Rosemount 3490 Series
4–20 mA + HART Compatible Controller

Quick Start Guide for Installation

ROSEMOUNT

EMERSON™
Process Management

⚠ **WARNING**

**Failure to follow safe installation guidelines could result in death or serious injury**

- The Rosemount 3490 Series control unit ("control unit") must not be installed in a hazardous area. The control unit can be connected to transmitters that are installed in a hazardous area

- Use the control unit only as specified in this guide and the product reference manual. Refer to the Rosemount 3490 Series Reference Manual (Document 00809-0100-4841) and Rosemount3490 Series Safety Manual (Document 00825-0200-4841) for more instructions

- The control unit must be installed, connected, commissioned, operated, and maintained by suitably qualified personnel only, observing national and local requirements that may apply

Electrical shock could cause death or serious injury

- Make sure that the control unit is not powered when removing the terminal cover and making terminal connections

- If the control unit is installed in a high voltage environment and a fault condition or installation error occurs, high voltage may be present on leads and terminals

Symbols used in this guide

Document Number
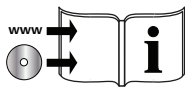
- Refer to numbered document on the supplied CD-ROM or on www.rosemount.com for further information.

- An electronic device with Adobe Acrobat software installed is needed to view the document contents.

- A default configuration for a control unit as shipped from the factory.

- Switch on/off power only to the control unit.

Required equipment

Standard tools e.g. screwdrivers and wire strippers/cutters.

Contents

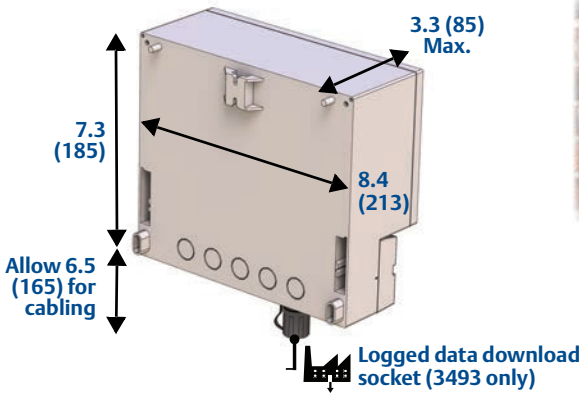# Installation: Wall-mount (IP65) Unit

Note

- The control unit must only be installed in a non-hazardous area (ordinary location), but it can be connected to transmitters installed in hazardous (classified) areas.
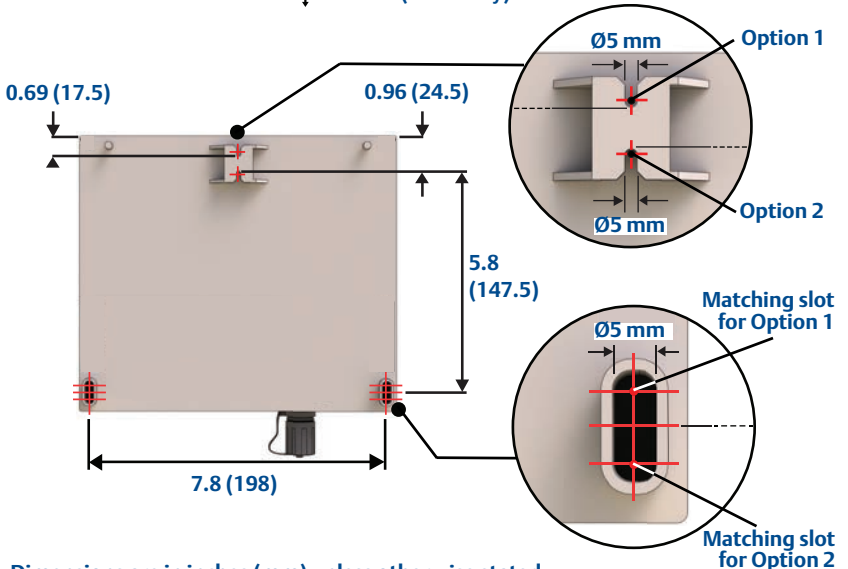
Mounting the (IP65) control unit

- The **wall-mount** control unit (IP65 box) is for inside or outside, but requires protection from direct sunlight, flooding, and heavy rain.

For safety, the wall or other mounting structure should support four times the 1.4 kg (mains power) or 1.0 kg (DC power) mass of the unit

3.3 (85) Max.

