

# 2600T Pressure Transmitters

## 266 Modbus<sup>®</sup> multivariable

The most accurate multivariable  
ABB has ever produced.

Measurement made easy



## Introduction

This is a startup guide designed for typical installations only. Installations must be performed by personnel knowledgeable of the theory of gas measurement and the Totalflow<sup>®</sup> 266 MODBUS<sup>®</sup> Multivariable Transmitter. Installation personnel must also be knowledgeable of local and national codes as it applies to hazardous areas, communication wiring, and electrical wiring.

Read and understand the contents of this startup guide prior to beginning installation of the equipment. If you have questions that are not answered in this guide or other documentation listed in the following section, call your local Totalflow representative, or call the technical support number listed on the back page of this guide.

Although there may be alternate methods of installation, it is recommended that technicians perform the guide procedures in the presented order.

# Contents

<b>Introduction</b> .....	<b>1</b>
<b>Additional information</b> .....	<b>3</b>
<b>Assumptions</b> .....	<b>3</b>
<b>1 Safety symbol conventions</b> .....	<b>4</b>
1.1 Potential safety hazards.....	5
<b>2 Unpack and inspect</b> .....	<b>5</b>
<b>3 Hardware specifications and installation</b> .....	<b>5</b>
3.1 Hardware specifications .....	5
3.2 Mounting options .....	6
3.2.1 Direct mount installation.....	6
3.2.2 Pipe mount installation .....	7
3.3 Leak test manifold and tubing connections .....	11
3.4 DIV 1 explosion-proof RTD installation.....	12
<b>4 Electrical and communication wiring</b> .....	<b>15</b>
4.1 Transmitter protective conductor, ground, and integrated surge protection .....	15
4.2 Transmitter wiring.....	15
4.3 Host power supply and communication wiring.....	18
4.3.1 Unknown host power supply and communication wiring .....	18
4.3.2 Connect the transmitter to an XSeries host product.....	19
<b>5 XSeries host transmitter configuration</b> .....	<b>24</b>
5.1 Add and set up the XMV Interface application in PCCU32 .....	24
5.2 Configure the XMV from PCCU .....	27
5.3 Configure multiple transmitters for an RS-485 Bus .....	29
<b>6 Transmitter configuration for an unknown host</b> .....	<b>30</b>
6.1 HMI menu navigation .....	30
6.2 Configuration .....	30
6.3 Communication setup.....	31
<b>7 Troubleshooting</b> .....	<b>32</b>

## Additional information

Additional free publications for the 266 MODBUS® Multivariable Transmitter are available for download from the [ABB Library Download Center](#):

<b>Related documents</b>	<b>Document number</b>
266 MODBUS® multivariable transmitter user manual	<a href="#">2105216</a>
266 Pressure transmitter short operating instructions	<a href="#">2105549</a>
266JSH/JST MODBUS® multivariable transmitter data sheet	<a href="#">2101130</a>
XSeries TFIO module user manual	<a href="#">2101226</a>
XSeries <sup>G4</sup> flow computer user manual	<a href="#">2103335</a>
XSeries <sup>G4</sup> remote controller user manual	<a href="#">2103334</a>
XSeries <sup>G5</sup> User Manual (XFC <sup>G5</sup> and XRC <sup>G5</sup> )	<a href="#">2106026</a>
TFIO Communication Interface Module (2100421) to XMV MODBUS® w/RTD user drawing	<a href="#">2102345</a>
XFC <sup>G4</sup> (Com2) ABB267/269 and ABB266 XMV user drawing	<a href="#">2105118</a>
XFC <sup>G4</sup> (Com2) IMV25 and ABB266 XMV user drawing	<a href="#">2105115</a>
XFC <sup>G4</sup> EX (Com2) ABB267/269 and ABB266 XMV user drawing	<a href="#">2105117</a>
XMV pipe mount bracket user drawing	<a href="#">2104265</a>
XRC <sup>G3</sup> (Com1) ABB267/269 and ABB266 XMV user drawing	<a href="#">2105114</a>
XRC <sup>G4</sup> (Com2) ABB267/269 and ABB266 XMV user drawing	<a href="#">2105113</a>
XRC <sup>G4</sup> (Com2) IMV25 and ABB266 XMV user drawing	<a href="#">2105116</a>

## Assumptions

Installation and maintenance must only be conducted by personnel authorized to work on electrical installations, and in accordance with relevant national and local codes.

The following assumptions apply to this startup guide:

- Because the transmitter was designed to adapt to different scenarios, the user can perform installation configurations based on specific site needs.
- This guide covers a standard configuration based on a common site scenario.

---

# 1 Safety symbol conventions

The following conventions are used throughout this document to bring attention to important information:



**DANGER – Serious damage to health / risk to life:** These symbols, and the signal word "DANGER", indicate imminent danger or electrical hazard. Failure to observe this safety information will result in death or severe injury. The text may state the hazard, how to avoid the hazard, and the result if not followed. The bolt is for electrical danger; the exclamation point is for general dangers.



**WARNING – Bodily injury.** These symbols, and the signal word "WARNING", indicate a potentially dangerous situation. Failure to observe this safety information could result in death or severe injury. The text may state the hazard, how to avoid the hazard, and the result if not followed. The bolt is for electrical warnings; the exclamation point is for general warnings.



**NOTICE – Equipment damage or loss of data.** This symbol indicates a potential for equipment damage, loss of data or other unintended outcomes. Failure to observe this information may result in damage to or destruction of the product and/or other system components.



**IMPORTANT NOTE:** This symbol indicates operator tips, particularly useful information, or important information about the product or its further uses.

Although "DANGER" and "WARNING" hazards are related to personal injury and "NOTICE" hazards are associated with equipment or property damage, understand that under certain operating conditions, operating damaged equipment can result in degraded system or process performance leading to serious or life-threatening injuries. Therefore, compliance with "DANGER", "WARNING" and "NOTICE" hazards is required at all times. For hazards specific to this device, see Section [1.1 Potential safety hazards](#) .

## 1.1 Potential safety hazards

The 266 MODBUS® multivariable transmitter equipment operates on 10.5 – 30 Vdc. Follow your company's policies and procedures when installing any electrical and/or measurement equipment. Always wear Personal Protective Equipment (PPE) per your company's policies and procedures.



**WARNING – Bodily injury.** Read and follow instructions contained in this guide before and during equipment installation. Failure to do so could result in bodily injury or equipment damage.

Refer to the 266 MODBUS® multivariable user manual, part number 2105216, if the location of installation is in an area where there may be the potential of an explosive atmosphere. Installations of this type must meet the requirements of product certification, local and national electrical codes, and your company policy.



**WARNING – Bodily injury.** The startup guide does not address any requirements for installation of product(s) in Classified Hazardous Locations.

---

## 2 Unpack and inspect

1. Inspect the shipping carton for damage.



**IMPORTANT NOTE:** If the shipping carton is damaged, keep it until the contents have been inspected for damage.

2. Unpack the 266 MODBUS® multivariable transmitter. Ensure that you have received all items on the packing list.
3. Verify that the correct transmitter has been shipped by comparing the model number to the packing slip.
4. Inspect the 266 MODBUS® multivariable transmitter exterior for damage.
5. Unpack and inspect optional equipment, if purchased.
6. Contact your ABB representative to replace any missing, incorrect, or damaged parts.

---

## 3 Hardware specifications and installation

### 3.1 Hardware specifications

The hardware specifications for the 266 MODBUS® multivariable transmitter are as follows:

- The transmitter measures static pressure, differential pressure, and process temperature in a gas, vapor, or liquid media.
- The transmitter is a 2-wire RS-485 MODBUS® device with two additional wires required for power.
- The transmitter has a permissible terminal voltage range of 10.5 – 30 Vdc.
- The current draw is 10 mA at 12 Vdc per 266 XMV.
- The transmitter can be set up to operate with all current Totalflow flow computers and controllers and should be wired to a serial communication port. Totalflow expansion modules such as TFIOs with serial ports also support connection with the XMV.

## 3.2 Mounting options

The 266 MODBUS® multivariable transmitter can be direct-mounted or pipe-mounted to the meter run. Proceed to the installation instructions best suited to the equipment purchased and the installation site.

For direct mount, go to section [3.2.1 Direct mount installation](#).

For pipe mount, go to section [3.2.2 Pipe mount installation](#).



**IMPORTANT NOTE:** Before beginning, review the materials required for installation.

### 3.2.1 Direct mount installation

The 266 MODBUS® multivariable transmitter can be direct-mounted either horizontally or vertically.

