

# Rosemount™ Xi

Advanced Electronics for Zirconium Oxide  
Flue Gas O<sub>2</sub> Probes



## Essential instructions

Read this page before proceeding!

Emerson designs, manufactures, and tests its products to meet many national and international standards. Because these instruments are sophisticated technical products, you must properly install, use, and maintain them to ensure they continue to operate within their normal specifications. You must adhere to the following instructions and integrate them into your safety program when installing, using, and maintaining Emerson's Rosemount products. Failure to follow the proper instructions may cause any one of the following situations to occur: loss of life, personal injury, property damage, damage to this instrument, and warranty invalidation.

- Read all instructions prior to installing, operating, and servicing the product.
- If you do not understand any of the instructions, contact your Emerson representative for clarification.
- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Inform and educate your personnel in the proper installation, operation, and maintenance of the product.
- Install equipment as specified in the installation instructions of the appropriate Quick Start Guide and per applicable local and national codes. Connect all products to the proper electrical and pressure sources.
- To ensure proper performance, use qualified personnel to install, operate, update, program, and maintain the product.
- When replacement parts are required, ensure that qualified people use replacement parts specified by Emerson. Unauthorized parts and procedures can affect the product's performance, place the safe operation of your process at risk, and VOID YOUR WARRANTY. Look-alike substitutions may result in fire, electrical hazards, or improper operation.

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### Note

The information contained in this document is subject to change without notice.

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## Definitions

The following definitions apply to warnings, cautions, and notes found throughout this publication.

### WARNING

Highlights an operation or maintenance procedure, condition, statement, etc. that if not strictly observed, could result in injury, death, or long-term health hazards of personnel.

### CAUTION

Highlights an operation or maintenance procedure, practice, condition, statement, etc. that if not strictly observed, could result in damage to or destruction of equipment or loss of effectiveness.





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### Note

Highlights an essential operating procedure, condition, or statement.

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## Symbols

	Earth (ground) terminal
	Protective conduit or terminal
	Risk of electrical shock
	Warning: Refer to Instruction Manual

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### NOTICE

The number in the lower right corner of each illustration in this publication is a manual illustration number. It is not a part number and is not related to the illustration in any technical manner.

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## Technical support hotline

For assistance with technical problems, call the North American Response Center. The Response Center is staffed 24 hours a day, 7 days a week.

Phone: 1-800-654-RSMT (1-800-654-7768)

Emerson may also be reached via the Internet through email and the following websites:

Email: [GAS.CSC@emerson.com](mailto:GAS.CSC@emerson.com)

Websites:

- [Emerson.com/RosemountCombustionAnalysis](http://Emerson.com/RosemountCombustionAnalysis)
- [Emerson.com/Rosemount-Gas-Analysis](http://Emerson.com/Rosemount-Gas-Analysis)
- [Emerson.com/Rosemount](http://Emerson.com/Rosemount)
- [Emerson.com](http://Emerson.com)

## Warranty

Emerson warrants that the equipment manufactured and sold by it will, upon shipment, be free of defects in workmanship or material. Should any failure to conform to this warranty become apparent during a period of one year after the date of shipment, Emerson shall, upon prompt written notice from the purchaser, correct such nonconformity by repair or replacement, F.O.B. factory of the defective part or parts. Correction in the manner provided above shall constitute a fulfillment of all liabilities of Emerson with respect to the quality of the equipment.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF QUALITY, WHETHER WRITTEN, ORAL, OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE).

The remedy(ies) provided above shall be purchaser's sole remedy(ies) for any failure of Emerson to comply with the warranty provisions, whether claims by the purchaser are based in contract or in tort (including negligence).

Emerson does not warrant equipment against normal deterioration due to environment. Factors, such as corrosive gases and solid particulates, can be detrimental and can create the need for repair or replacement as part of normal wear and tear during the warranty period.

Equipment supplied by Emerson but not manufactured by it will be subject to the same warranty as is extended to Emerson by the original manufacturer.

At the time of installation, it is important that the required services are supplied to the system and that the electronic controller is set up at least to the point where it is controlling the sensor heater. This will ensure that, should there be a delay between installation and full commissioning, the sensor being supplied with ac power and reference air will not be subjected to component deterioration.

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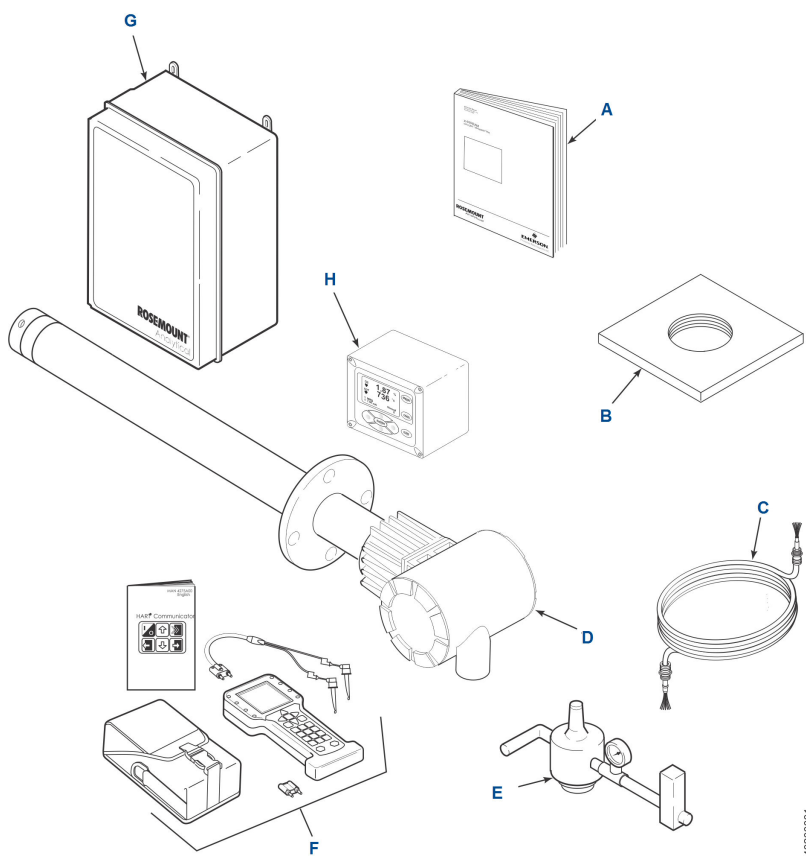
# 1 Pre-installation