7.3 (185)

8.4 (213)

Allow 6.5 (165) for cabling

Logged data download socket (3493 only)

The cabinet and wall fixings are not supplied

0.69 (17.5)

0.96 (24.5)

Ø5 mm

Option 1

Option 2

Ø5 mm

5.8 (147.5)

Matching slot for Option 1

Ø5 mm

7.8 (198)

Matching slot for Option 2

Note: Dimensions are in inches (mm) unless otherwise stated

3

Make the electrical connections

Wall-mount (IP65 box) cable glands and blanking/stopping plugs
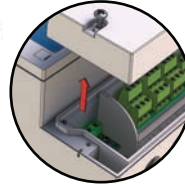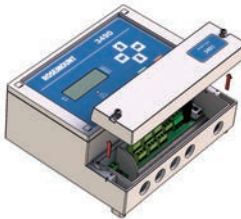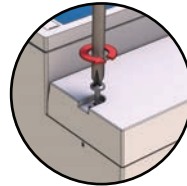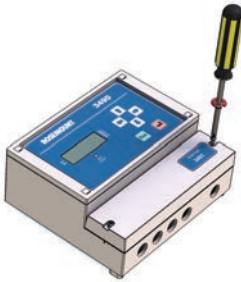
1. Remove the terminal cover

3491/2

3493

⚠️ 🔲 **Power off control unit**

Remove all transit caps if they are fitted

Do not remove the pre-fitted RS232 socket

Undo 2 x terminal cover screws

2. Fit cable glands (*supplied*) in the pre-drilled holes ready for cabling
3. Fit blanking/stopping plugs (*supplied*) in the unused holes

Cable glands (*as supplied*)

Blanking/stopping plugs (*as supplied*)

Wall-mount (IP65 box) power supply connections

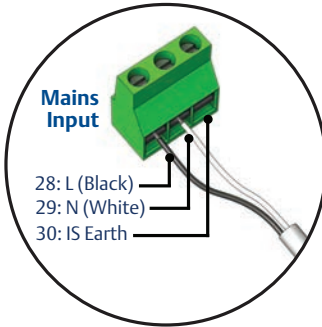1. Connect the mains 115/230 Vac or 24 Vdc supply (depending on the control unit):

> ⚠️ 🔘 **Always switch off the power when doing these connections**

> ⚠️ **Terminal 30 must be connected to an Intrinsically Safe Earth/Ground if the transmitter (wired to Terminals 1 and 2) is in a hazardous area**
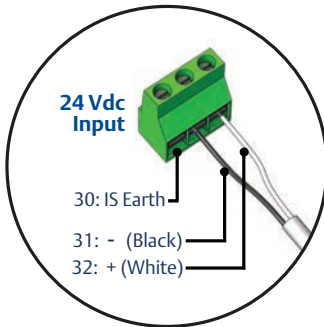
On a mains-powered unit:

Mains Input

28: L (Black)
29: N (White)
30: IS Earth

> ⚠️ **Set the voltage selection switch to 115 or 230 Vac**

On a 24 Vdc-powered unit:

24 Vdc Input

30: IS Earth
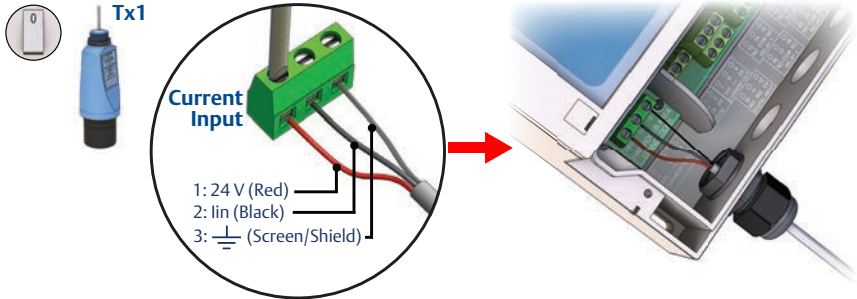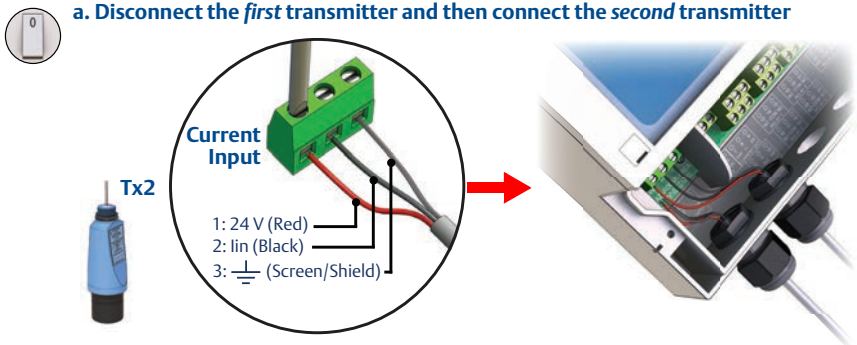31: − (Black)
32: + (White)