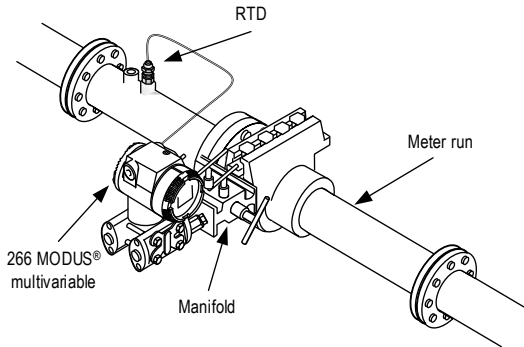
Materials:

- One (1) manifold (3- or 5-valve manifold determined by technician)
- Two (2) stabilized manifold connectors (compatible with manifold)

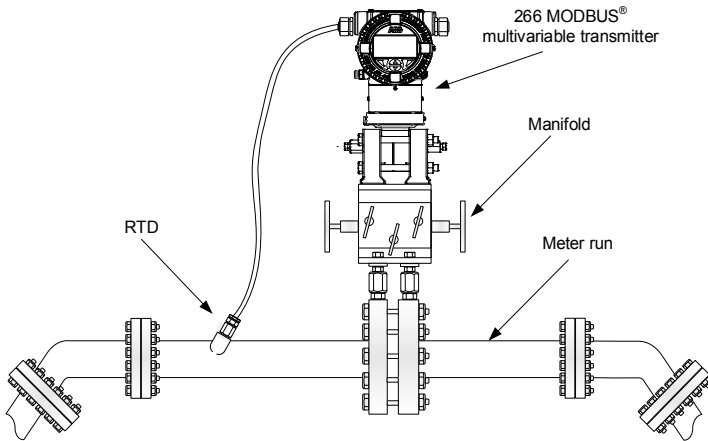
To direct mount the transmitter:

1. Determine where the transmitter is to be placed on the meter run, ensuring that the high side is upstream.
2. Install the stabilizer manifold connectors to the meter run orifice following the instructions supplied by the manufacturer ([Figure 1](#) or [Figure 2](#)).

**Figure 1: Horizontal assembly direct-mounted**



**Figure 2: Vertical assembly direct-mounted**



3. Align the sealing rings and bolt holes between the transmitter flange and manifold, then bolt the transmitter to the manifold.
4. Secure the manifold assembly to the meter run.

The transmitter is now direct-mounted. Go to section [3.3 Leak test manifold and tubing connections](#).

### **3.2.2 Pipe mount installation**

The following steps provide general instructions for pipe-mounting the horizontal flange transmitter using a vertical pipe mount kit.

Materials:

- One (1) pipe saddle with mounting hardware (size determined by technician)

- One (1) 2" x 40" pipe (length may be extended if mounting a solar panel)
- One (1) enclosure mounting kit (includes instructions, brackets, U-bolts and fastening hardware)

To pipe-mount the 266 MODBUS® multivariable transmitter assembly vertically:

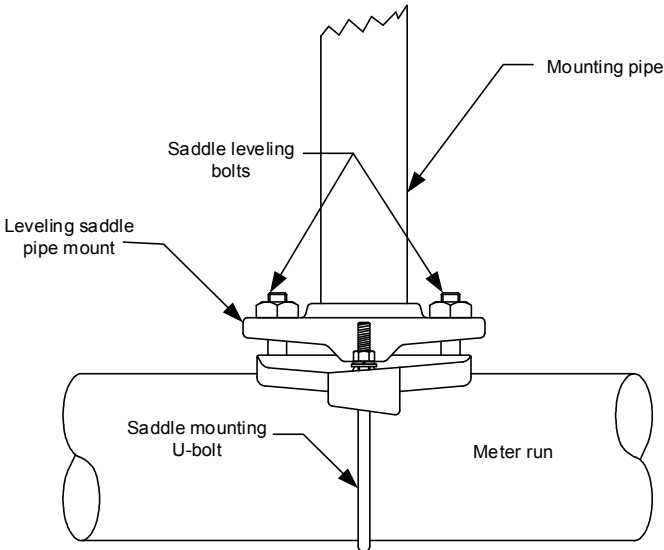
1. Determine where the 266 MODBUS® multivariable transmitter is to be positioned on the mounting pipe.



**IMPORTANT NOTE:** Select a location that allows easy access and is close to equipment.

2. Position the pipe saddle on the meter run and temporarily attach the saddle to the meter run pipe using the associated hardware ([Figure 3](#)). Do not tighten.

**Figure 3: Pipe-mounted**

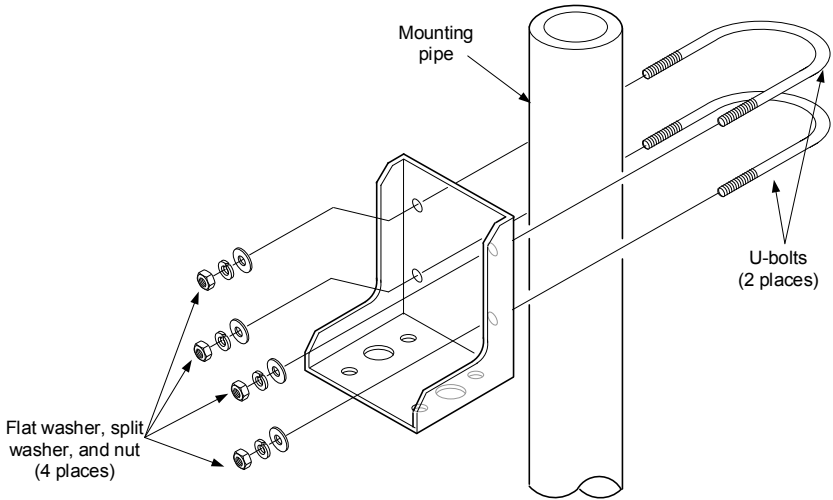


3. Thread the mounting pipe into the saddle and tighten securely.
4. Level the mounting pipe:
  - a. Level the pipe and saddle so that it is perpendicular to the meter run and tighten the saddle mounting U-bolt.
  - b. Level the pipe side-to-side using the saddle leveling bolts (if available) on the mounting saddle.
5. Securely fasten the saddle mount using the provided U-bolt.



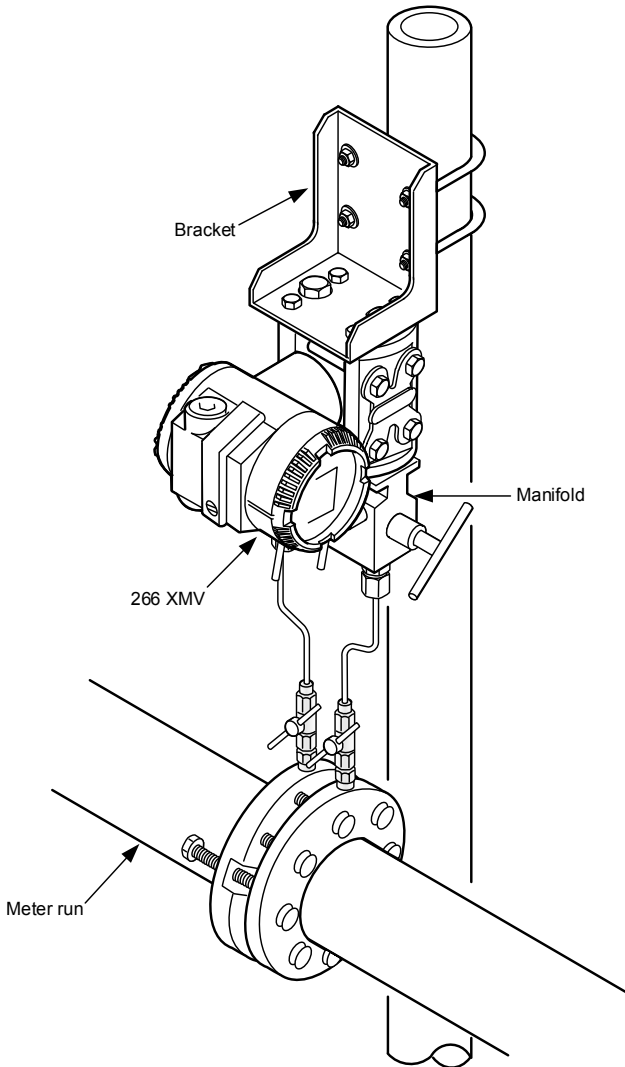
6. Secure the mounting bracket to the mounting pipe with two U-bolts, flat washers, split washers and bolts ([Figure 4](#)).

