diagnostics will be complete and the outputs will be valid.

After completing the task:

Within 5 minutes after power is applied to the transmitter, it will meet flow measurement accuracy specifications.

Within 10 minutes after power is applied to the transmitter it will provide valid Smart Meter Verification Information.

The transmitter will be ready to acquire sensor baseline data within 10 minutes after power is applied.

7 Using the display controls

The transmitter display interface includes a display (LCD panel) and four capacitive buttons – left, up, down, and right arrow keys – used to access the display menus and navigate the display screens.

Procedure

1. To activate a capacitive button, press the desired button that is designated with arrows (up, down, left, and right).
You can activate the capacitive button through the lens. Do not remove the transmitter housing cover.

Important

The transmitter only detects one button selection at a time. Be sure to press your thumb or finger on a single capacitive button.

Figure 7-1: Proper finger positioning for activating a capacitive button

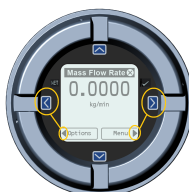


-
2. Use the arrow indicators on the display screen to identify which capacitive button to use to navigate the screen (see examples 1 and 2).
-

Important

When using the arrow keys, you must first activate the capacitive button, then release the same button by removing your finger from the glass to move up, down, right, left, or to make a selection. To enable auto-scroll when navigating up or down, activate the appropriate button and continue to hold for one second. Release the button when the desired selection is highlighted.

Figure 7-2: Example 2: Active arrow indicators on the transmitter display



7.1 Configure the display backlight

Procedure

To configure the backlight, select **Menu** → **Quick Menu** → **Configuration** → **Detailed Setup** → **Display Settings** → **Backlight**.

8 Communicating with the transmitter

In addition to the service port, a user can either download or upload data from or to the transmitter using either the HART® terminals connected to ProLink III or an Emerson AMS Trex unit.

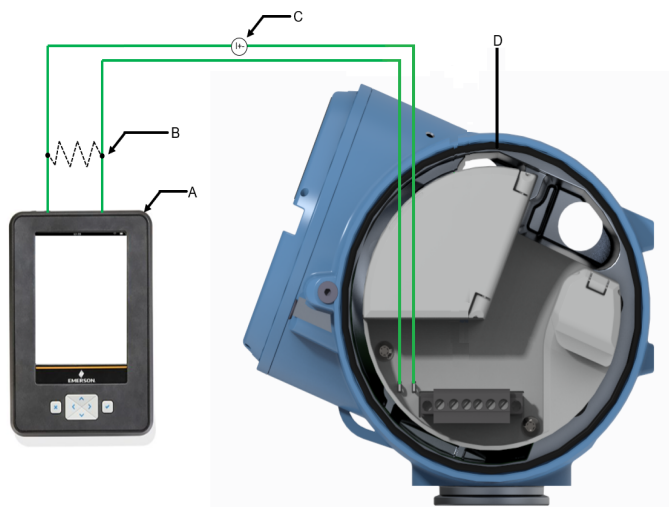
Procedure

1. To connect to the transmitter terminals or to the HART connection posts:
 - a. Remove the transmitter end cap.
 - b. Attach the leads from the Field Communicator to terminals 1 and 2 on the transmitter, or to the HART connection posts, and add resistance as required. The Field Communicator must be connected across a resistance of 250–600 Ω.

Tip

HART connections are not polarity-sensitive. It does not matter which lead is attached to which terminal.

Figure 8-1: Field Communicator connection to transmitter terminals



- A. Field Communicator
- B. 250–600 Ω resistance
- C. External power supply, if required
- D. Transmitter with end-cap removed

-
2. Turn on the Field Communicator and wait until the main menu is displayed.



Quick Start Guide

MS-00825-0100-9732, Rev. AA

July 2026

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