Note

- Laws and standards for electrical wiring vary from country to country. The colors shown for the flexible cable wiring shown in this QIG are for the United States of America. It is very important to check the local regulations for electrical wiring involving mains/wall power. If you have any doubts at all, get help from a qualified electrician.

Wall-mount (IP65 box) current input (transmitter) connections

1. Connect the *single* 4–20 mA or HART transmitter (to a Rosemount 3491 or 3493) or the *first* of two HART transmitters (to a Rosemount 3492 only):
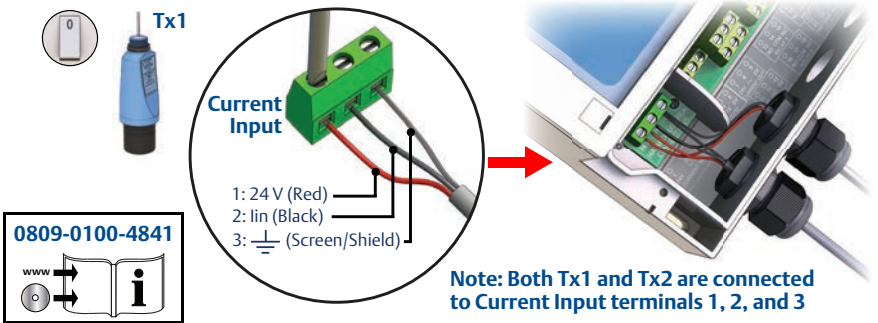
Tx1

Current Input

1: 24 V (Red)
2: Iin (Black)
3: ⏚ (Screen/Shield)

2. Power on, and respond to on-screen prompts until a measurement is displayed.

3. Connect the *second* HART transmitter (**to a Rosemount 3492 only**):

a. Disconnect the *first* transmitter and then connect the *second* transmitter

Current Input

Tx2

1: 24 V (Red)
2: Iin (Black)
3: ⏚ (Screen/Shield)

b. Power on, and respond to on-screen prompts until a measurement is displayed.

4. Re-connect the *first* HART transmitter (**to a Rosemount 3492 only**):

a. Connect the first transmitter again (do not disconnect the second transmitter).

Tx1

Current Input

1: 24 V (Red)
2: Iin (Black)
3: ⏚ (Screen/Shield)

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Note: Both Tx1 and Tx2 are connected to Current Input terminals 1, 2, and 3

b. Power on, and respond to on-screen prompts until a measurement is displayed.
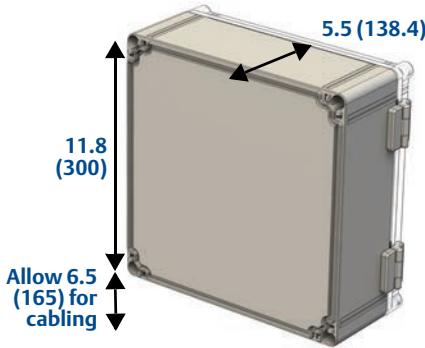
Installation: Wall-mount (NEMA 4X) Unit

Note

- The control unit must only be installed in a non-hazardous area (ordinary location), but it can be connected to transmitters installed in hazardous (classified) areas.

Mounting the (NEMA 4X) control unit

- The **wall-mount** control unit (NEMA 4X box) is for inside or outside, but requires protection from direct sunlight, flooding, and heavy rain.