**Figure 4: Mounting bracket assembly**



7. Adjust the height of the mounting bracket to allow for the transmitter, manifold, and tubing ([Figure 5](#)).

**Figure 5: Horizontal flange transmitter, pipe-mounted**



8. Attach the transmitter flange to the underside of the bracket, using four bolts.
9. Align the sealing rings and bolt holes between the manifold and the transmitter. Bolt the transmitter to the manifold.
10. Locate the tap valves on the meter run orifice and the corresponding high and low inputs on the installed manifold.
11. Measure, cut, and bend the tubing to ease installation of the fittings into the orifice tab valves and the manifold.
12. Install the nut and ferrule onto the tubing end.

13. Insert the ferrule into the fitting and slide the nut onto the ferrule; engage the nut threads and tighten.



**NOTICE – Equipment damage.** To avoid damage to the stainless-steel tubing, fittings, and valves, always use a backup wrench to stabilize and eliminate tension on both sides of the connection when tightening. Damaged connections may introduce leaks into the system resulting in inaccurate measurement.

14. Repeat step 13 for each tubing connection point.



**IMPORTANT NOTE:** To rotate the housing and display, follow the instructions detailed in the 266 MODBUS® multivariable transmitter user manual.

The transmitter is now pipe-mounted. Go to section [3.3 Leak test manifold and tubing connections](#).

### 3.3 Leak test manifold and tubing connections

Manifold and tubing connections must be leak-tested prior to power application. Connection leaks between the orifice tap valves, the manifold, and the transmitter can introduce measurement and calibration errors.

Materials:

- Liquid leak detector
- Pressure calibration device



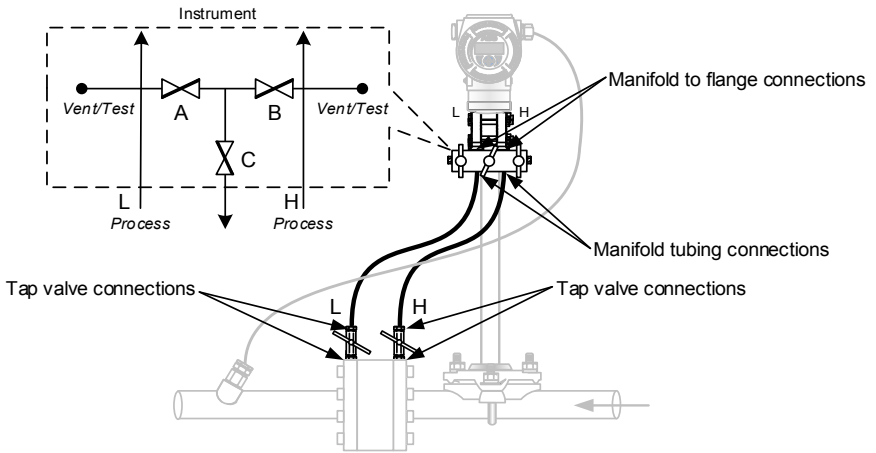
**DANGER – Serious damage to health/risk to life.**

Manifold and tubing connection leaks could create a build-up of explosive gases in the immediate vicinity. Power should not be applied before the tubing and connections are leak-free. If leaks are present, power should not be applied until the area is ventilated and explosive gases have dissipated.

To leak test the manifold and tubing connections:

1. Verify that the equalizer valves ([Figure 6](#), items A and B) are open and the manifold vent valve is closed (item C).

**Figure 6: Connections and manifold valve operation  
(for illustrative purposes only)**



**Figure 6 legend**

A) Low side equalizer valve	H) High pressure side
B) High side equalizer valve	L) Low pressure side
C) Manifold vent valve	

2. Apply pressure to the high side vent/test port based on the transducer range (100%).
3. Squirt liquid leak detector onto the following connections:
  - High and low pressure tap valve connections
  - High and low pressure manifold tubing connections
  - Connection point between the flange and the manifold
4. Bubbles in the liquid indicate a loose or poor connection.
5. Using the appropriate size wrench, tighten any loose connections, then recheck with the liquid leak detector. Do not over tighten.
6. When all connections are leak-free, continue to section [3.4 DIV 1 explosion-proof RTD installation](#).

### **3.4 DIV 1 explosion-proof RTD installation**

The remote thermal detector (RTD) probe measures flowing gas temperature. The following procedure indicates how to install the RTD into the meter run.



**IMPORTANT NOTE:** To install a DIV 2 or general purpose RTD, follow the instructions detailed in the 266 MODBUS® multivariable transmitter user manual.

Materials:

- RTD probe (DIV 1), (probe length determined by technician)
- Cable (cable length determined by technician)
- Teflon® tape
- One (1) thermowell with ¾" NPT threads (depth determined by technician)
- Nylon tie wraps



**WARNING – Bodily injury.** Conduit requirements for DIV 1 installations are not addressed in this procedure. To avoid creating a hazardous situation, ensure compliance with the applicable standards, regulations, and recommendations for installation in the country of use. RTD installation in classified DIV 1 areas should only be performed by technicians knowledgeable about explosion protection.

Explosion-proof and flame-proof installations require explosion-proof conduit and poured seals or flame-proof rated cable and cable glands, respectively.

To install the RTD in the meter run:

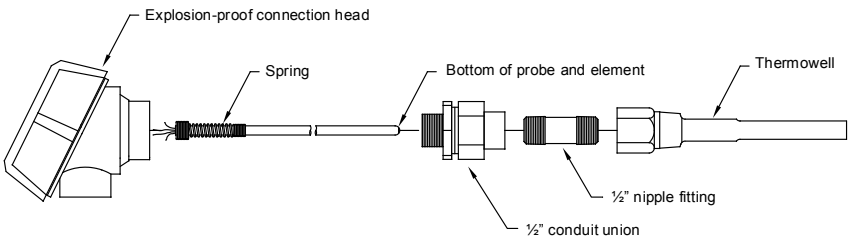
1. Install the thermowell into the meter run.



**NOTICE – Property damage.** If fluid is added to the thermowell to improve the thermal response to flowing temperature, consideration should be given to the type of fluid added regarding the ecological impact and freezing possibility in cold environments.

2. Screw the ½ inch nipple fitting, supplied with the RTD, into the thermowell (see [Figure 7](#)).

**Figure 7: Explosion-proof RTD, disassembled**



3. Separate the top and bottom of the conduit union. Screw the union bottom onto the nipple fitting and the top of the conduit union into the bottom of the explosion-proof connection head. Do not tighten.
4. Unscrew and remove the cover from the explosion-proof connection head.

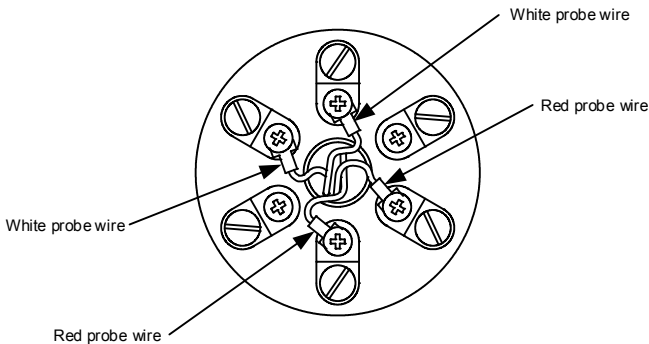
5. Insert the RTD probe through the opening in the connection head. Holding the probe from below, screw the spring clockwise down into the center of the wiring block until the top edge of the spring is flush with the top of the wiring block.
6. Insert the probe and head assembly through the bottom half of the union previously installed onto the thermowell. As union halves meet, the probe should encounter some resistance from the spring. As the probe contacts the bottom of the thermowell, the top of the probe should rise a maximum of  $\frac{3}{4}$ ".



**IMPORTANT NOTE:** The probe should extend into the center 1/3 of the stream. If the probe assembly is too long (the top of the conduit union will not screw into the bottom half of the conduit union) or too short (no resistance is encountered when screwing the probe and head assembly into the bottom half of the union), then the nipple fitting may need to be replaced with one of a different length.

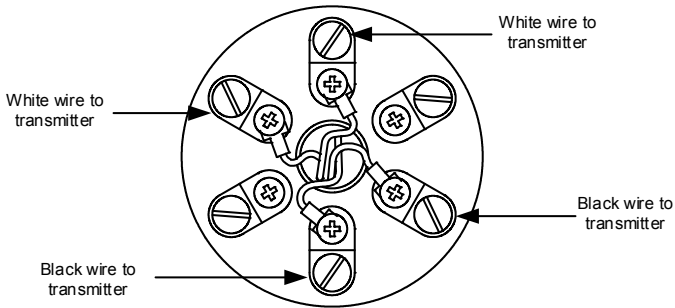
7. Align the RTD head to correspond with the wiring conduit previously installed and complete the connection.
8. Tighten all conduit and fittings to wrench-tight.
9. Wire the RTD probe wiring to the wiring block located inside of the explosion-proof head assembly (see [Figure 8](#)).