## 1.1 Unpacking

1. Inspect the shipping container. If it is damaged, contact the shipper immediately for instructions. Save the box.
2. If there is no apparent damage, remove the transmitter.
3. Ensure that all items shown on the packing list are present. If items are missing, notify Rosemount immediately.

See [Figure 1-1](#).

Figure 1-1: Typical system package



- A. Quick Start Guide
- B. Weld plate
- C. Traditional architecture cable
- D. O<sub>2</sub> probe
- E. Reference air set (not used if the Rosemount SPS 4001B Single Probe Autocalibration Sequencer is used)
- F. HART® Field Communicator package (optional)
- G. Optional Rosemount SPS 4001B Single Probe Autocalibration Sequencer
- H. Rosemount Xi Advanced Electronics

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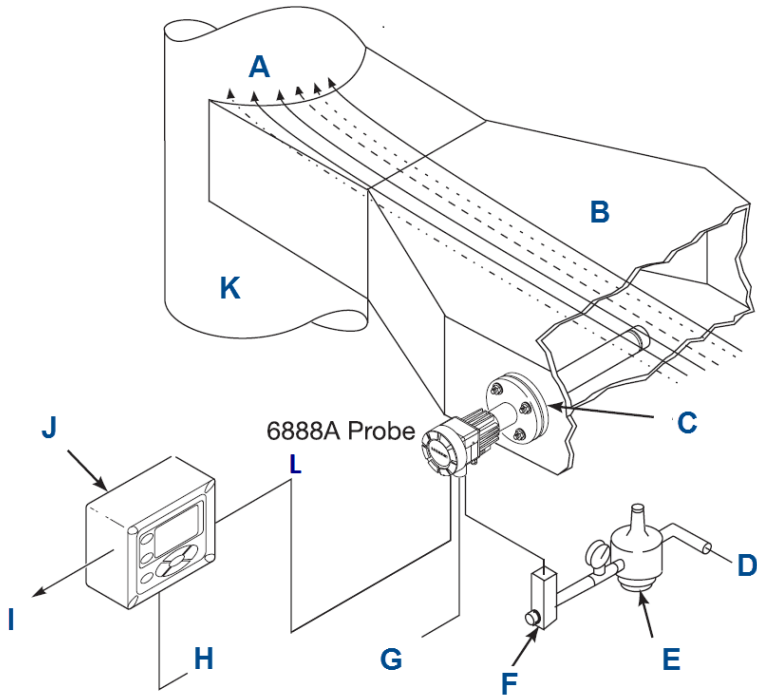
4. Save the shipping container and packaging.

They can be reused to return the device to the factory in case of damage.

## 1.2 System considerations

A typical system installation for a Rosemount Xi or O<sub>2</sub> probe is shown in Figure 1-2.

**Figure 1-2: Typical system installation**



- A. Gases
- B. Duct
- C. Adapter plate and flange
- D. Instrument air supply (reference air)
- E. Pressure regulator
- F. Flow meter
- G. Calibration gas
- H. Line voltage
- I. 4 to 20 mA signal
- J. Rosemount Xi Advanced Electronics (optional)
- K. Stack
- L. Traditional architecture cable



## 1.3 Mount

The Rosemount Xi Advanced Electronics is available in a panel mounting, wall mounting, or pipe mounting configuration.

Refer to [Figure 1-3](#) or [Figure 1-4](#) for the panel, wall, or pipe mounting details.

1. Ensure all components are available to install the Rosemount Xi.
2. Select a mounting location near or removed from the O<sub>2</sub> probe. Consider the temperature limitations of the Rosemount Xi (see [Section 1-4](#)) when selecting the mounting location.
3. Mount the Rosemount Xi at a height convenient for viewing and operating the interface. Approximately 5 ft (1.5 m) is recommended.
4. The keypad window on the Rosemount Xi may have interior and exterior protective membranes. Remove the protective membranes prior to use of the Rosemount Xi enclosure.

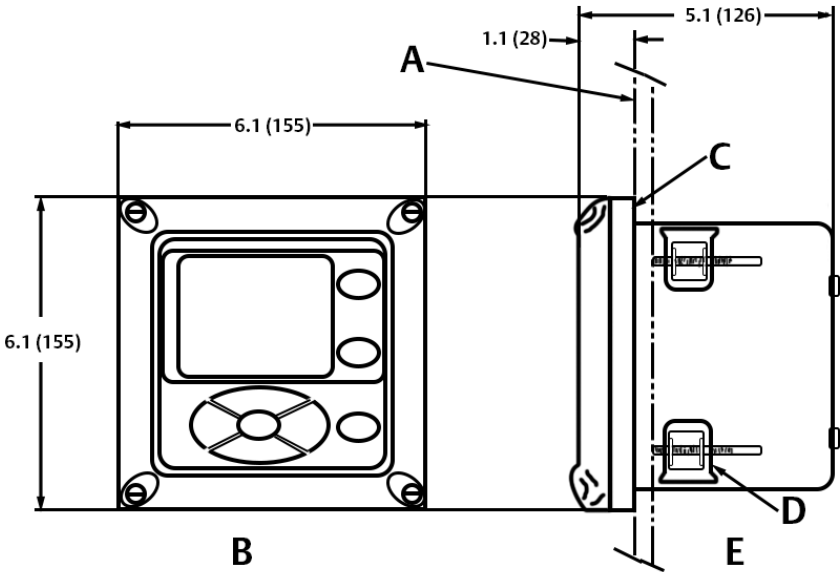
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### NOTICE

Failure to remove the protective membranes may cause the display to appear distorted. The membrane may be difficult or impossible to remove after extended use at elevated temperatures.

