

Rosemount™ 1056

Intelligent Four-Wire Transmitter



Safety information

Your instrument purchase from Emerson is one of the finest available for your particular application. Emerson has designed and tested these instruments to meet many national and international standards. Experience indicates that its performance is directly related to the quality of the installation and knowledge of the user in operating and maintaining the instrument.

⚠ WARNING

Precautionary signs

Failure to observe precautionary signs may result in injury or death to personnel or cause damage to equipment. Follow all warnings, cautions, and instructions marked on or supplied with the product.

⚠ WARNING

Follow installation guidelines.

Failure to follow these installation guidelines could result in death or serious injury. If this equipment is used in a manner not specified by the manufacturer, then the protection it provides against hazards may be impaired.

- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Install equipment as specified in this document.
- Ensure that only qualified personnel perform the installation, operation, and maintenance of the product.
- Inform and educate your personnel in the proper installation, operation, and maintenance of the product.
- Follow appropriate local and national codes.
- If you do not understand any of the instructions, contact your Emerson representative for clarification.

⚠ WARNING

Electrical shock

Installation and servicing of this product may expose personnel to dangerous voltages.

- Electrical installation must be in accordance with the National Electrical Code (ANSI/National Fire Protection Agency-70) and/or any other national or local codes.
- The equipment is protected throughout by double insulation.
- Disconnect main power, wired to separate power source, before servicing.
- Ensure that all equipment doors are closed and protective covers are in place, except when maintenance is being performed by qualified personnel.
- Signal wiring must be rated at least 240 V.
- Non-metallic cable strain reliefs do not provide grounding between conduit connections. Use grounding type bushings and jumper wires.
- Make sure that the instrument is connected and properly grounded through a three-wire power source.
- Proper use and configuration is the operator's responsibility.
- Install all protective equipment covers and safety ground leads after installation.
- Operate only with front panel fastened and in place.
- Disconnect and lock out power before connecting the power supply.

⚠ WARNING

Physical access

Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and needs to be protected against.

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

NOTICE

Use only factory documented components for repair. Tampering or unauthorized substitution of parts and procedures can affect performance and cause unsafe operation of your process.

NOTICE

This product generates, uses, and can radiate radio frequency energy, and this can cause radio communication interference.

As temporarily permitted by regulation, this device has been tested for compliance within the limits of Class A computing devices, pursuant to subpart J of part 15 of Federal Communication Commission (FCC) rules, which are designed to take whatever measures may be required to correct the interference.

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1 Installation

1.1 Unpack and inspect

Procedure

Inspect the shipping container.

- If it is damaged, contact the shipper immediately for further instructions.
- If there is no apparent damage, unpack the container. Ensure all items shown on the packing list are present. If items are missing, notify Emerson immediately.

1.2 General installation information

⚠ WARNING

Electrical shock

Installation and servicing of this product may expose personnel to dangerous voltages.

Electrical installation must be in accordance with the National Electrical Code (ANSI/National Fire Protection Agency-70) and/or any other national or local codes.

The equipment is protected throughout by double insulation.

Disconnect main power, wired to separate power source, before servicing.

Ensure that all equipment doors are closed and protective covers are in place, except when maintenance is being performed by qualified personnel.

Signal wiring must be rated at least 240 V.

Non-metallic cable strain reliefs do not provide grounding between conduit connections. Use grounding type bushings and jumper wires.

Make sure that the instrument is connected and properly grounded through a three-wire power source.

Proper use and configuration is the operator's responsibility.

Install all protective equipment covers and safety ground leads after installation.

Operate only with front panel fastened and in place.

Disconnect and lock out power before connecting the power supply.

1. Install the transmitter with a sun shield or out of direct sunlight and areas with extreme temperatures.
2. Install the system in an area where vibrations and electromagnetic and radio frequency interference are minimized or absent.
3. Keep the transmitter and sensor wiring at least 1 ft (0.30 m) from high voltage conductors. Ensure there is easy access to the transmitter and sample conditioning system.
4. The transmitter is suitable for panel, pipe, or surface mounting.