**Figure 8: RTD probe wiring to explosion-proof head wiring block**



10. Install the conduit, wire, and cable gland RTD explosion-proof head to the transmitter.
11. Connect the transmitter wiring ends to the RTD wiring block (see [Figure 9](#)).

**Figure 9: RTD wiring to transmitter**



12. Screw the RTD cover onto the explosion-proof housing assembly to complete the RTD installation.

Installation of the RTD is complete. Continue to section [4 Electrical and communication wiring](#).

## 4 Electrical and communication wiring

### 4.1 Transmitter protective conductor, ground, and integrated surge protection

The 266 MODBUS® multivariable transmitter operates in common mode voltages, between the signal lines and the housing, up to 250 Volts. If voltages of >150 Vdc are possible, the housing must contain a protective circuit (e.g. grounding, protective conductor) in order to fulfill the requirements of low-voltage guidelines and relevant EN 61010 rules for the installation of electrical components. A connection terminal is available for grounding (PE) on the transmitter exterior and inside the housing termination side. The grounding (PE) terminals are electrically interconnected through the housing body.

The transmitter terminal block includes transient suppression circuitry built in. The high current dissipation path for the integrated surge protection circuit is through the two terminal block mounting screws to the grounding (PE) connections.



**IMPORTANT NOTE:** The grounding (PE) should be kept as short as possible with a recommended wire size of 12 AWG.

These instructions do not address cabling requirements for explosion-proof and flame-proof installations.

### 4.2 Transmitter wiring

The RTD, power, and communication cables must be wired to the 266 MODBUS® multivariable transmitter termination block prior to connecting the power and communication cables to the XSeries device.

ABB strongly recommends the use of shielded 1.5 twisted pair or 2 twisted pair (with drain wire) cable for the communication interface. For a distance up to a maximum of 4000 ft. (1219 m), the wire size should be between 22 AWG (0.35 mm<sup>2</sup>) and 18 AWG (0.8 mm<sup>2</sup>).

For supply voltage connections, ABB recommends the use of a shielded twisted pair cable. For a distance up to a maximum of 4000 ft. (1219 m), the range of wire size could be between 18 AWG (0.8 mm<sup>2</sup>) and 14 AWG (2.1 mm<sup>2</sup>).



**DANGER – Risk to life due to explosion.** Explosion-proof and flame-proof installations require explosion-proof conduit and poured seals or flame-proof rated cable and cable glands, respectively.

1. Unscrew the transport screw plug from the cable entry and the rear housing cover from transmitter, if not already removed.
2. If a live temperature sensor (RTD) is installed in the meter run, wire the RTD sensor cable to the transmitter RTD terminals. Otherwise, continue to step 3.

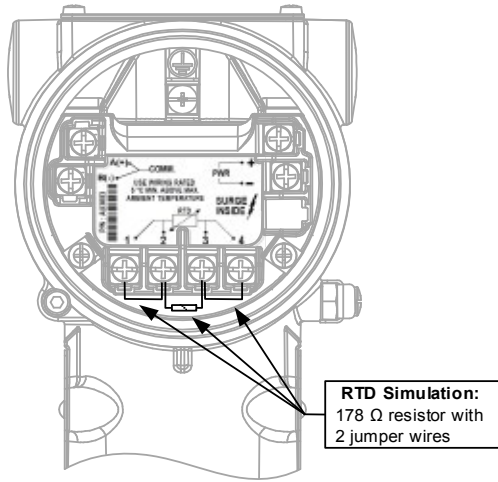


**IMPORTANT NOTE:** For the purpose of temperature simulation, a 178 Ω resistor (206 °C / 402.8 °F) with 2 jumpers has been installed between the terminals for the temperature RTD connection. This resistor (including the jumpers in the case of 4-wire connections) must be removed before connecting the RTD. If a temperature RTD is not connected, the resistor must remain in place.

- a. Using a small screwdriver, loosen the terminal 1, 2, 3, and 4 screws (see [Figure 10](#)) and remove the resistor and jumper wires.



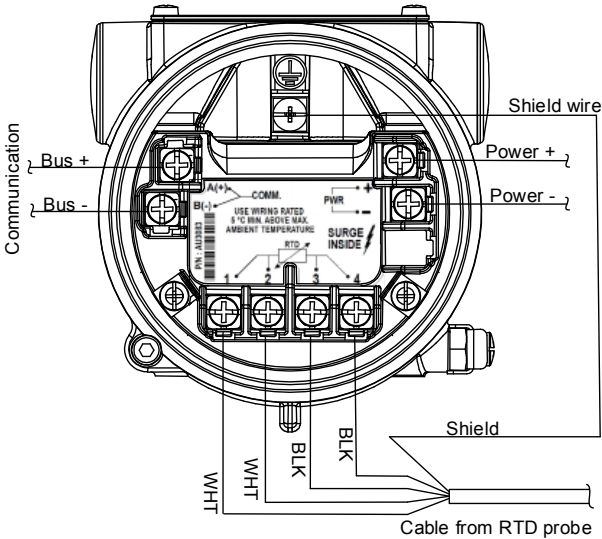
**Figure 10: RTD Simulation wiring**



- b. Install the RTD to transmitter cable through transmitter housing access port.
- c. Wire one (1) white wire to each of the terminals 1 and 2 ([Figure 11](#)).
- d. Wire one (1) black wire to each of the terminals 3 and 4.
- e. Wire RTD shield wire to grounding terminal.

## Figure 11: 266 MODBUS® multivariable transmitter wiring

NOTE: Wiring shown outside of transmitter cable entry ports for clarity



3. Connect the communication (+) wire to the COMM (+) terminal and the communication (-) wire to COMM (-) terminal.
4. Connect the power (+) wire to the PWR (+) terminal and the power (-) wire to the PWR (-) terminal at the transmitter.

The transmitter wiring is now complete. Continue to section [4.3 Host power supply and communication wiring](#).

### 4.3 Host power supply and communication wiring

For power supply and communication wiring to an unknown host, continue to section [4.3.1 Unknown host power supply and communication wiring](#).

For power supply and communication wiring to an XSeries host, go to section [4.3.2 Connect the transmitter to an XSeries host product](#).

#### 4.3.1 Unknown host power supply and communication wiring

[Figure 11](#), above, shows the transmitter wiring terminals.

1. Remove power from the transmitter, if necessary, and follow the manufacturer's instructions for communication wiring to the host.
2. When the wiring is complete, apply power to the host and the transmitter.

The transmitter is now operational and the communication wiring to the host is complete. If there is an issue with the transmitter power, go to section [7 Troubleshooting](#), for information.

Go to section [6 Transmitter configuration for an unknown](#) host, to configure the transmitter.

### 4.3.2 Connect the transmitter to an XSeries host product

The example in this basic configuration case illustrates the connections required to terminate the transmitter to an XSeries host. This includes RS-485 communication and power.

1. If necessary, disconnect power from the XSeries host and the transmitter.
2. Complete cabling and conduit from the transmitter to the XSeries host.
3. Inside the XSeries host enclosure, connect the transmitter wiring as shown in [Table 1](#) and the referenced wiring schematic.

**Table 1: 266 MODBUS® multivariable transmitter-to-XSeries device connections**

Device	Wiring	COM#	Location	VBATT	GND	Bus+	Bus-
XFC <sup>G4</sup>	<a href="#">Figure 12</a>	2	J4	Pin 2	Pin 1	Pin 12	Pin 13
XRC <sup>G4</sup>	<a href="#">Figure 13</a>	2	J6	Pin 1	Pin 2	Pin 9	Pin 7
μFLO <sup>G4</sup>	<a href="#">Figure 14</a>	1	J10	Pin 1	Pin 2	Pin 6	Pin 7
TFIO CIM	<a href="#">Figure 15</a>	CIM	TFIO	J1-Pin 4	J1-Pin 3	J2-Pin 1	J2-Pin 2

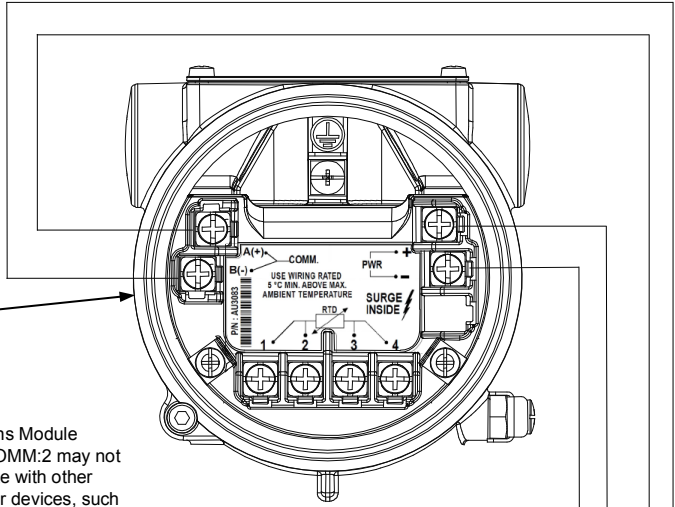


**IMPORTANT NOTE:** XSeries and μFLO board pinouts are the same for G4 and G5 devices. Wiring shown in [Figure 12](#), [Figure 13](#), and [Figure 14](#) is also applicable to the XFC<sup>G5</sup>, XRC<sup>G5</sup> and μFLO<sup>G5</sup> respectively.