5.5 (138.4)

Note: Dimensions are in inches (mm) unless otherwise stated
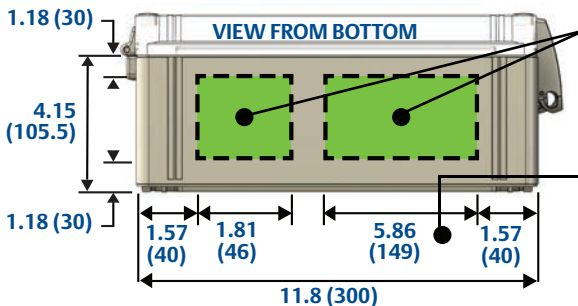
11.8 (300)

Allow 6.5 (165) for cabling

For safety reasons, the wall or other mounting structure should support four times the 3.5 kg (mains power) or 3.1 kg (DC power) mass of the unit.

Select a screw length that is suitable for the type of mounting surface.

12.9 (328)

11 (280)

Ø8 mm

4 mounting holes

11 (280)

1.18 (30)

VIEW FROM BOTTOM
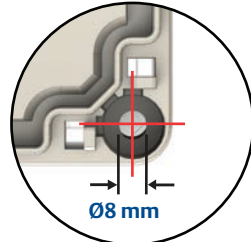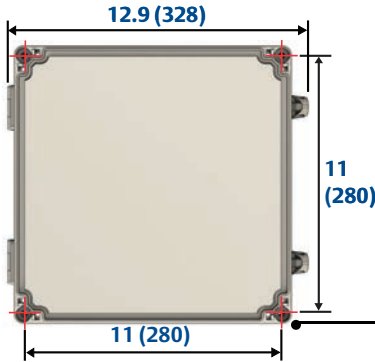
Holes can be drilled within these areas for cable glands (*not supplied*) to be fitted

4.15 (105.5)

1.18 (30)

1.57 (40)   **1.81 (46)**   **5.86 (149)**   **1.57 (40)**

This dimension is reduced to 3.9 in. (100 mm) on the 3493 because of the fitted RS232 data logging socket (see page 8)

11.8 (300)

Make the electrical connections

Wall-mount (NEMA 4X box) cable glands

1. Remove the terminal cover

3491 and 3492   **3493**
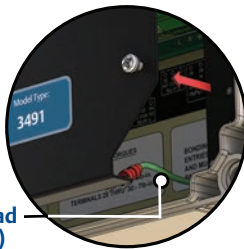

Power off control unit

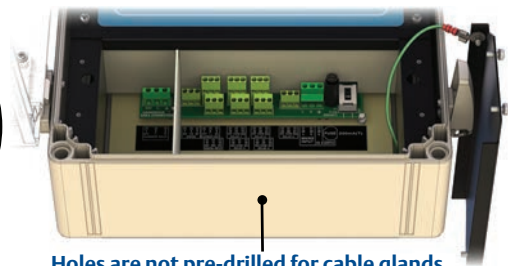**Do not remove the factory pre-fitted RS232 data-download socket from the Rosemount 3493**

Undo 4 x terminal cover screws

⚠ **Carefully lift the terminal cover away from the enclosure. An Earth lead connects the terminal cover to the enclosure.**

Earth lead (green)

Holes are not pre-drilled for cable glands

2. If not already done so, drill holes for cable glands (see **page 7**).

   Make an allowance for the factory pre-fitted RS232 data-download socket on the Rosemount 3493 control unit.

3. Fit cable glands (*not supplied*) in the new drilled holes, ready for cabling.

Wall-mount (NEMA 4X box) power supply connections

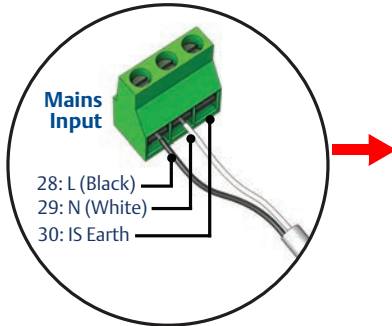1. Connect the mains 115/230 Vac or 24 Vdc supply (depending on the control unit):

> ⚠️ **Always switch off the power when doing these connections**
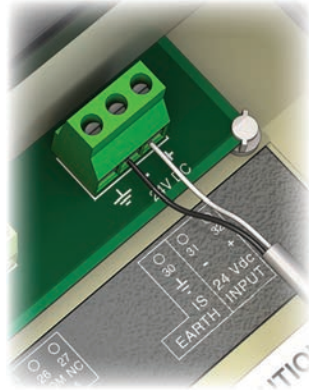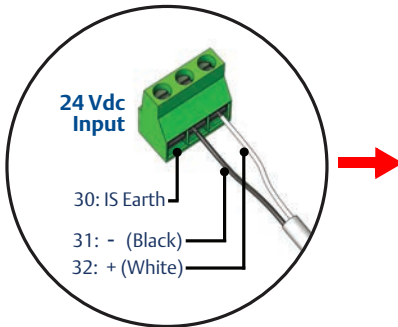
> ⚠️ **Terminal 30 must be connected to an Intrinsically Safe Earth/Ground if the transmitter (wired to Terminals 1 and 2) is in a hazardous area**