1.3 Mounting diagrams

NOTICE

Dimensions in the following drawings show millimeters above and inches below.

Figure 1-1: Panel mount front

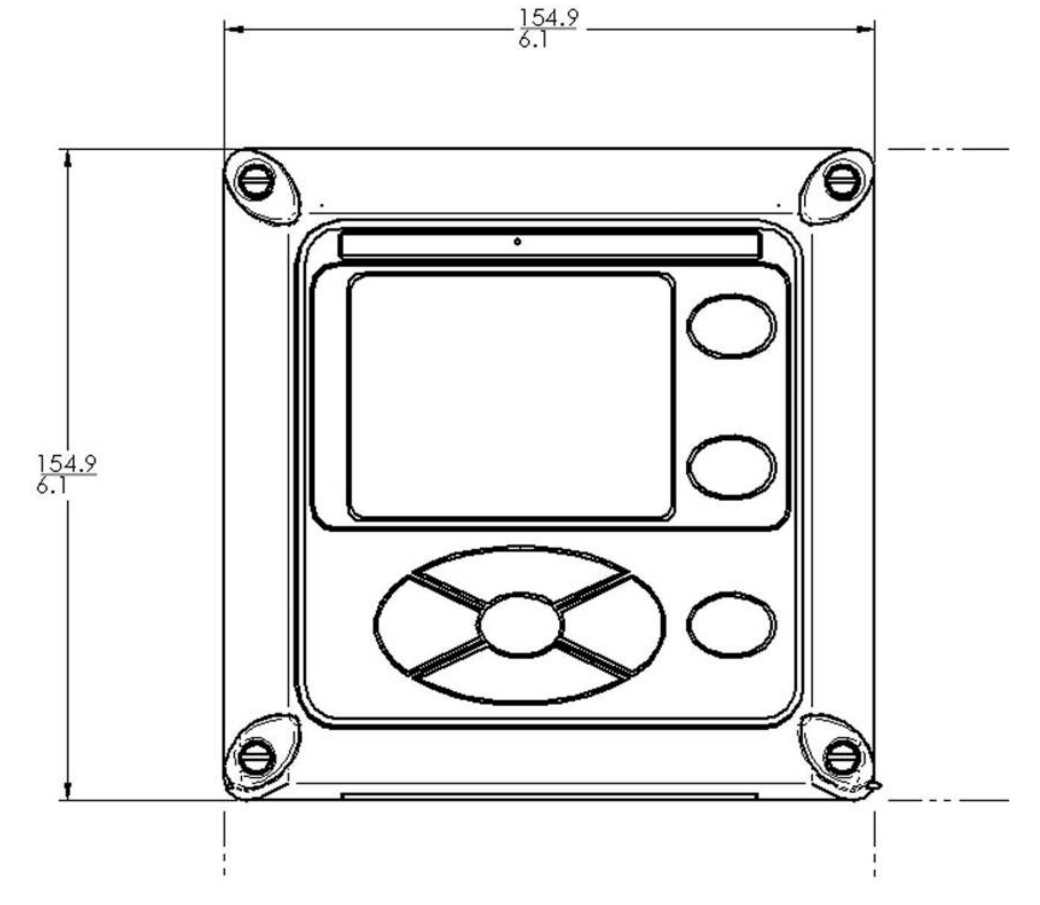
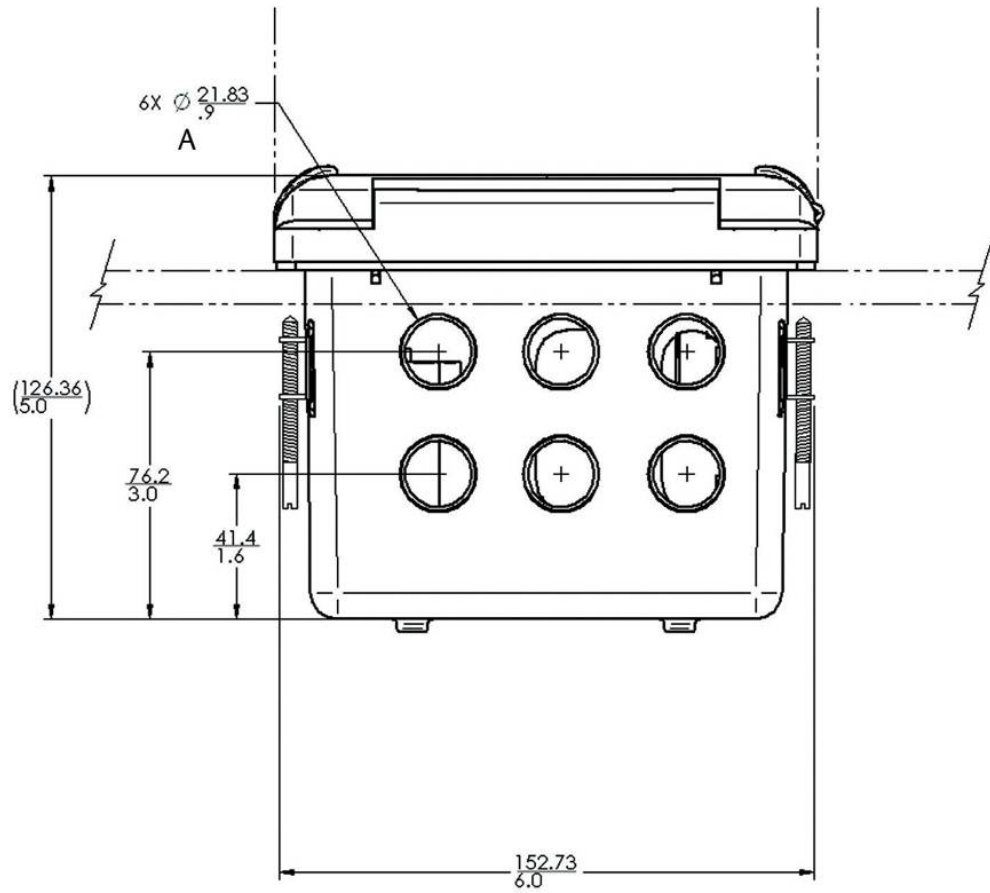
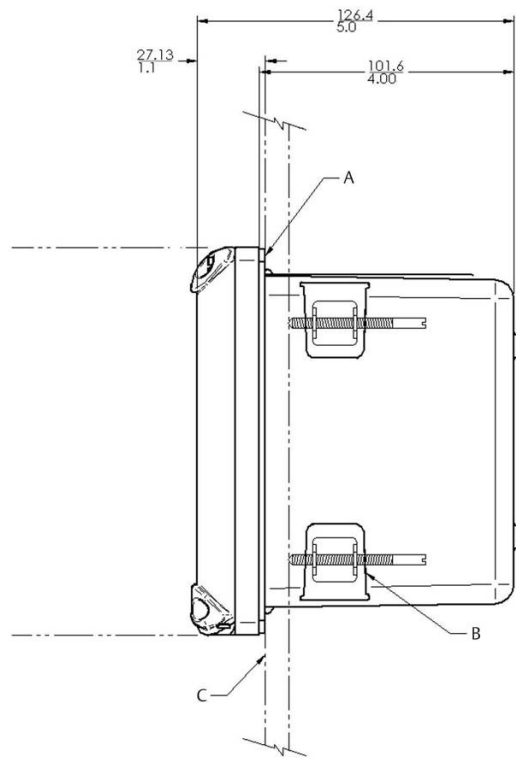