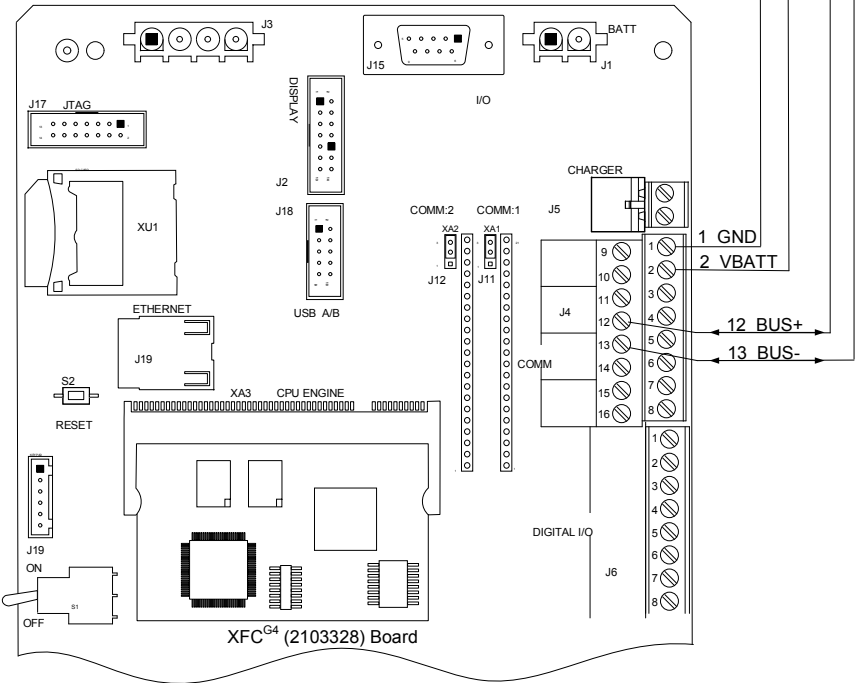
# Figure 12: Wiring 266 MODBUS® multivariable transmitter to XFC<sup>G4</sup> board

Note: Wiring shown outside of transmitter cable entry points for clarity

266 MODBUS®  
multivariable  
transmitter



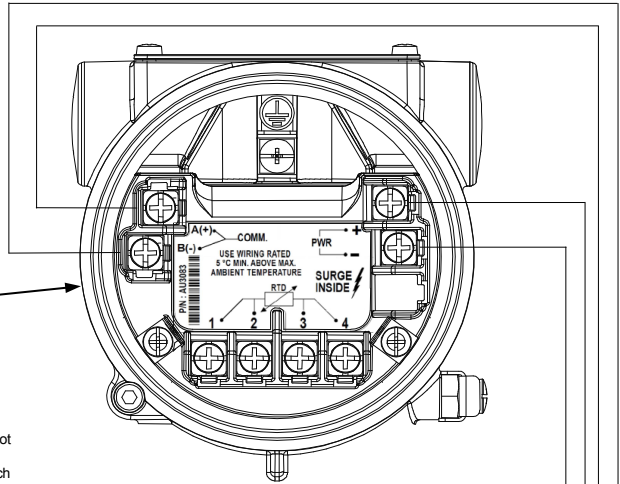
RS-485 Communications Module  
In this configuration, COMM:2 may not  
be used to communicate with other  
devices. To attach other devices, such  
as other flow computers, use COMM:1.



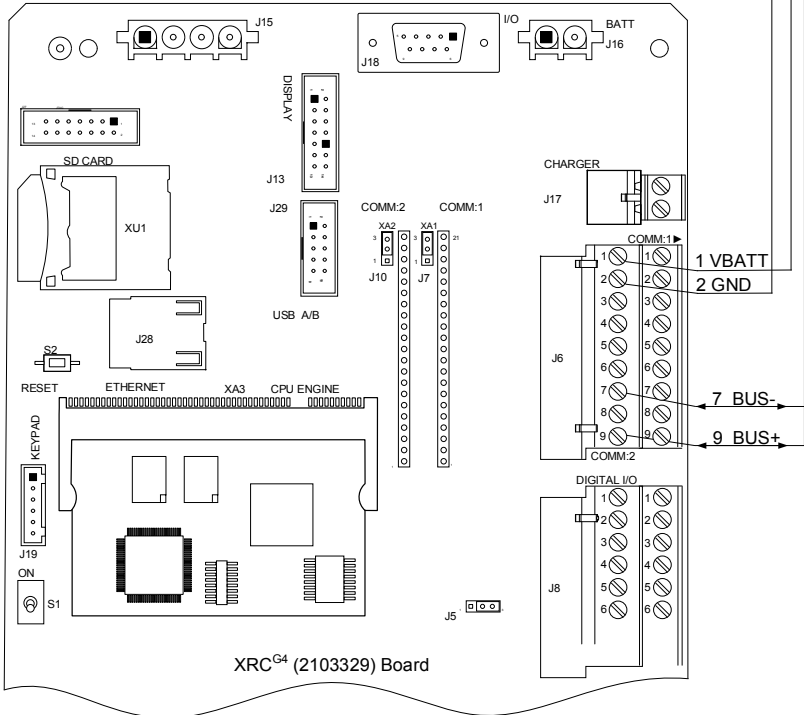
# Figure 13: Wiring 266 MODBUS® multivariable transmitter to XRC<sup>G4</sup> board

Note: Wiring shown outside of transmitter cable entry points for clarity

266 MODBUS®  
multivariable  
transmitter

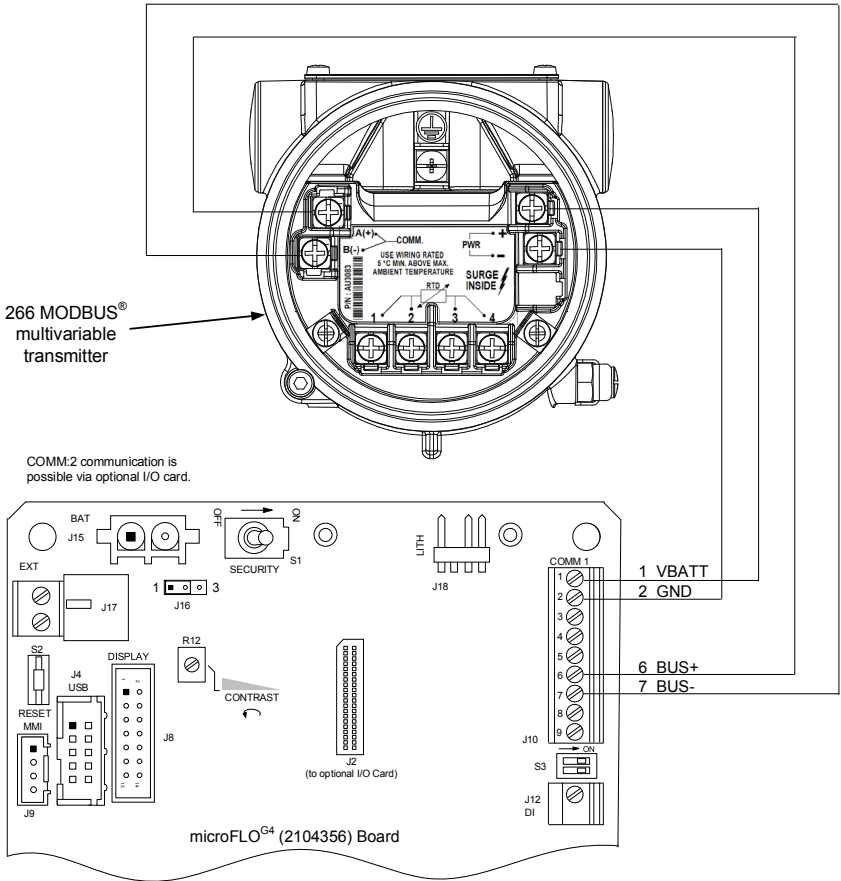


RS-485 Communications Module  
In this configuration, COMM:2 may not  
be used to communicate with other  
devices. To attach other devices, such  
as other flow computers, use COMM:1.