On a mains-powered unit:

Mains Input

28: L (Black)
29: N (White)
30: IS Earth

> ⚠️ **Set the voltage selection switch to 115 or 230 Vac**

On a 24 Vdc-powered unit:

24 Vdc Input

30: IS Earth
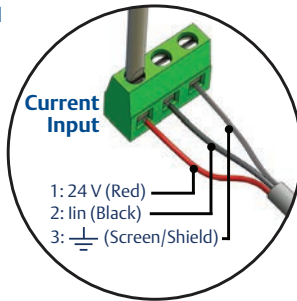31: − (Black)
32: + (White)

Note

- Laws and standards for electrical wiring vary from country to country. The colors shown for the flexible cable wiring shown in this QIG are for the United States of America. It is very important to check the local regulations for electrical wiring involving mains/wall power. If you have any doubts at all, get help from a qualified electrician.

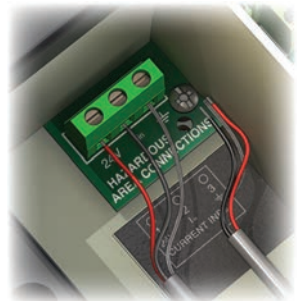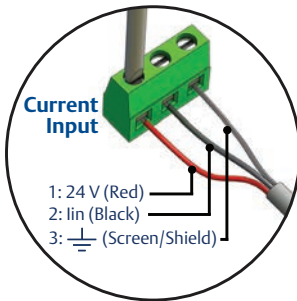## Wall-mount (NEMA 4X box) current input (transmitter) connections

1. Connect the *single* 4–20 mA or HART transmitter (to a Rosemount 3491 or 3493) or the *first* of two HART transmitters (to a Rosemount 3492 only):

Tx1

Current Input

1: 24 V (Red)
2: Iin (Black)
3: ⏚ (Screen/Shield)

2. Power on, and respond to on-screen prompts until a measurement is displayed.

3. Connect the *second* HART transmitter (**to a Rosemount 3492 only**):

   a. Disconnect the *first* transmitter and then connect the *second* transmitter.

Current Input

Tx2

1: 24 V (Red)
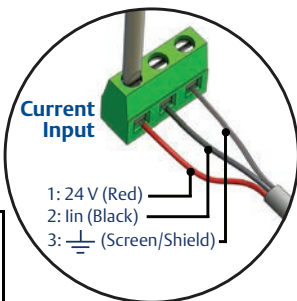2: Iin (Black)
3: ⏚ (Screen/Shield)

   b. Power on, and respond to on-screen prompts until a measurement is displayed.

4. Re-connect the *first* HART transmitter (**to a Rosemount 3492 only**):

   a. Connect the first transmitter again (do not disconnect the second transmitter).

Tx1

Current Input

1: 24 V (Red)
2: Iin (Black)
3: ⏚ (Screen/Shield)

0809-0100-4841

www

   Note: Both Tx1 and Tx2 are connected to Current Input terminals 1, 2, and 3.

   b. Power on, and respond to on-screen prompts until a measurement is displayed.
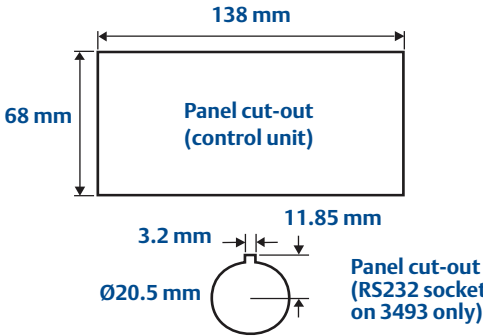
Installation: Panel-mount Unit
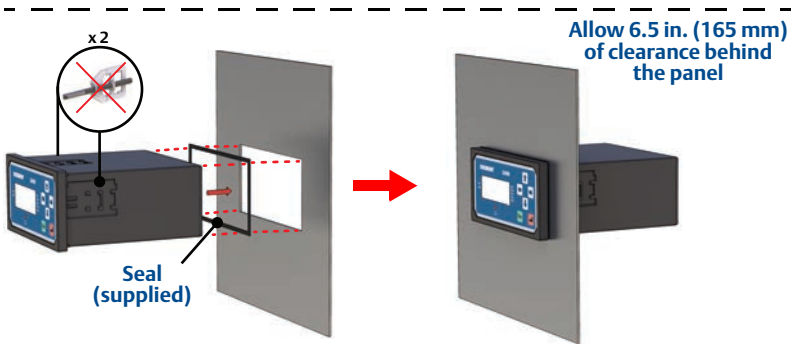
Mounting the control unit in a panel