Figure 1-2: Panel mount bottom



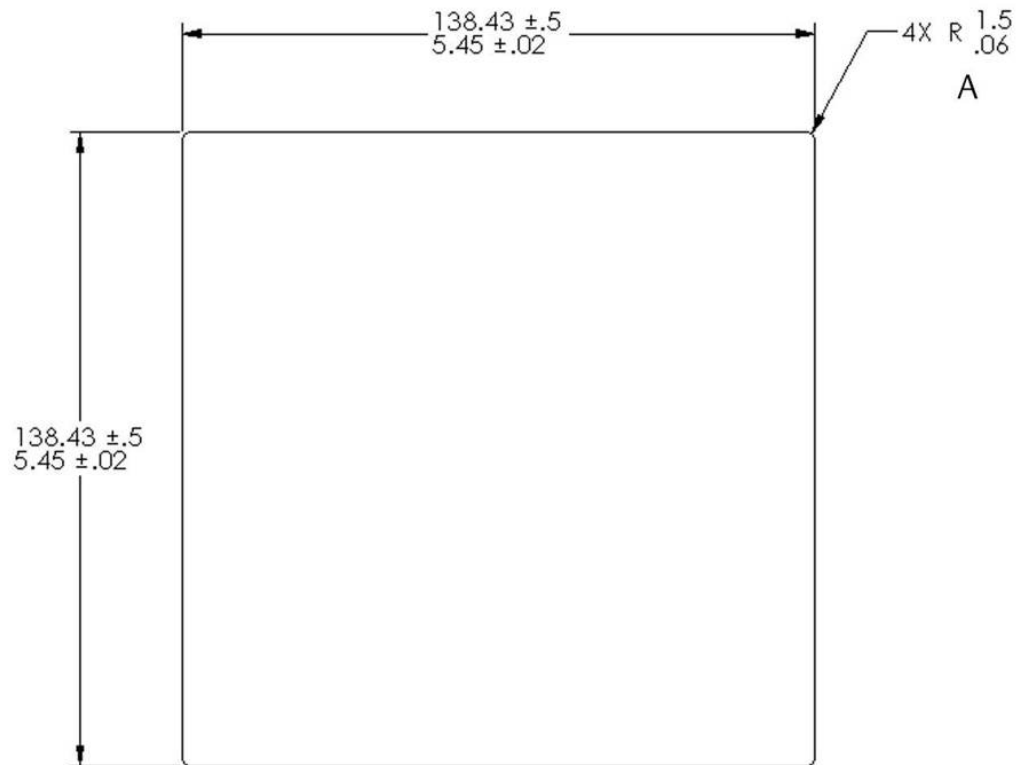
A. Six conduit openings

Figure 1-3: Panel mount side



- A. Panel mount gasket
- B. Four mounting brackets and screws provided with transmitter
- C. Panel supplied by others: maximum thickness 0.375 in (9.52 mm)