# Figure 14: Wiring 266 MODBUS® multivariable transmitter to µFLO<sup>G4</sup> board

Note: Wiring shown outside of transmitter cable entry points for clarity



**IMPORTANT NOTE:** [Figure 15](#) shows a direct connection between the 266 MODBUS® multivariable transmitter and a TFIO Communication Interface Module (CIM). The TFIO module communicates with the XSeries device in which it is installed.

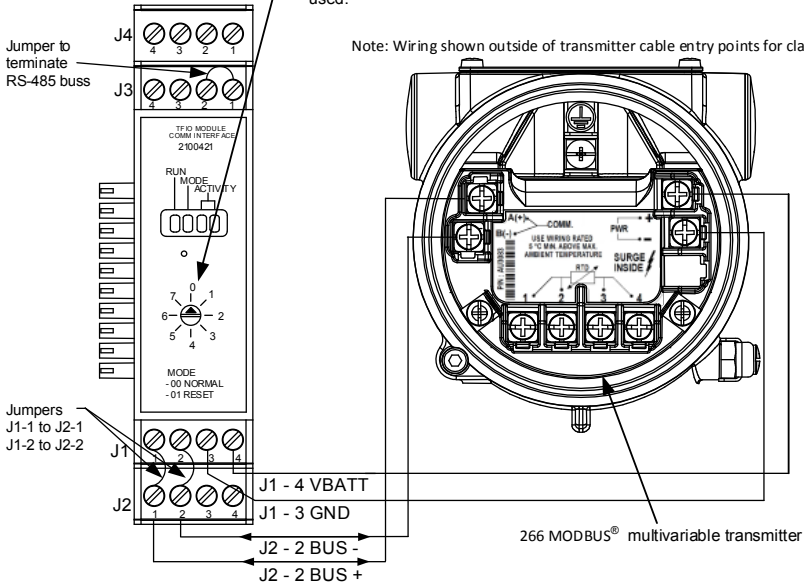
**Figure 15: Wiring 266 MODBUS® multivariable transmitter to TFIO CIM**

Dip switch factory default address is set a 0. If another COMM INTERFACE TFIO is added, move that dip switch setting to 1. If more are added, use the next address in line for each.

Changing the address applies only to TFIOs of their own type, and not TFIOs of another type. TFIOs of another type would also start at 0 and add new address of their own.

TIP: While 0 is recommended for the first address, any address can be used.

Note: Wiring shown outside of transmitter cable entry points for clarity



4. After completing the connections, apply power to the XSeries host and the transmitter.
5. Verify that both the XSeries host and the transmitter displays are active.



**IMPORTANT NOTE:** Ensure that both the termination and display end caps are firmly tightened: metal cap tabs to metal casing contact. Also, replace the cable entry red shipping plugs with proper metal plugs or wiring conduit.

The transmitter is now operational and the communication wiring to the host is complete. If there is an issue with the transmitter power, go to section [7 Troubleshooting](#) for information.

Go to section [5 XSeries host transmitter configuration](#) to configure the XSeries host to communicate with the transmitter.

## 5 XSeries host transmitter configuration

**IMPORTANT NOTE:** PCCU32 screen shots used in this guide may differ from actual displayed results. Of several possible causes, the primary factor may be a result of PCCU32 view settings. There are 3 levels of view settings and these are defined by ability: Basic, Advanced, and Expert. The default setting is Advanced.



ABB recommends keeping the default transmitter settings when interfacing with an XSeries device and using PCCU32 to configure the transmitter. Using the local Human Machine Interface (HMI) to configure the transmitter could create communication and configuration errors between the XSeries host and the transmitter. For setup options outside the scope of this guide, refer to the 266 MODBUS® multivariable transmitter user manual.

### 5.1 Add and set up the XMV Interface application in PCCU32

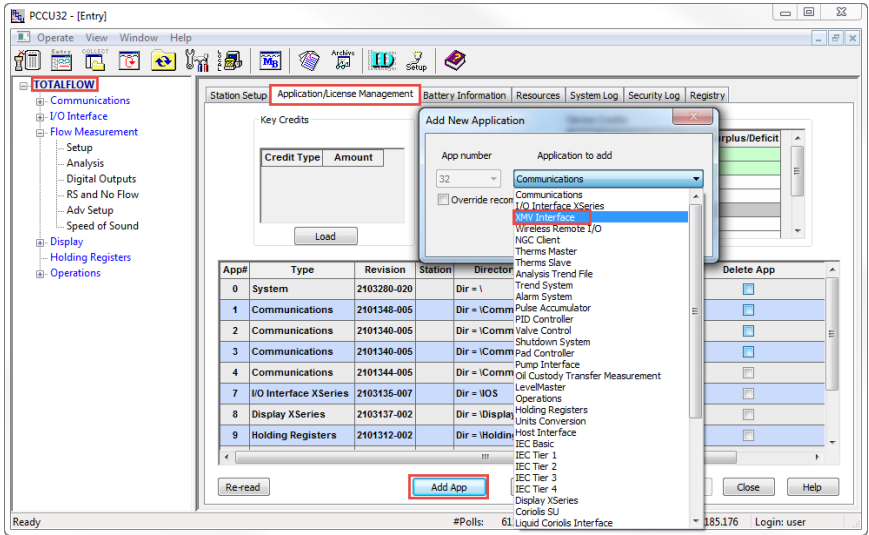
To set up and operate the 266 MODBUS® multivariable transmitter using an XSeries host, the configuration of the transmitter is best handled by using the PCCU32 software to connect to the XSeries host.

To begin configuration, add the transmitter application to the XSeries host and then configure the communication.

1. Launch the PCCU32 software program by double-clicking the desktop icon or selecting **Start > Program > PCCU** from the menu.
2. Connect the local communication cable to the XSeries host and click on the PCCU32 Entry icon.
3. To add the XMV Interface application ([Figure 16](#)):
  - a. Click the station name located at the top node in the tree view on the left.
  - b. Select the **Applications/License Management** tab.
  - c. Click **Add App** at the bottom of the screen. The Add New Application window displays.
  - d. Select **XMV Interface** from the application list. The slot number is chosen automatically (the default application slot is 41).
  - e. Click **OK**.