- The **panel-mount** control unit is a standard DIN size, designed for direct mounting in a control room panel. It requires a weatherproof environment
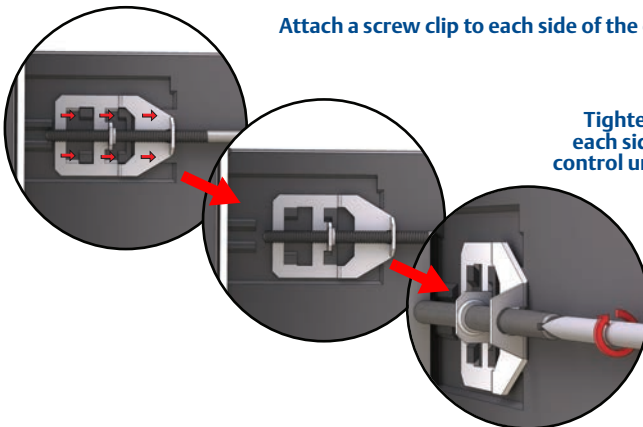
For safety, the panel should be strong enough to support the 1.2 kg (mains power) or 0.8 kg (DC power) mass of the unit.

138 mm

68 mm

Panel cut-out
(control unit)

11.85 mm

3.2 mm

Ø20.5 mm

Panel cut-out
(RS232 socket
on 3493 only)

The panel (not supplied) can have a thickness of 1.5 to 10 mm

x 2

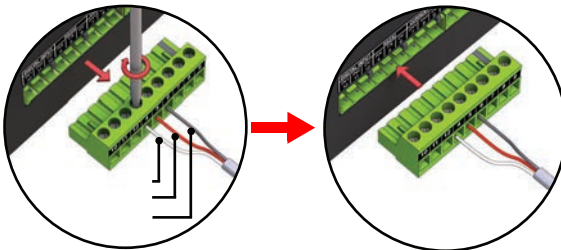**Allow 6.5 in. (165 mm) of clearance behind the panel**

Seal
(supplied)

Attach a screw clip to each side of the control unit

**Tighten the screw on each side to clamp the control unit to the panel**

Make the electrical connections

- A logged data download (RS232) socket is supplied with the Rosemount 3493 panel-mount unit. (The socket is factory-fitted and pre-wired on wall-mount units)


Power off control unit

See page 11 for panel cut-out dimensions

RS232 socket flying lead

RS232 socket with cap fitted

Use the supplied mini-B nut to secure the socket

The socket flying lead must be wired to terminals 4, 5, and 6 at the rear of the unit
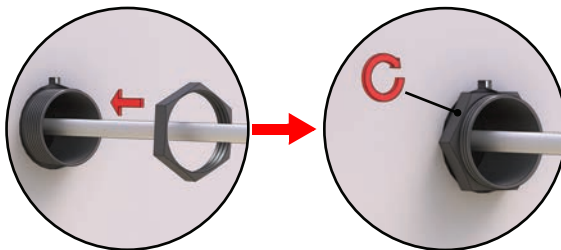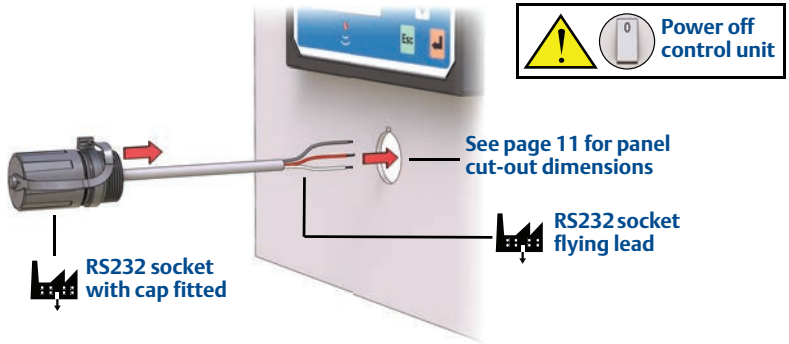
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- When there is data to be downloaded using Rosemount Logview or other software, connect the RS232 cable supplied with the socket
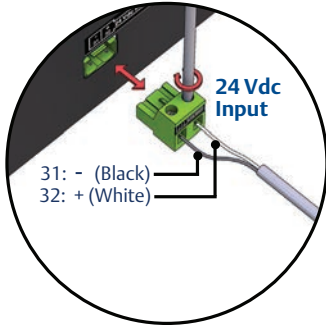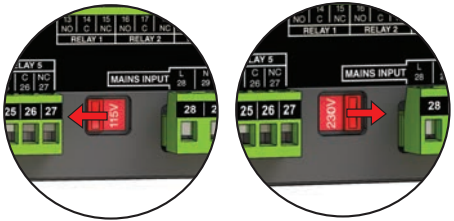