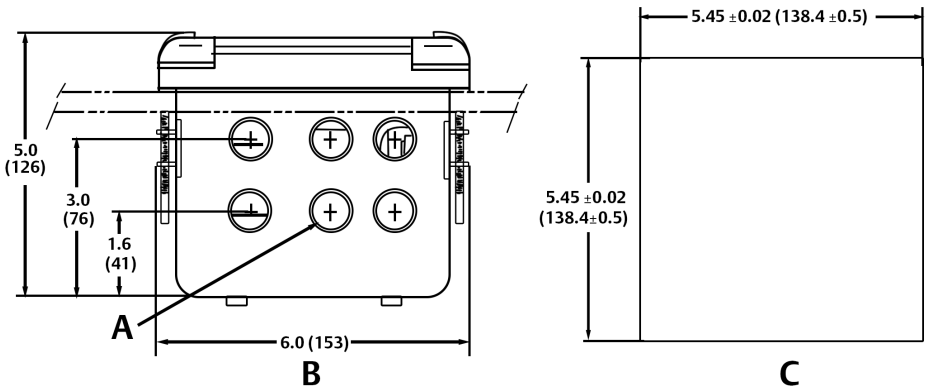
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**Figure 1-3: Rosemount Xi Advanced Electronics - panel mounting details – front and side view**



- A. Maximum Panel Thickness 0.375 (9.75)
- B. Front View
- C. Panel Mount Gasket
- D. 4x Mounting Brackets and Screws provided
- E. Side View

**Figure 1-4: Rosemount Xi Advanced Electronics - panel mounting details - bottom view**



- A. 6X ½ in NPT conduit openings
- B. Bottom View
- C. Panel Cut-Out

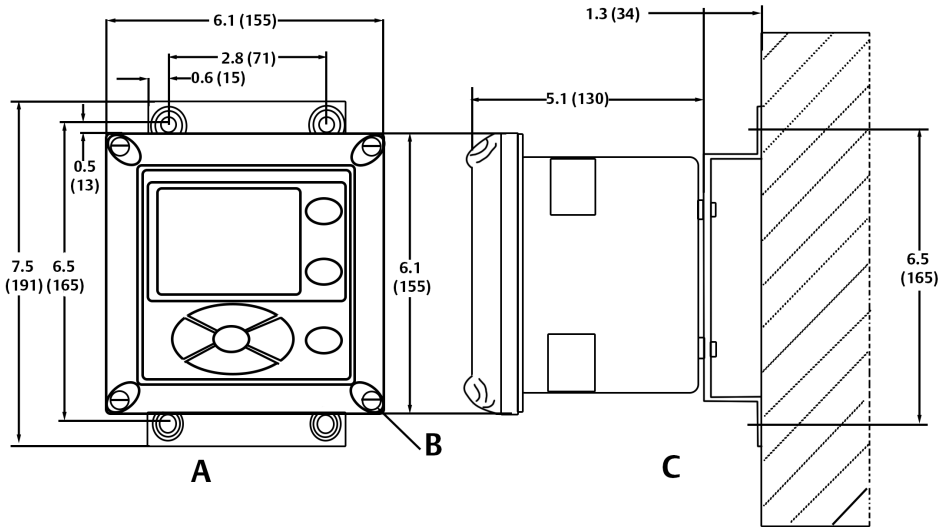
**Note**

Dimensions are in inches with millimeters in parentheses.

**Note**

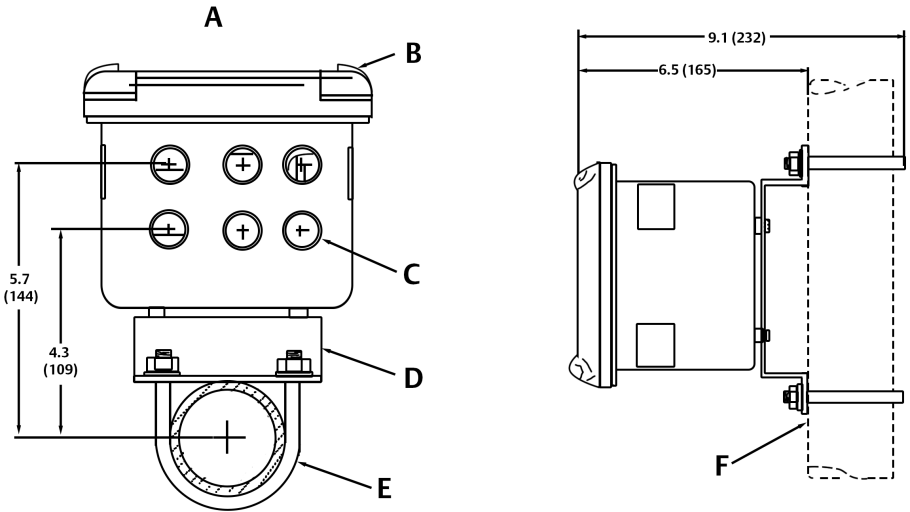
The front panel is hinged at the bottom. The panel swings down for easy access to the wiring locations.

