The most accurate multivariable ABB has ever produced

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® 266 MODBUS® 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.

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

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

<table>
<thead>
<tr>
<th>Publication</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>266 MODBUS® multivariable transmitter user manual</td>
<td>2105216</td>
</tr>
<tr>
<td>266 MODBUS® multivariable transmitter short operating instructions</td>
<td>2105549</td>
</tr>
<tr>
<td>266JSH/JST MODBUS® multivariable transmitter data sheet</td>
<td>2101130</td>
</tr>
<tr>
<td>XSeries TFIO module user manual</td>
<td>2101226</td>
</tr>
<tr>
<td>XSeriesG4 flow computer user manual</td>
<td>2103335</td>
</tr>
<tr>
<td>XSeriesG4 remote controller user manual</td>
<td>2103334</td>
</tr>
<tr>
<td>TFI0 Communication Interface Module (2100421) to XMV MODBUS® w/ RTD user drawing</td>
<td>2102345</td>
</tr>
<tr>
<td>XFCG4 (Com2) ABB267/269 and ABB266 XMV user drawing</td>
<td>2105118</td>
</tr>
<tr>
<td>XFCG4 (Com2) IMV25 and ABB266 XMV user drawing</td>
<td>2105115</td>
</tr>
<tr>
<td>XFCG4 EX (Com2) ABB267/269 and ABB266 XMV user drawing</td>
<td>2105117</td>
</tr>
<tr>
<td>XMV pipe mount bracket user drawing</td>
<td>2104265</td>
</tr>
<tr>
<td>XRCG3 (Com1) ABB267/269 and ABB266 XMV user drawing</td>
<td>2105114</td>
</tr>
<tr>
<td>XRCG4 (Com2) ABB267/269 and ABB266 XMV user drawing</td>
<td>2105113</td>
</tr>
<tr>
<td>XRCG4 (Com2) IMV25 and ABB266 XMV user drawing</td>
<td>2105116</td>
</tr>
</tbody>
</table>

**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 warning and note symbols

**WARNING – Bodily injury.** This symbol, in conjunction with the word "WARNING", indicates a potentially dangerous situation. Failure to observe this safety information may result in death or severe injury. The text may state the hazard, what to do or not do to avoid the hazard, and what the result would be if not followed.

**WARNING – Bodily injury.** This symbol, in conjunction with the word "WARNING", indicates a potential electrical hazard. Failure to observe this safety information will result in death or severe injury. The text may state the hazard, what to do or not do to avoid the hazard, and what the result would be if not followed.

**NOTICE – Property damage.** This symbol indicates a potential situation where data could be corrupted or normal operation could be effected if recommendations are not followed. The text may state the condition, how to avoid undesirable results, and what the result would be if not followed.

**IMPORTANT NOTE:** This symbol indicates operator tips, particularly useful information, important information about the product, or to clarify a concept. The signal words "IMPORTANT NOTE" do not indicate a dangerous or harmful situation.

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.
2 Unpacking and inspection

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 XSeries (XFC/XRC) devices and should be wired to a communication port.

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 TBD 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).

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 TBD 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.

   i. IMPORTANT NOTE: Select a location that allows easy user 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.

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

Mounting pipe

U-bolts
(2 places)

Flat washer, split washer, and nut (4 places)
7. Adjust the height of the mounting bracket to allow for the transmitter, manifold, and tubing (Figure 5).

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 – Property 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).

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

---

Figure 6: Connections and manifold valve operation (for illustrative purposes only)
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 3.4, DIV 1 explosion-proof RTD installation for 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 TBD by technician)
- Cable (cable length TBD by technician)
- Teflon® tape
- One (1) thermowell with ¾” NPT threads (depth TBD 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.

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

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 ¾”.

- 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).

10. Install the conduit, wire, and cable gland RTD explosion-proof head to the transmitter.

Figure 8: RTD probe wiring to explosion-proof head wiring block
12. Connect the transmitter wiring ends to the RTD wiring block (see Figure 9).

![Diagram of RTD wiring to transmitter]

Figure 9: RTD wiring to transmitter

13. 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 12AWG.

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 mm²) and 18 AWG (0.8 mm²).

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 mm²) and 14 AWG (2.1 mm²).