RS232 cable

Unscrewed socket cap

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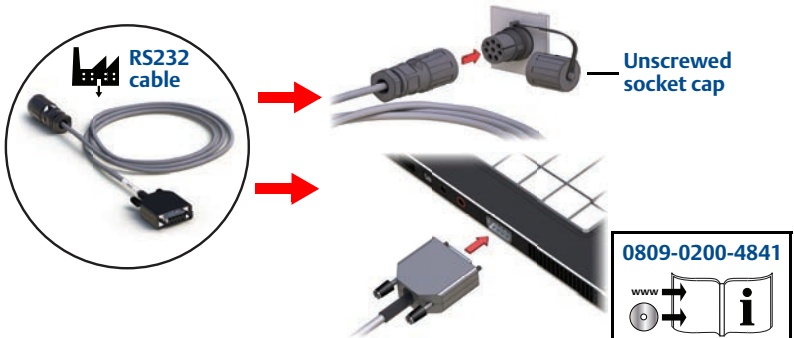
Panel-mount power supply connections

1. Connect the mains 115/230 Vac or 24 Vdc supply (depending on the control unit):

> ⚠️ **Always switch off the power when making these connections**

Mains Input

28: L (Black)
29: N (White)
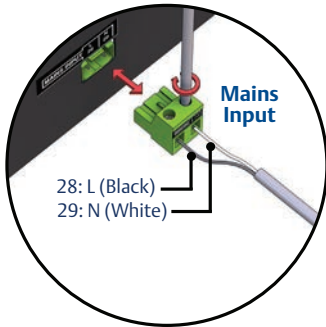
> ⚠️ **On a mains-powered unit, set the voltage selection switch to 115 or 230 Vac**

24 Vdc Input

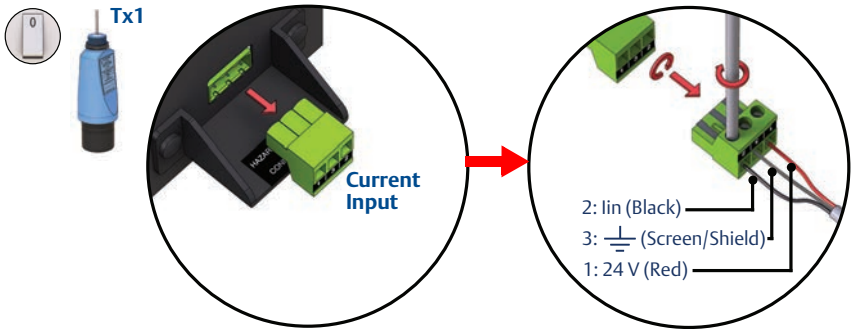31: − (Black)
32: + (White)

> ⚠️ **Terminal 30 must be connected to an Intrinsically Safe Earth/Ground if the transmitter (wired to Terminals 1 and 2) is in a hazardous area**