**Figure 1-5: Rosemount Xi Advanced Electronics - wall/surface mounting – front and side view**



- A. Front View
- B. 4K Cover Screw
- C. Side View

**Figure 1-6: Rosemunt Xi Advanced Electronics - pipe mounting – bottom view**



- A. 6X ½ in NPT conduit openings
- B. Front View
- C. 6X ½ in NPT Conduit Openings
- D. Mounting Bracket
- E. U-Bolts
- F. 2 in Pipe Supplied by Customer

**Note**



Dimensions are in inches with millimeters in parentheses.

## 1.4 Specifications

**Table 1-1: Specifications**

Measurement specifications	
Net O <sub>2</sub> range	0 to 50% O <sub>2</sub> user scalable -2 to 50% O <sub>2</sub> user scalable with stoichiometer
Lowest detectable limit	0.01% O <sub>2</sub>
Signal stability	±0.03% O <sub>2</sub>
Accuracy in reducing conditions	±10% of reading or 0.1% O <sub>2</sub>

**Table 1-1: Specifications (continued)**

Ambient temperature effect on Rosemount Xi 4-20 mA signal	Less than 0.0025% O <sub>2</sub> per degree Celsius
<b>Environmental specifications</b>	
Rosemount Xi Advanced Electronics	Type 4X/IP66 polycarbonate material
Ambient temperature limits	-4 to 122 °F (-20 to 50 °C) -4 to 158 °F (-20 to 70 °C) as measured by electronics
Rosemount Xi LCD display: ambient temperature limits	-4 to 131 °F (-20 to 55 °C)
General purpose certifications	
<b>Installation specifications</b>	
Mounting	Panel, wall, or pipe
Reference air	0.5 scfh (0.25 l/min), clean, dry, instrument-quality air (20.95% O <sub>2</sub> ), regulated to 5 psi (34 kPa)
Calibration	Semi-automatic or automatic
Cal gases	0.4% O <sub>2</sub> and 8% O <sub>2</sub> , balance N <sub>2</sub>
Traditional architecture cable	200 ft (61 m) maximum length
Transmitter electrical power	12 - 24 Vdc (loop-powered from control room or Rosemount Xi)
Electrical power for Rosemount Xi	100 - 240 Vac ±10%, 50/60 Hz
Power consumption of Rosemount Xi	12 VA maximum or 776 VA maximum with traditional architecture, 120 V probes 450 VA maximum with traditional architecture, 44 V probes
Alarm relay outputs	Two provided - 2 Amperes, 30 Vdc, Form-C
Optional loss of flame input	Internally powered input to remove heater power actuated via dry contact output from user's flame scanner
	Emerson has satisfied all obligations from the European legislation to harmonize the product requirements in Europe. All static performance characteristics are with operating variables constant. Specifications subject to change without notice.

**Table 1-2: Product matrix, Rosemount Xi advanced electronics**

Xi	Rosemount Xi Advanced Electronics
<b>Code</b>	<b>Remote type</b>
01	Single channel <sup>(1)</sup>
03	Dual channel <sup>(1)</sup>
04	Single channel traditional architecture for 120 V probes
05	Single channel traditional architecture for 44 V probes
<b>Code</b>	<b>Mounting</b>
00	No hardware
01	Panel mount kit with gasket
02	2 in. pipe/wall mount kit
<b>Code</b>	<b>Cable</b>
00	No cable
10	20 ft (6 m) cable
11	40 ft (12 m) cable
12	60 ft (18 m) cable
13	80 ft (24 m) cable
14	100 ft (30 m) cable
15	150 ft (45 m) cable
16	200 ft (60 m) cable
<b>Code</b>	<b>Stoichiometer function</b>
00	None
01	Single channel
02	Dual channel
<b>Code</b>	<b>Programmable reference function</b>
00	None
01	Single channel
02	Dual channel
<b>Code</b>	<b>800 deg C process function</b>
00	None
01	Single channel
02	Dual channel

1. Requires XPS transmitter, P/N 6A00358G03

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**Note**

All static performance characteristics are with operating variables constant. Specifications subject to change without notice.

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## 2 Wire

### 2.1 Electrical installation

All wiring must conform to local and national codes. Multiple wiring diagrams are shown in this section. Always refer to the diagrams that apply to your transmitter configuration and disregard all other wiring diagrams.

**WARNING****ELECTRIC SHOCK**

Disconnect and lock out power before connecting the power supply. Failure to lock out power could result in serious injury or death.

**WARNING****ELECTRIC SHOCK**

Install all protective covers and safety ground leads after installation. Failure to install covers and ground leads could result in serious injury or death.

**WARNING****ELECTRIC SHOCK**

To meet the safety requirements of EN 61010 (EU requirement) and ensure safe operation of this equipment, connection to the main electrical power supply must be made through a circuit breaker (min 10 A) which will disconnect all current-carrying conductors during a fault situation. This circuit breaker should also include a mechanically operated isolating switch. If it does not, locate another external means of disconnecting the power supply close by. Circuit breakers or switches must comply with a recognized standard such as IEC 947.

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**Note**

Line, voltage, signal, and relay wiring must be rated for at least 221 °F (105 °C).

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**NOTICE**

If a metal conduit is used with the Rosemount Xi, the conduit should be reliably bonded to protective earth. The grounding plate inside the Rosemount Xi is not bonded to PE and does not provide adequate grounding.

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1. Remove cover screws from the front cover of the Rosemount Xi. Swing down the front cover of the interface box.