Figure 1-4: Panel mount cut-out

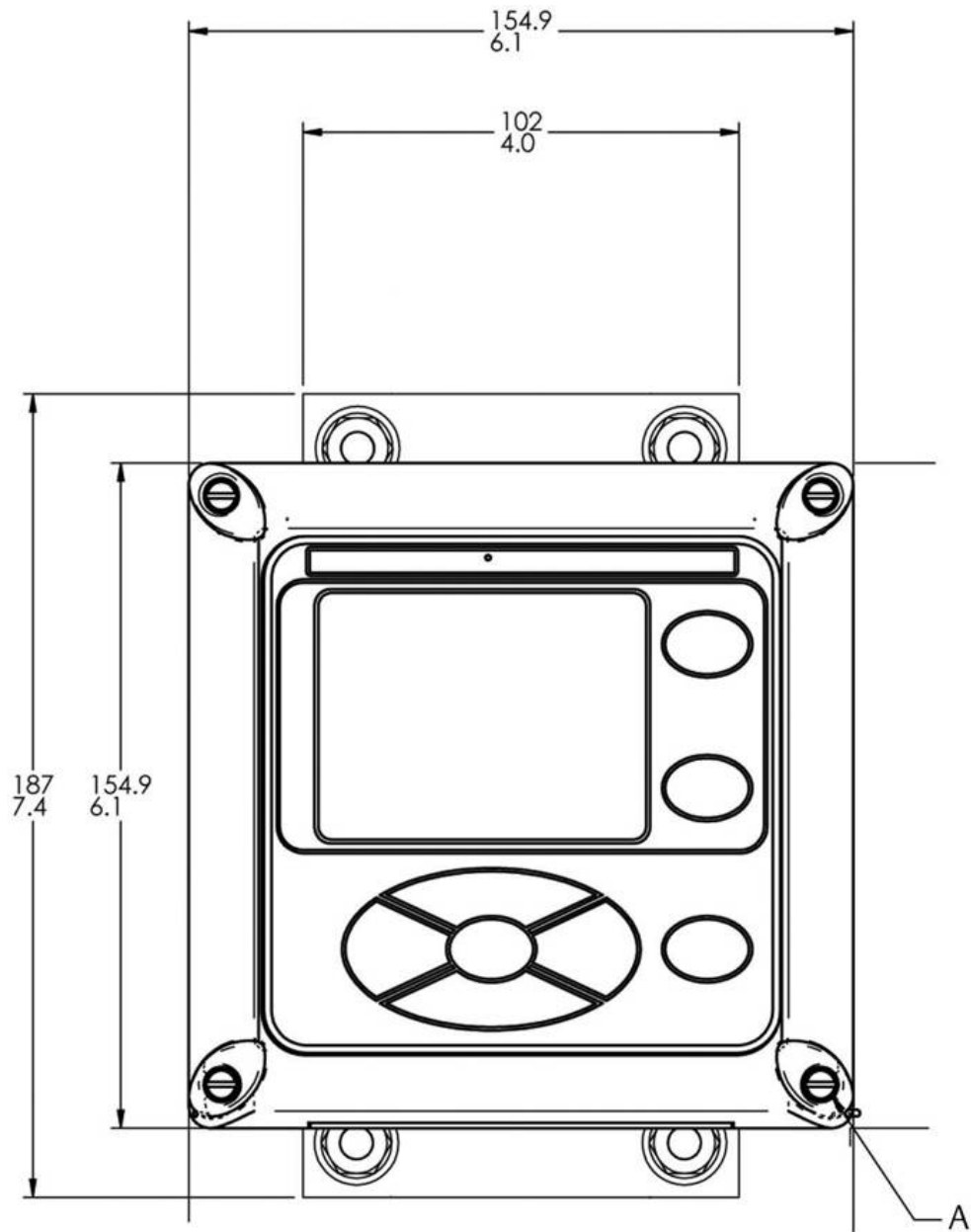


A. Maximum radius

Note

Panel mounting seal integrity (4/4X) for outdoor applications is the end user's responsibility.