**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.

**NOTES:** 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.
RTD Simulation:
178 Ω resistor with 2 jumper wires

Figure 10: RTD Simulation wiring

a. Install the RTD to transmitter cable through transmitter housing access port.

b. Wire one (1) each white wire to terminal 1 and to terminal 2 (Figure 11).

c. Wire one (1) each black wire to terminal 3 and to terminal 4.

d. Wire RTD shield wire to grounding terminal.

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

Figure 11: 266 MODBUS® multivariable transmitter wiring
4. Connect the communication (+) wire to the COMM (+) terminal and the communication (-) wire to COMM (-) terminal.

5. 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 for power and communication wiring from a host.

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 communication wiring information.

For power supply and communication wiring to an XSeries host, go to section 4.3.2, *Connect the transmitter to an XSeries host product* for communication wiring instructions.

4.3.1 Unknown host power supply and communication wiring

Figure 11, *266 MODBUS® multivariable transmitter wiring*, on page 17 shows the transmitter wiring terminals.

1. Remove power from the transmitter if necessary, and follow the manufacturer’s instructions provided 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*, on page 30 for information.

Go to section 6, *Transmitter configuration for an unknown host*, on page 27, 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 of 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

<table>
<thead>
<tr>
<th>Device</th>
<th>Wiring</th>
<th>COM#</th>
<th>Location</th>
<th>VBATT</th>
<th>GND</th>
<th>Bus+</th>
<th>Bus-</th>
</tr>
</thead>
<tbody>
<tr>
<td>XFCG4</td>
<td>Figure 12</td>
<td>2</td>
<td>J4</td>
<td>Pin 2</td>
<td>Pin 1</td>
<td>Pin 12</td>
<td>Pin 13</td>
</tr>
<tr>
<td>XRCG4</td>
<td>Figure 13</td>
<td>2</td>
<td>J6</td>
<td>Pin 1</td>
<td>Pin 2</td>
<td>Pin 9</td>
<td>Pin 7</td>
</tr>
<tr>
<td>microFLOG4</td>
<td>Figure 14</td>
<td>1</td>
<td>J10</td>
<td>Pin 1</td>
<td>Pin 2</td>
<td>Pin 6</td>
<td>Pin 7</td>
</tr>
<tr>
<td>TPIO CIM</td>
<td>Figure 15</td>
<td>CIM</td>
<td>TFIO</td>
<td>J1-Pin 4</td>
<td>J1-Pin 3</td>
<td>J2-Pin 1</td>
<td>J2-Pin 2</td>
</tr>
</tbody>
</table>
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 12: Wiring 266 MODBUS® multivariable transmitter to XFCG4 board

Note: Wiring shown outside of transmitter cable entry points for clarity
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 XRCG4 board

266 MODBUS®
multivariable
transmitter

Note: Wiring shown outside of transmitter cable entry points for clarity
COMM:2 communication is possible via optional I/O card.

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

Figure 14: Wiring 266 MODBUS® multivariable transmitter to microFLOG4 board
**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.

Jumpers J1-1 to J2-1
J1-2 to J2-2

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

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.

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*, on page 30 for information.

Go to section 5, *XSeries host transmitter configuration*, on page 23 to configure the XSeries host to communicate with the transmitter.
5 XSeries host transmitter configuration

NOTES: 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 setup the XMV Interface application in PCCU32

To setup 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:
   a. Click on the station name located at the top node in the tree view on the left (Figure 16).

![Figure 16: Add new application screen](image)
a. Select the **Applications** tab.
b. Click **Add App** at the bottom of the PCCU32 screen.
c. Select **XMV Interface** from the application list. The slot number is chosen automatically (the default application slot is 41). Click **OK**.
d. Click **Send** to save.

4. Click **Re-read** to verify that the application has been added in the slot indicated.

5. Configure the XMV interface communication:
   a. Select **Communications > XMV Interface > Communications > Setup** (Figure 17).

![Figure 17: XMV interface communications setup screen](image_url)

b. Verify the appropriate communication port settings are as shown.