2. Pull out the I/O board on the right-hand side of the card rack inside the Rosemount Xi. If your system is configured to operate two transmitter probes, there are two I/O interface boards.
3. See [Figure 2-1](#). Connect the 4-20 mA signal wires at J4 of the I/O board. Attach the supplied ferrite clamp over the 4-20 mA OUT wires that extend past the shield.

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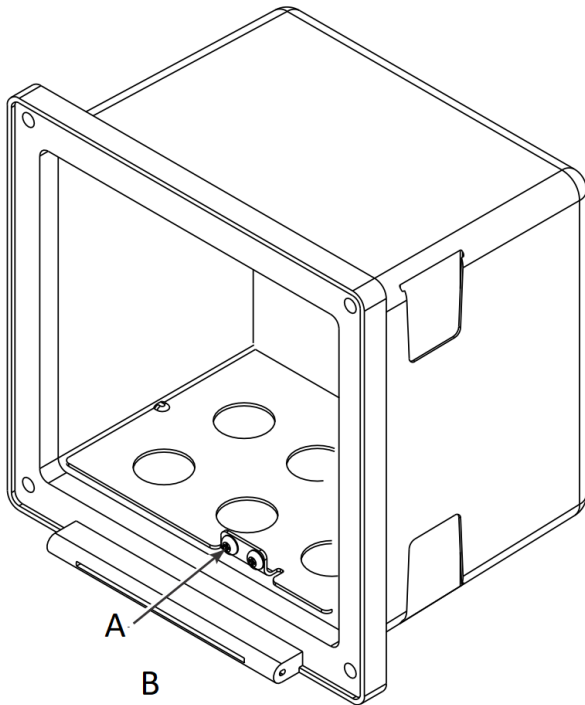
**NOTICE**

Installation of the ferrite clamp over the 4-20 mA OUT wires is required for compliance with the European EMC directive.

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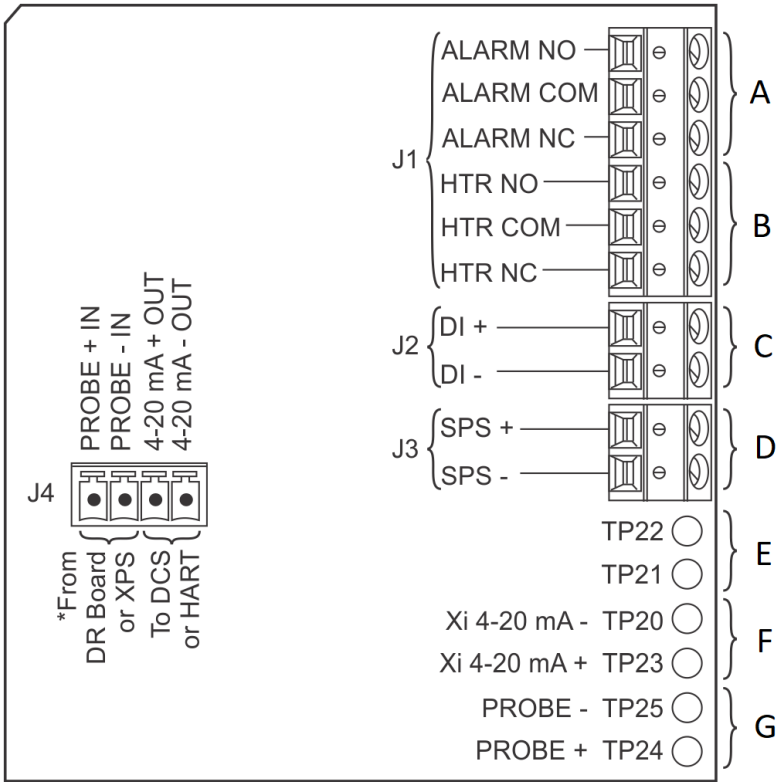
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**Figure 2-1: Signal connections at I/O board: outer box**



- A. Shield Termination  
B. Rosemount Xi Enclosure
-

**Figure 2-2: Signal connections at I/O board: Internal Settings**



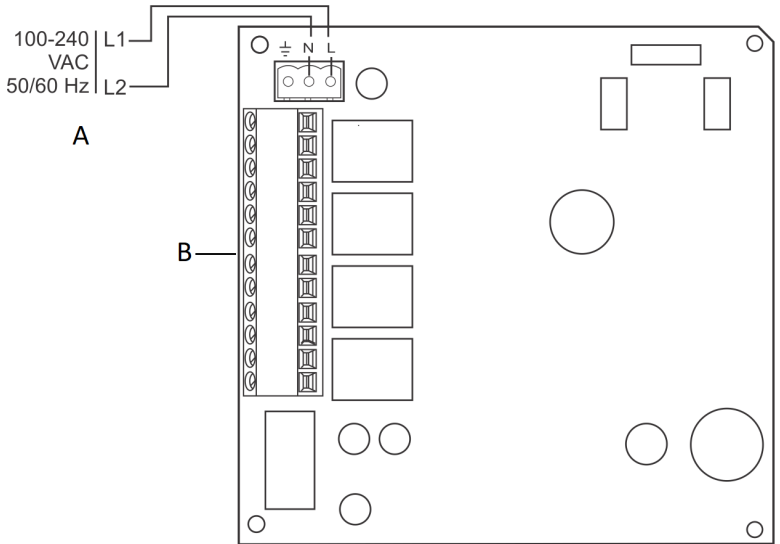
- A. To Alarm 1 Indicator
- B. To Heater Relay or Alarm 2 Indicator
- C. Flame Status input
- D. To SPS
- E. To Filed Communicator
- F. Rosemount Xi Output to Ammeter (4-20mA Check)
- G. Probe Output to Voltmeter (24 VDC Loop)