Figure 1-5: Wall mount front



A. Four cover screws

Figure 1-6: Wall mount side

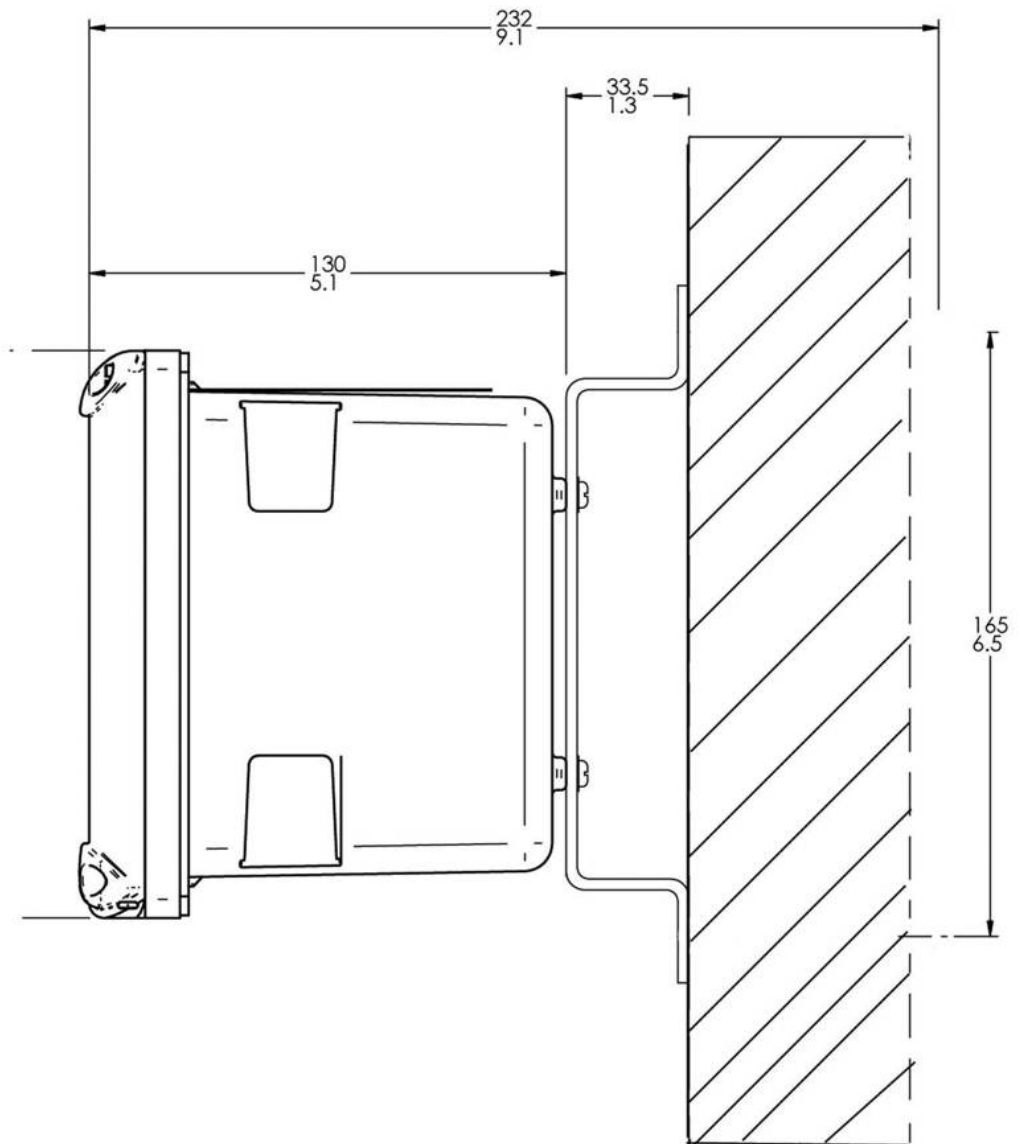
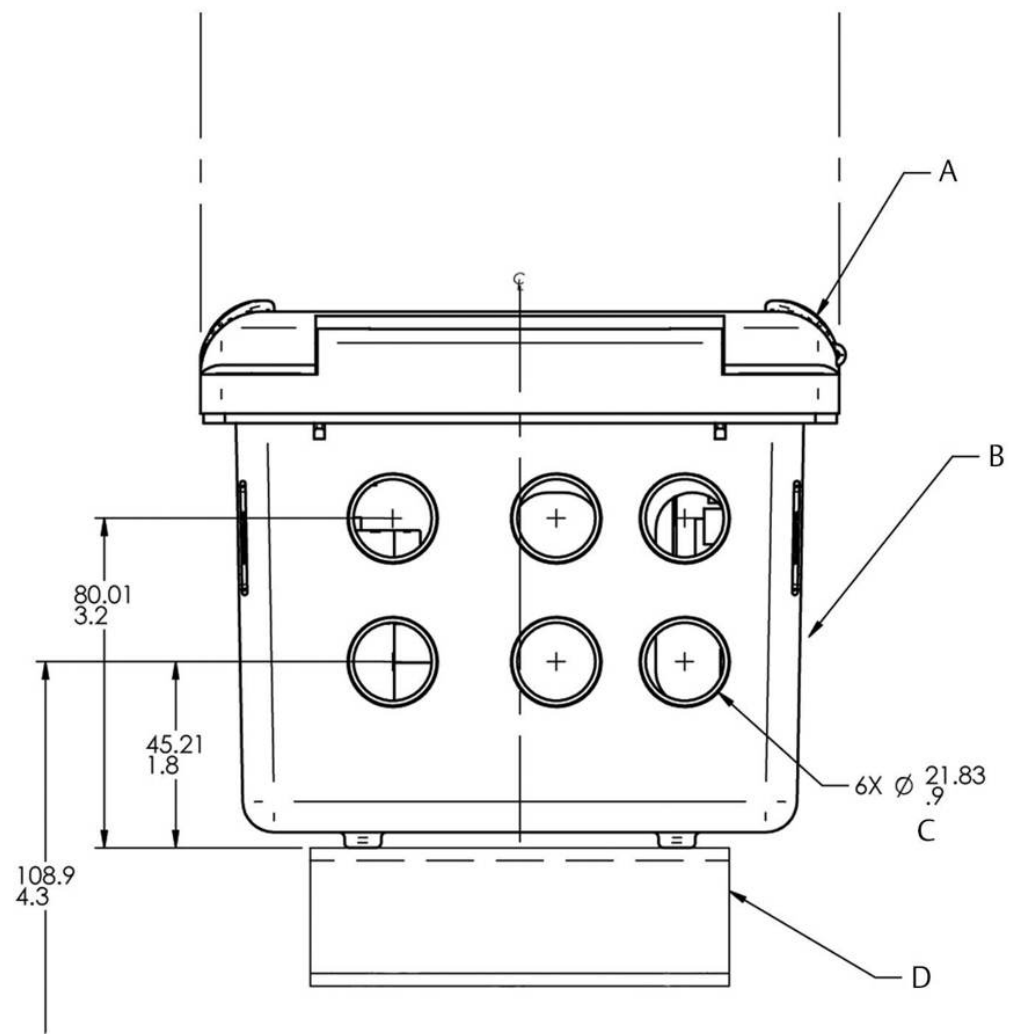