6. Click **Send** after making any changes to the communication values.
5.2 Configure the 266 MODBUS® multivariable transmitter

1. Select **Communications > XMV Interface > XMV 1**. The XMV 1 screen displays.
2. Select the **Setup** tab to setup XMV 1.
3. To change the settings, click **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**

<table>
<thead>
<tr>
<th>Field</th>
<th>Setting</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Unit</td>
<td><strong>Registers</strong></td>
<td>These are the default registers for Differential Pressure, Static</td>
</tr>
<tr>
<td></td>
<td>Differential Pressure: 41.205.0</td>
<td>Pressure, and Temperature.</td>
</tr>
<tr>
<td></td>
<td>Static Pressure: 41.205.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Temperature: 41.205.2</td>
<td></td>
</tr>
<tr>
<td>XMV Type</td>
<td>ABB 266 CS</td>
<td></td>
</tr>
<tr>
<td>Scan</td>
<td>Enabled</td>
<td>Ensure that Scan is set to Enabled after entering all settings.</td>
</tr>
<tr>
<td>Device Units</td>
<td>U.S. Customary</td>
<td>This is the recommended setting for optimal use.</td>
</tr>
<tr>
<td>Baud Rate</td>
<td>9600</td>
<td>This is the recommended setting for optimal use and must match the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>setting of the transmitter.</td>
</tr>
<tr>
<td>Response Delay</td>
<td>50</td>
<td>This is the default setting.</td>
</tr>
<tr>
<td>MB Register</td>
<td>21</td>
<td><strong>This is the required setting.</strong></td>
</tr>
<tr>
<td>MB Address</td>
<td>Select any unused address from 1 to 247</td>
<td>The default address is 247. See step 5 for instructions on changing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MB Address.</td>
</tr>
<tr>
<td>Scroll Display</td>
<td>Enabled</td>
<td>This is the required setting for proper scroll display.</td>
</tr>
</tbody>
</table>

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 18).

![Figure 18: XMV 1 setup screen settings](image)

7. Verify the **Scroll Display** field is set to **Enabled**.
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 XMV's will display in the tree view and be sequentially numbered.
2. Click on the next XMV to setup and go to the Setup tab.
3. Repeat steps 4 – 9 in section 5.2, Configure the 266 MODBUS® multivariable transmitter 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*, on page 30 for information.
6 Transmitter configuration for an unknown host

**IMPORTANT NOTE:** The following information is based on the assumption that the transmitter will be configured using the onboard user interface. See section 3.2, *Configuring the transmitter*, in the 266 MODBUS® multivariable transmitter user manual for detailed instructions.

### 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 19)

<table>
<thead>
<tr>
<th>ID</th>
<th>Soft key</th>
<th>Functionality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Left soft key</td>
<td>Perform action (Select), Exit, Edit, or Back values from lists</td>
</tr>
<tr>
<td>2</td>
<td>Up soft key</td>
<td>Scroll up the menu and select values from lists</td>
</tr>
<tr>
<td>3</td>
<td>Right soft key</td>
<td>Perform action (Select, Exit, Edit, or Back values from lists</td>
</tr>
<tr>
<td>4</td>
<td>Down soft key</td>
<td>Scroll down the menu and select values from lists</td>
</tr>
<tr>
<td>5</td>
<td>LCD screen</td>
<td></td>
</tr>
</tbody>
</table>

Figure 19: 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 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 19 for soft key functionality.

Table 3: Easy setup menu

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

When all selections in the Easy Setup menu have been made, continue to section 6.3, 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 12, if necessary, to configure communication for the site’s specific requirements.

Table 4: Communication parameters

<table>
<thead>
<tr>
<th>Submenu 1</th>
<th>Selections</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAG</td>
<td>name</td>
</tr>
<tr>
<td>Address</td>
<td>Modbus address 1-247</td>
</tr>
<tr>
<td>Baud rate</td>
<td>1200 2400 4800 9600 19200 38400</td>
</tr>
<tr>
<td>Response Delay</td>
<td>50 ms (default)</td>
</tr>
<tr>
<td>Parity</td>
<td>None, Even, Odd</td>
</tr>
<tr>
<td>Modbus Map Select</td>
<td>ABB 2661267 Map</td>
</tr>
<tr>
<td></td>
<td>Rosemount 3095FB Map</td>
</tr>
<tr>
<td></td>
<td>Invensys IMV25 Map</td>
</tr>
<tr>
<td>Modbus Reg. Offset</td>
<td>Zero Based</td>
</tr>
<tr>
<td></td>
<td>One Based</td>
</tr>
</tbody>
</table>

5. To edit a specific parameter, press Edit and change the parameter.

6. Locate the appropriate selection and select OK.

7. 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, on page 30 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 located in the 266 MODBUS® multivariable user manual. Use the flowchart in Figure 20 to identify the troubleshooting area, the specific procedure(s) to determine the cause, and the solution.

![Flowchart for troubleshooting](image_url)

**Figure 20: Flowchart for troubleshooting**
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