**Figure 2-3: Alarm indicator relay terminals**

- A. To Alarm 1 Indicator  
 B. To Heater Relay or Alarm 2 Indicator

4. Terminate the shield of the 4-20 mA signal wires at the designated ground terminal of the Rosemount Xi. Do not allow bare shield wires to contact the circuit boards. Insulate the shield wires prior to termination.
5. Connect the signal wires from the SPS (if used) to the applicable terminals of J3. Refer to the SPS instruction manual for wiring details.
6. Connect the signal wires for the flame status input (if used) to the applicable terminals of J2. The flame status sensing device is supplied by the customer. Refer to the applicable OEM documents for signal wiring details.
7. Connect the customer's alarm indicator devices to the alarm indicator relay terminals. See [Figure 2-3](#) for the alarm indicator relay terminals.
8. Reinstall the I/O board in the card rack of the Rosemount Xi.

**Figure 2-4: Power connections - Rosemount Xi Advanced Electronics**



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- A. From DR board for Traditional Architecture configurations
- B. Power Supply Board

9. If your system is configured for two channel operation, repeat steps 2 through 7 to connect the other signal wires.
10. Remove the connector from the power supply board located on the left-hand side of the card rack inside the Rosemount Xi.
11. See [Figure 2-4](#). Connect the line, or L1, wire to the L1 terminal and the neutral, or L2, wire to the N terminal.
12. Reinstall the power supply connector in the power supply board.
13. Close and fasten the Rosemount 736 °C Roseout Xi cover.

### 2.1.1 Wire the traditional architecture cable connections

A traditional architecture configuration is used to provide for remote location of the transmitter electronics. All electronics are housed inside the Rosemount Xi. A multi-conductor power/signal cable connects between the probe and the Rosemount Xi. Use the following procedure to connect the traditional architecture probe to the Rosemount Xi.

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**NOTICE**

The traditional architecture cable is provided at the specified length and is ready for installation. The cable glands must be properly terminated to maintain EMC/EMI noise protection.

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1. Run the 7-conductor cable between the traditional architecture probe and the installation site for the Rosemount Xi. Use new cable conduit or trough as needed.
2. Install the cable and lead wires to the probe per manufacturer's instructions.
3. Install the cable at the probe housing and at the Rosemount Xi enclosure according to the following procedure:
  - a) Unscrew the locking nut from the gland assembly and slide the locking nut back along the cable.
  - b) Pull the gland body away from the plastic insert. Use care not to damage the cable shield braid.
  - c) Insert the cable wires into the proper entry port in either the probe housing or the Rosemount Xi enclosure.
  - d) At the probe housing, apply polytetrafluoroethylene (PTFE) tape or similar sealing compound to the tapered pipe threads. Thread the gland body into the probe housing until properly seated.
  - e) At the Rosemount Xi enclosure, insert the gland body into the left front cable port from the inside of the enclosure. Use the rubber O-ring provided to seal the cable port.
  - f) Ensure the cable shield braid is evenly formed over the gray insert.

When properly formed, the braid should be evenly spaced around the circumference of the insert and not extend beyond the narrow diameter portion.
  - g) Carefully press the gray insert into the gland body. The grooves on the insert should align with similar grooves inside the gland body. Press the insert in until it bottoms out in the gland body.
  - h) Slide the locking nut up and thread it onto the gland body. Tighten the locking nut so the rubber grommet inside the plastic insert compresses against the cable wall to provide an environmental seal.
4. At the Rosemount Xi, connect the cable leads to the connectors on the transmitter I/O board.

## 3 Configure

### 3.1 Verify installation



#### **WARNING**

##### **ELECTRIC SHOCK**

Install all protective equipment covers and safety ground leads before equipment startup. Failure to install covers and ground leads could result in serious injury or death.



#### **WARNING**

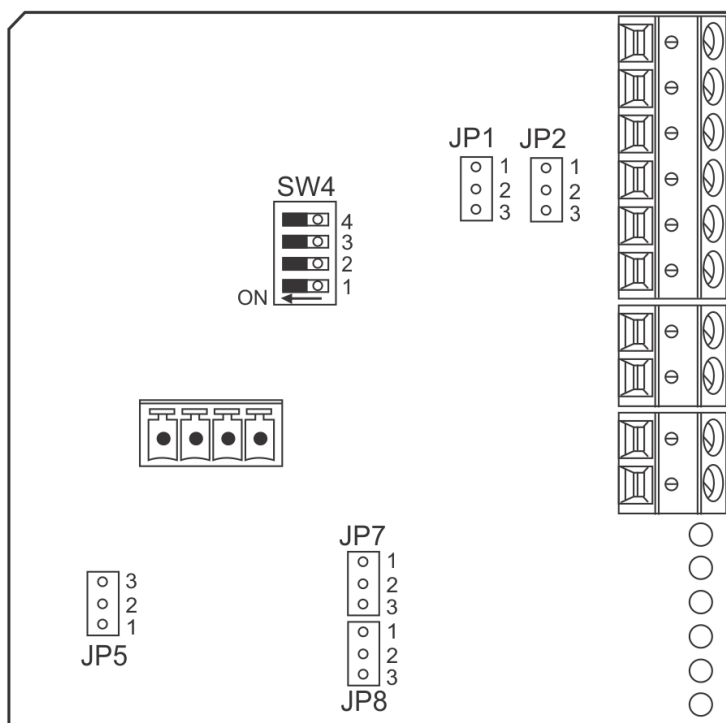
##### **ELECTRIC SHOCK**

If external loop power is used, the power supply must be a safety extra low voltage (SELV) type.