Figure 1-7: Pipe mount bottom



- A. Front panel
- B. Panel and pipe mount enclosure
- C. Conduit openings
- D. 2-in. (51 mm) pipe mount bracket

2 Wiring

2.1 General wiring information

The transmitter includes removable connectors and slide-out signal input boards for sensors. The front panel is hinged at the bottom. The panel swings down for easy access to the wiring locations.

2.1.1 Removable connectors and signal input boards

The transmitter uses removable signal input boards to facilitate wiring and installation. If using the Profibus® protocol, you need to use a communication board as well.

You can remove each of the signal boards either partially or completely from the enclosure for wiring. The transmitter has three slots for placement of up to two signal input boards and one communication board.

Slot 1 - left	Slot 2 - center	Slot 3 - right
Communication board (only for Profibus)	Input board 1	Input board 2

2.1.2 Wire the signal input boards

Slots 2 and 3 are for signal input measurement boards.

Procedure

1. Wire the sensor leads to the measurement board following the lead locations marked on the board.
2. Carefully slide the wired board fully into the enclosure slot and take up the excess sensor cable through the cable gland.
3. Tighten the cable gland nut to secure the cable and ensure a sealed enclosure.

2.1.3 Digital communication boards

HART® and Profibus® DP communication boards will be available in the future as options for Rosemount 1056 digital communication with a host.

The HART board supports Bell 202 digital communication over an analog 4-20 mA current output. Profibus DP is an open communication protocol that operates over a dedicated digital line to the host.

2.1.4 Alarm relays

Emerson supplies four dry contact alarm relays with the switching power supply (85 to 264 Vac, 03 order code) and the 24 Vdc power supply (20 - 30 Vdc, 02 order code). You can use all relays for process measurement(s) or temperature. You can also configure any relay as a fault alarm instead of a process alarm. In addition, you may configure any relay independently and program it to activate pumps or control valves.