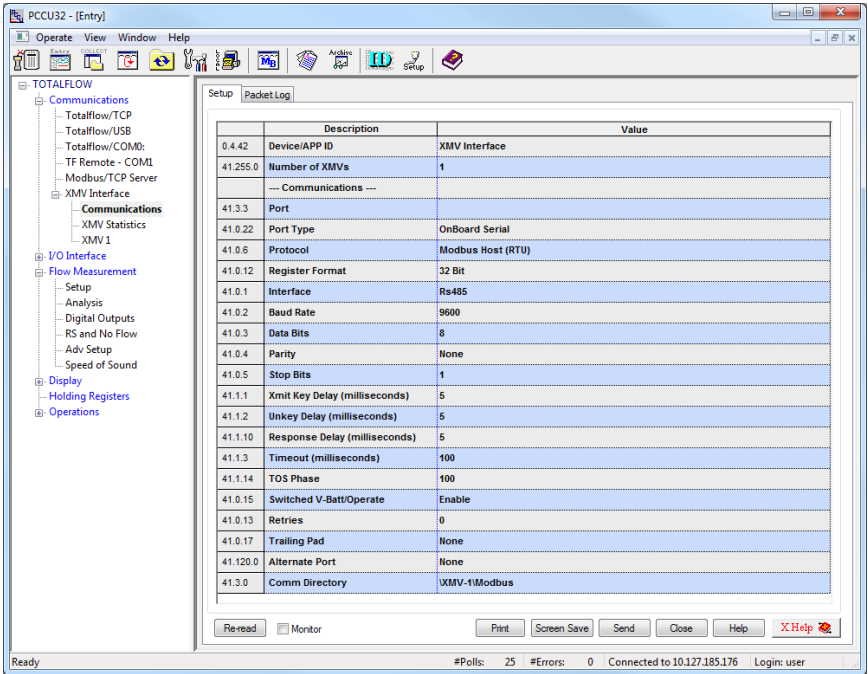


**Figure 16: Add new application screen**



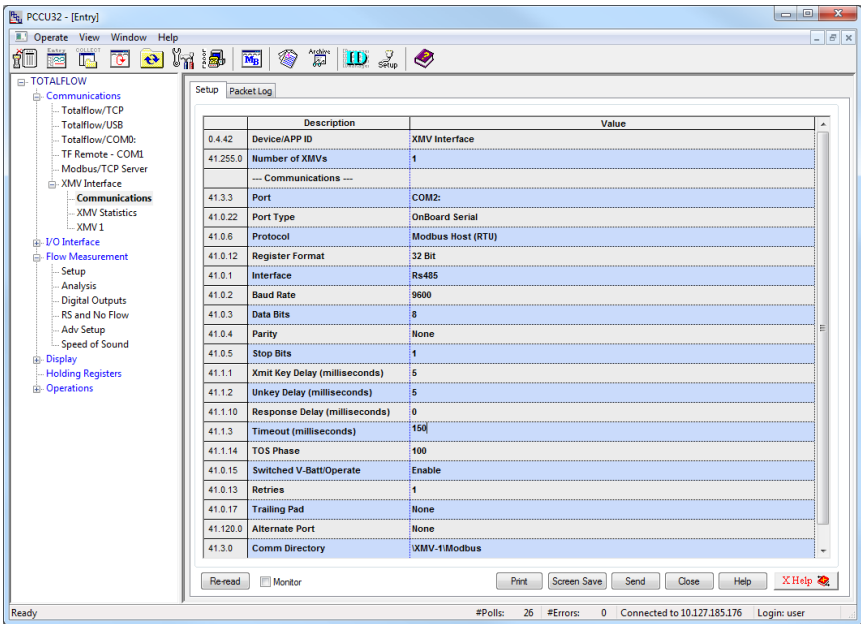
- f. Click **Send** to save.
4. Click **Re-read** to verify that the application has been added in the slot indicated.
5. Select **View** at the PCCU top menu and select **Expert** to change view.
6. Configure the XMV interface communication:
  - a. Expand **Communications** on the navigation tree. The XMV Interface displays with the other communication applications in the tree view.
  - b. Expand **XMV Interface**.
  - c. Select **Communications > Setup**. The Setup screen displays with default values ([Figure 17](#)).

**Figure 17: XMV interface communications setup (default)**



- d. Change settings as required. Verify that the appropriate communication port settings are as shown in [Figure 18](#). The example shown assumes that COM2 port is used and that an RS-485 communication module is installed for that port.

**Figure 18: XMV Communications setup (recommended)**



7. Click **Send** after making any changes to the communication values.

## 5.2 Configure the XMV from PCCU

1. Go to **Communications > XMV Interface > XMV 1**. The **Values** screen displays.
2. Select the **Setup** tab to setup XMV 1.
3. To change the settings, select **Disabled** in the Scan field and click **Send**. PCCU32 scanning is disabled.
4. Verify the settings for each field are as follows ([Table 2](#)):

**Table 2: XMV 1 setup settings**

Field	Setting	Notes
<b>Device Unit Registers</b>	Differential Pressure: 41.205.0 Static Pressure: 41.205.1 Temperature: 41.205.2	These are the default registers for Differential Pressure, Static Pressure, and Temperature.
<b>XMV Type</b>	ABB 266 CS	
<b>Scan</b>	Enabled	Ensure that Scan is set to Enabled after entering all settings.
<b>Device Units</b>	U.S. Customary	Recommended setting for optimal use.
<b>Baud Rate</b>	9600	Recommended setting for optimal use, must match the

Field	Setting	Notes
		setting of the transmitter.
<b>Response Delay</b>	10	Change the default setting of 50 ms to 10 ms.
<b>MB Register</b>	21	Required setting.
<b>MB Address</b>	Select any unused address from 1 to 247	The default address is 247. See step 5 for instructions on changing MB Address.
<b>Scroll Display</b>	Enabled	Required setting for proper scroll display.

5. Change the MB Address (MODBUS® address) through either the Old Address or Serial Number field.
  - a. To change the MB Address using the Old Address field:
    - i. Select the checkbox in the Old Address field (located in the Change Address box on the Setup screen).
    - ii. Type the old address of the transmitter in the Old Address field.



**IMPORTANT NOTE:** Use 0 as the global address if the old address is not known and there is only one 266 MODBUS® Multivariable Transmitter device on the bus.

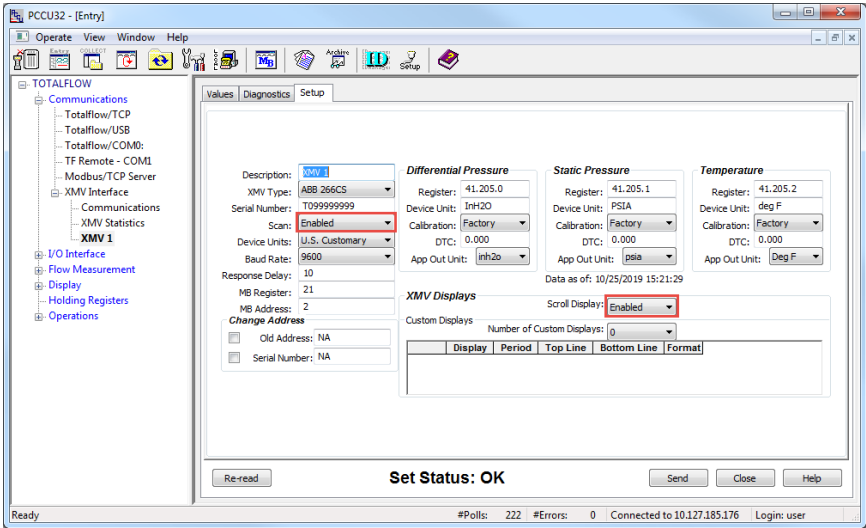
- iii. Type the new MB Address in the MB Address field.
  - b. To change the MB Address through the Serial Number field:
    - i. Select the checkbox in the Serial Number field.
    - ii. Type the serial number of the transmitter in the Serial Number field.



**IMPORTANT NOTE:** The serial number of the device is on the tag attached to the top of the enclosure.

- c. Type the new MB Address in the MB Address field.
6. Reset the Scan field to **Enabled** (Figure 19).
7. Verify that the Scroll Display field is set to **Enabled**.

**Figure 19: XMV 1 setup screen settings (recommended)**



8. Click **Send** to save the XMV 1 Setup settings.
9. Go to the **Values** tab and verify that Scan Status located at the bottom of the screen displays **OK**.



**IMPORTANT NOTE:** The “Scan Status: OK” message indicates that the XMV is communicating correctly with the XSeries board.

### 5.3 Configure multiple transmitters for an RS-485 Bus

To configure additional 266 MODBUS® multivariable transmitters:

1. Select **Communications > XMV Interface > Communications > Setup tab** and change the Number of XMVs to the total number of transmitters on the bus. Additional XMVs will display in the tree view and be sequentially numbered.
2. Click on the next XMV to set up and go to the Setup tab.
3. Repeat steps 4 through 9 in section [5.2 Configure the XMV](#) to configure each additional transmitter as required.

The XSeries and transmitter communication is now set up. If there is an issue with the transmitter communication, go to section [7 Troubleshooting](#) for information.

## 6 Transmitter configuration for an unknown host

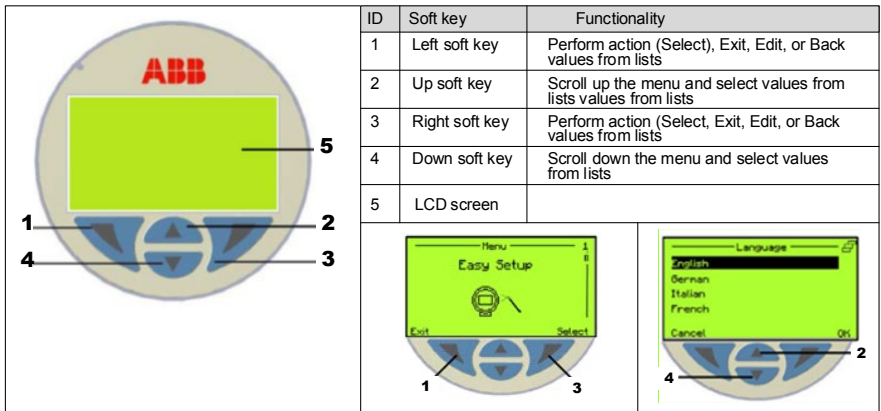


**IMPORTANT NOTE:** The following information assumes that the transmitter will be configured using the onboard user interface. For transmitter configuration details, see the 266 MODBUS® multivariable transmitter user manual, listed in the [Additional information](#) section.