#### 3.1.1 Rosemount Xi configuration

Refer to [Figure 3-1](#) and [Table 3-1](#) for the configuration of jumpers JP1 through JP8. The jumper configuration for your I/O board depends on the system design and system components used in your installation.

The setting of switch SW4 and the configuration of jumpers JP1 through JP8 must be verified on the I/O board in the Rosemount Xi. All four dip switches on switch SW4 must be set to the *Off* position, as shown.

**Figure 3-1: I/O board jumper configuration****Table 3-1: Configuring Jumpers JP1 through JP8**

Configuration	Selection	Jumper	Jumper setting
Flame safety function or Extra alarm output	Flame safety function	JP1 and JP2 (Both must be set the same.)	Pins 1 and 2
	Extra alarm output		Pins 2 and 3
Loop power for 4-20 mA/HART Signal from the Rosemount Xi to Probe	Powered from the Rosemount Xi (most common method)	JP5	Pins 1 and 2
	Powered from external DC supply		Pins 2 and 3
Loop power for 4-20 mA/HART Signal from the	Powered from the Rosemount Xi.	JP7 and JP8 (Both must be set the same.)	Pins 1 and 2



**Table 3-1: Configuring Jumpers JP1 through JP8 (continued)**

Configuration	Selection	Jumper	Jumper setting
Rosemount Xi to DCS	Powered from DCS.		Pins 2 and 3

Sw4 switch settings (Default = OFF):

1. Reserved; must remain OFF.
2. Not used.
3. Not used.
4. Flame safety function enable.

## 3.2 Set test gas values

Use a Field Communicator or the Rosemount Xi to set test gas values for calibration.

A Rosemount Xi shipped from the factory has test gas values for low and high set to 0.4% and 8% respectively. This same process must be performed any time a replacement transmitter board, I/O board, or DR board is installed.

### Setting test gas values using the Rosemont Xi display/keypad

1. Press the *MENU* button once.
2. From the main menu, select *PROBE 1*.
3. From *PROBE 1*, select *DETAILED SETUP*.
4. From the *DETAILED SETUP* menu, select *CAL SETUP*.
5. From *CAL SETUP*, select *Cal Gas 1*. Enter the percent O<sub>2</sub> used for the low O<sub>2</sub> test gas.
6. From *CAL SETUP*, select *Cal Gas 2*. Enter the percent O<sub>2</sub> used for the high O<sub>2</sub> test gas.
7. Press the *Left* arrow key several times to return to the main menu.
8. Repeat steps 2 through 6 for *PROBE 2* if configured for dual channel.

## 3.3 Setting test gas values using Field Communicator

1. Use the Field Communicator software to access the HART menu.
2. From the *DEVICE SETUP* menu, select *DETAILED SETUP*.
3. From the *DETAILED SETUP* menu, select *CAL SETUP*.
4. From *CAL SETUP*, select *Cal Gas 1*. Enter the percent O<sub>2</sub> used for the low O<sub>2</sub> test gas.

5. From *CAL SETUP*, select *Cal Gas 2*. Enter the percent O<sub>2</sub> used for the high O<sub>2</sub> test gas.

## 3.4 Alarm relay output configuration

The Rosemount Xi has two dry contact Form-C alarm relay output signals that can be configured in eight different modes through the Rosemount Xi keypad display or the Field Communicator. A list of possible configurations is shown in [Table 3-1](#). Each alarm relay can be configured separately.

**Table 3-2: Alarm relay output configurations**

Mode	Configuration
No alarm <sup>(1)</sup>	The output is not configured for any alarm condition.
Unit alarm	The output is configured for a unit alarm.
Low O <sub>2</sub> alarm	The output is configured for a low O <sub>2</sub> alarm.
Low O <sub>2</sub> /unit alm	The output is configured for a unit alarm and a low O <sub>2</sub> alarm.
Cal recommended	The output is configured for a calibration recommended display.
Cal rec/unit alm <sup>(2)</sup>	The output is configured for a unit alarm and a calibration recommended display.
Low O <sub>2</sub> /cal rec	The output is configured for a low O <sub>2</sub> alarm and a calibration recommended display.
Low O <sub>2</sub> /unit/cal rec	The output is configured for a low O <sub>2</sub> alarm, a unit alarm, and a calibration recommended display.

(1) *The default configuration for Alarm 2.*

(2) *The default configuration for Alarm 1.*

### 3.4.1 Configuring alarm relays with the Rosemount Xi keypad/display

1. Press the *MENU* button once.
2. From the main menu, select *PROBE 1*.
3. From *PROBE 1*, select *DETAILED SETUP*.
4. From the *DETAILED SETUP* menu, select *ALARM RELAY*.
5. From *ALARM RELAY*, select as follows:
  - **Alm Relay1** - Alarm 1 mode
  - **Alm Relay2** - Alarm 2 mode
  - **Low O2 Alm SP** - Low O<sub>2</sub> alarm setpoint
  - **High Temp Alm SP** - High temperature alarm setpoint

6. Press the *Left* arrow key several times to return to the main menu.
7. Repeat steps 2 through 6 for *PROBE 2* if configured for dual channel.

### 3.4.2 Configuring autocalibration with the Field Communicator

1. Use the Field Communicator software to access the HART menu.
2. From the *DEVICE SETUP* menu, select *DETAILED SETUP*.
3. From the *DETAILED SETUP* menu, select *CAL SETUP*.
4. From *CAL SETUP*, select *Auto Cal*.
5. Press the *Right* arrow key to change the state from *NO* to *YES*.