Note

- Laws and standards for electrical wiring vary from country to country. The colors shown for the flexible cable wiring shown in this QIG are for the United States of America. It is very important to check the local regulations for electrical wiring involving mains/wall power. If you have any doubts at all, get help from a qualified electrician.
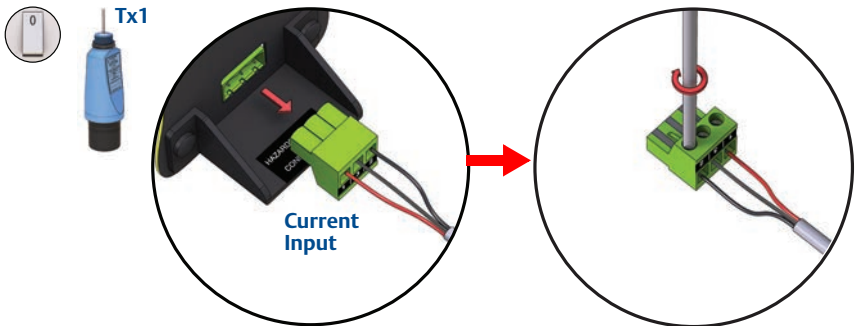
Panel-mount current input (transmitter) connections

1. Connect the *single* 4–20 mA or HART transmitter (to a Rosemount 3491 or 3493) or the *first* of two HART transmitters (to a Rosemount 3492 only):
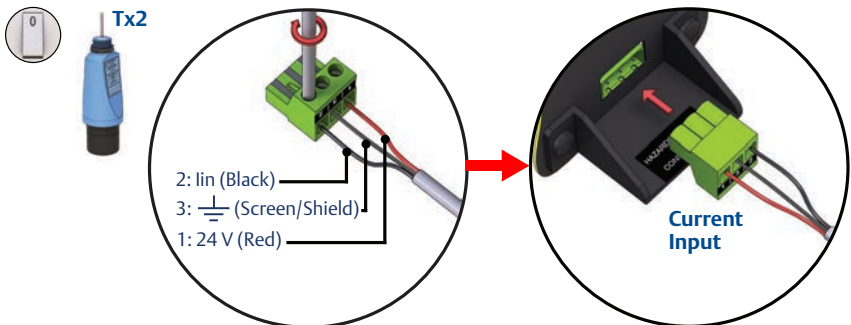

Tx1

Current Input

2: Iin (Black)
3: ⏚ (Screen/Shield)
1: 24 V (Red)

2. Power on, and respond to on-screen prompts until a measurement is displayed.
3. Connect the *second* HART transmitter (**to a Rosemount 3492 only**):

a. Disconnect the *first* transmitter.


Tx1

Current Input

b. Connect the *second* transmitter.

Tx2

2: Iin (Black)
3: ⏚ (Screen/Shield)
1: 24 V (Red)

Current Input

c. Power on, and respond to on-screen prompts until a measurement is displayed.

4. Re-connect the *first* HART transmitter (**to a Rosemount 3492 only**):

   a. Connect the *first* transmitter again (do not disconnect the second transmitter).

   Tx1

   Current Input

   Tx1

   Tx2

   Current Input

   0809-0100-4841

   www
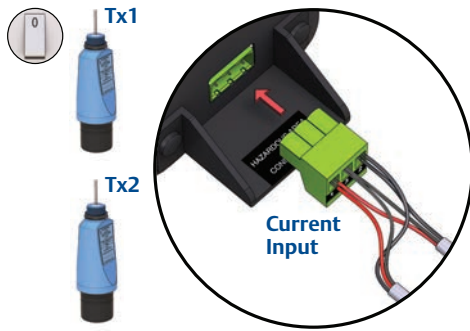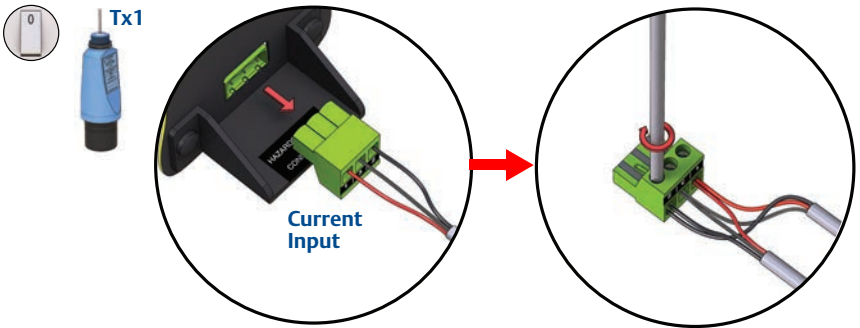
   b. Power on, and respond to on-screen prompts until a measurement is displayed.

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