All process alarms, alarm logic (high or low activation or user-selectable percentage [USP*]), and deadband are user-programmable. You may program the USP* alarm to

activate when the conductivity is within a user-selectable percentage of the limit. USP* alarming is available only when a contacting conductivity measurement board is installed.

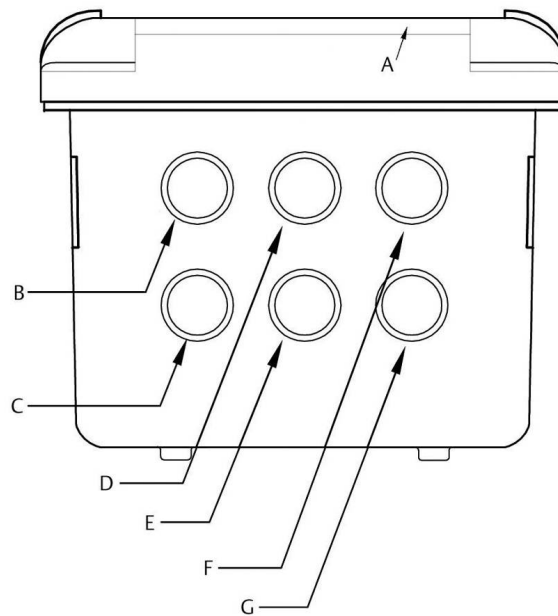
2.2 Preparing conduit openings

There are six conduit openings in all configurations of the transmitter.

Note

Emerson fits four of the openings with plugs upon shipment.

Figure 2-1: Conduit openings



- A. Front panel/keypad
- B. Power leads
- C. Alarm relay leads
- D. Sensor 1 cable
- E. 4-20 mA/HART®/Profibus® leads
- F. Sensor 2 cable
- G. Spare opening

NOTICE

Always use proper cable gland fittings and plugs for wire and cable installations.

Conduit openings accept 0.5 in (13 mm) conduit fittings or PG13.5 cable glands. To keep the case watertight, block unused openings with Type 4X or IP66 conduit plugs.

NOTICE

Use watertight fittings and hubs that comply with your requirements. Connect the conduit hub to the conduit before attaching the fitting to the transmitter.

2.3 Preparing sensor cable

The Rosemount 1056 is intended for use with all Rosemount sensors. Refer to the sensor Quick Start Guide for details on preparing sensor cables.

2.4 Power, output, and sensor connections

2.4.1 Power wiring

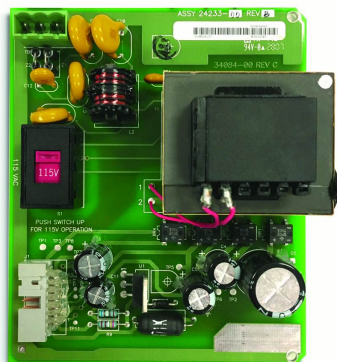
Emerson offers three power supplies for the Rosemount 1056.

- 115/230 Vac power supply (01 ordering code)
- 24 Vdc (20-30 V) power supply (02 ordering code)
- 85-265 Vac switching power supply (03 ordering code)

AC mains (115 or 230 V) leads and 24 Vdc leads are wired to the power supply board, which is mounted vertically on the left side of the main enclosure cavity. Each lead location is marked clearly on the power supply board. Wire the power leads to the power supply board using the lead markings on the board.

The grounding plate is connected to the earth terminal of power supply input connector TB1 on the 01 (115/230 Vac) and 03 (85-265 Vac) power supplies. The green screws on the grounding plate are intended for connection to some sensors to minimize radio frequency interference. The green screws are not intended to be used for safety purposes.

Figure 2-2: 115/230 Vac power supply (01 ordering code)



NOTICE

The AC power switch is shipped in the 230 Vac position. Adjust the switch upwards to the 115 Vac position for 110 Vac to 120 Vac operation.