### 6.1 HMI menu navigation

When using the local Human Machine Interface (HMI), the display screen and soft keys are used to move around the menu, identify selections, and perform actions ([Figure 20](#)).

**Figure 20: HMI Navigation**



### 6.2 Configuration

To configure the transmitter using the HMI:

1. Press the right soft key to access the HMI menu. The first menu is **Easy Setup**.
2. Press the right soft key again to enter the **Easy Setup** menu.



**IMPORTANT NOTE:** Once the Easy Setup procedure is started, it must be completed in one sitting.

3. Use the HMI soft keys to navigate the menu and make selections based on the requirements of the installation. See [Table 3](#) for each parameter and the available settings. Refer to [Figure 20](#) for soft key functionality.

**Table 3: Easy setup menu**

Language	English, Deutsch, Italiano		
Tag			
Address			
Diff. Pressure Unit	Pa	inH2O68F	kg/cm2
	Mpa	inH2O60F	mmH2O68F
	bar	inH2O4C	ftH2O68F
	PSI	Torr	inHgOC
	kPa	Atm	mmHgOC
	mbar	g/cm2	
Diff. Pressure LRV			
Diff. Pressure URV			
Diff. Pressure Damping			
Static Pressure Unit	Pa	inH2O68F	kg/cm2
	Mpa	inH2O60F	mmH2O68F
	bar	inH2O4C	ftH2O68F
	PSI	Torr	inHgOC
	kPa	Atm	mmHgOC
	mbar	g/cm2	
Static Pressure LRV			
Static Pressure URV			
Static Pressure Damping			
Process Temp. Unit	Degree: °C, °F, °R, °K		
Process Temp. LRV			
Process Temp. URV			
Process Temp. Damping			
Display Line 1 View	Differential Pressure, Static Pressure, Process Temp, Sensor Temp		
Display Line 2 View	Differential Pressure, Static Pressure, Process Temp, Sensor Temp		
Bar View line	Differential Pressure, Static Pressure, Process Temp, Sensor Temp		

When all selections in the Easy Setup menu have been made, continue to section [6.3 Communication setup](#), to define the communication parameters.

## 6.3 Communication setup

To configure the transmitter communication parameters, perform the following steps.

1. Press the right soft key to access the HMI menu.
2. Use the key pad to locate and select **Communication**. The last menu is Communication and may be accessed by pressing the up soft key.

3. View each parameter setting by selecting each submenu item and viewing the setting.
4. Edit each parameter shown in [Table 4](#), if necessary, to configure communication for the site's specific requirements:



**IMPORTANT NOTE:** When connecting to Totalflow equipment, the recommended XMV's Response Delay value is 10 ms. Configure this value manually or as described in section [5.2 Configure the XMV from PCCU](#). For third-party controllers, consult their documentation.

**Table 4: Communication parameters (factory)**

<b>Submenu 1</b>	<b>Selections</b>
TAG	Name
Address	Modbus address 1-247
Baud rate	1200 2400 4800 9600 19200 38400
Response Delay (ms)	50 ms (factory default)
Parity	None, Even, Odd
Modbus Map Select	ABB 266\267 Map Rosemount 3095FB Map Invensys IMV25 Map
Modbus Reg. Offset	Zero Based One Based

- a. Press **Edit** and change the parameter.
- b. Locate the appropriate selection and select **OK**.
- c. When finished viewing and editing the parameters, press the left soft key (back) to exit back to the main screen.

The communication parameters are set and ready for communication.

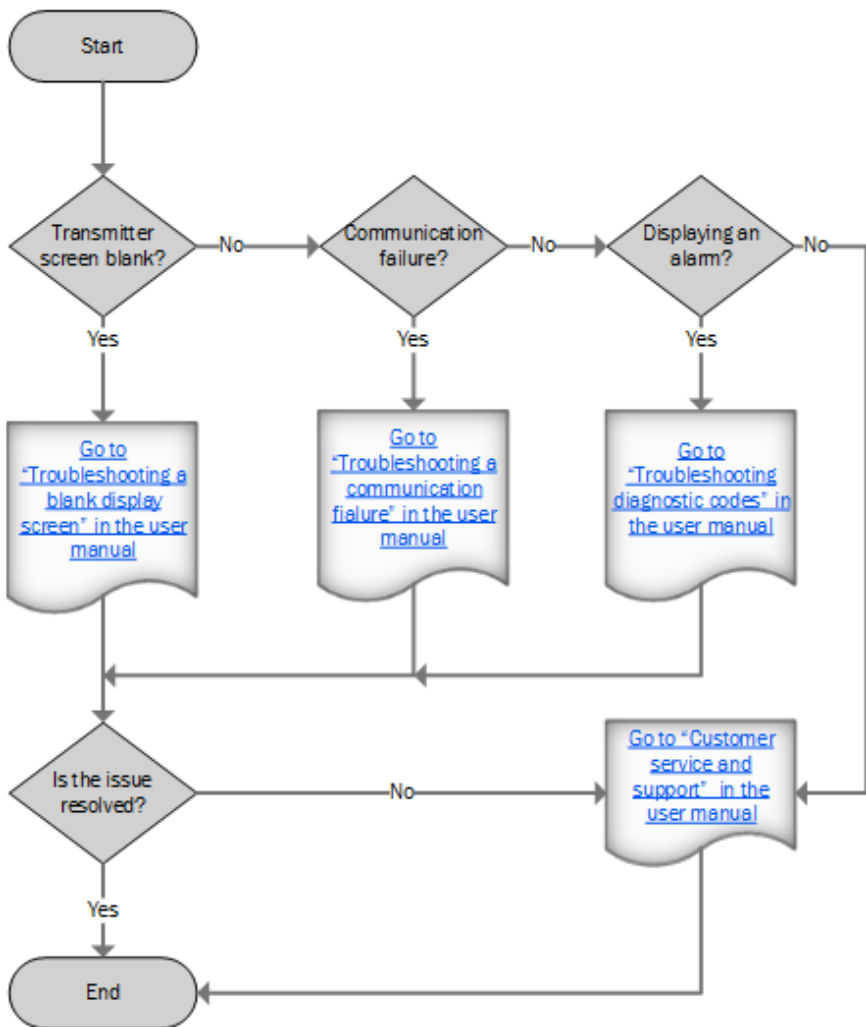
The transmitter portion of communication is now set up. If there is an issue with the transmitter communication, continue to section [7 Troubleshooting](#), for information. If there is an issue with the host portion of communication, refer to the manufacturer's documentation.

## 7 Troubleshooting

Detailed troubleshooting procedures are in the 266 MODBUS® multivariable user manual. Use the flowchart in [Figure 21](#) to identify the troubleshooting area, the specific procedure(s) to determine the cause, and the solution.



**Figure 21: Flowchart for troubleshooting**



**NOTES:**

**NOTES:**

---

**ABB Inc.**

**Measurement & Analytics**

Quotes: [totalflow.inquiry@us.abb.com](mailto:totalflow.inquiry@us.abb.com)

Orders: [totalflow.order@us.abb.com](mailto:totalflow.order@us.abb.com)

Training: [totalflow.training@us.abb.com](mailto:totalflow.training@us.abb.com)

Support: [upstream.support@us.abb.com](mailto:upstream.support@us.abb.com)

+1 800 442 3097 (opt. 2)

[www.abb.com/upstream](http://www.abb.com/upstream)

Additional free publications are available for download at: [www.abb.com/totalflow](http://www.abb.com/totalflow) or by scanning this code:



**Main Office -**

Bartlesville  
7051 Industrial Blvd  
Bartlesville, OK 74006  
Ph: +1 918 338 4888

**Kansas Office - Liberal**

2705 Centennial Blvd  
Liberal, KS 67901  
Ph: +1 620 626 4350

**Texas Office -**

Houston  
3700 W. Sam Houston  
Parkway S., Suite 600  
Houston, TX 77042  
Ph: +1 713 587 8000

**Texas Office - Odessa**

8007 East Business 20  
Odessa, TX 79765  
Ph: +1 432 272 1173

**Texas Office -**

Pleasanton  
150 Eagle Ford Road  
Pleasanton, TX 78064  
Ph: +1 830 569 8062

---

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents - in whole or in parts - is forbidden without prior written consent of ABB.

MOXA® is a registered trademark of Moxa Inc.

Windows® is a registered trademark of Microsoft.

2105328-001 Rev AD

Copyright© 2019 ABB all rights reserved