## 3.5 Autocalibration setup

If autocalibration is desired, the Rosemount Xi must be used with an SPS 4001B. The Rosemount Xi must be properly configured before autocalibration can take place. Refer to the applicable SPS 4001B instruction manual for details on performing autocalibration. Refer to [Startup and operation](#) for details on manual calibration procedures.

A Rosemount Xi is shipped from the factory without autocalibration configured. This same process must be performed any time a replacement I/O board is installed.

## 4 Startup and operation

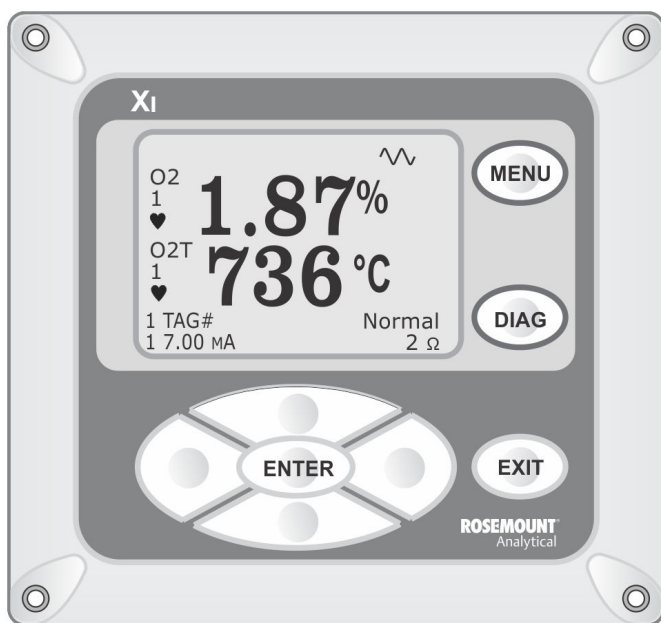
### 4.1 Startup

The O<sub>2</sub> probe takes approximately 45 minutes to warm up to the 1357 °F (736 °C) heater setpoint. The 4-20 mA signal remains at a default value of 3.5 mA through this warmup period. Once warm, the O<sub>2</sub> reads oxygen, and the 4-20 mA signal's reading is based on the default range of 0-10% O<sub>2</sub>.

#### NOTICE

The Rosemount Xi offers optional advanced features, such as elevated process temperature capability to 1472 °F (800 °C), autocalibration via an SPS solenoid vox, a stoichiometer feature for indicating the level of oxygen deficiency in reducing conditions, and programmable reference to enhance accuracy at near ambient levels of O<sub>2</sub>.

**Figure 4-1: Rosemount Xi display (typical)**



#### Note

The display can be customized through the Rosemount Xi menu. Use the SYSTEM → CONFIGURE → MAIN DISPLAY path (Figure 4-2).

### 4.1.1 Operation via Rosemount Xi

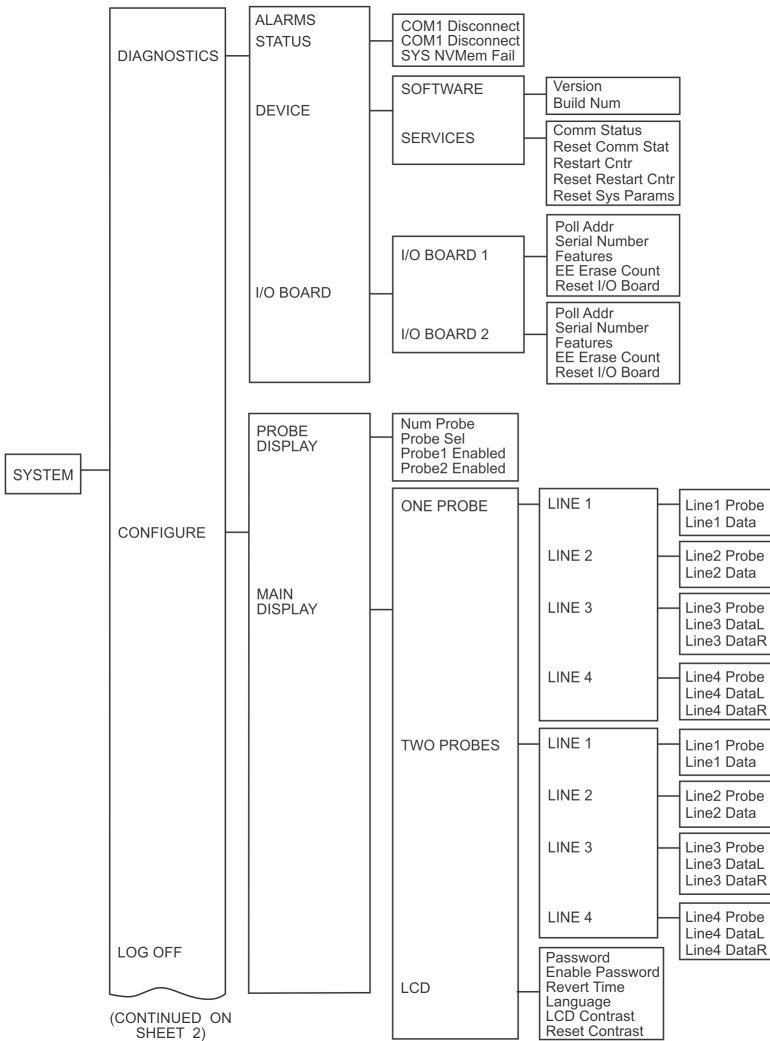
The following procedures describe operations using the Rosemount Xi to set up and calibrate the system. Additional operating instructions are included in the *SPS 4001B* instruction manual, if applicable to your system.

### 4.1.2 Rosemount Xi Controls

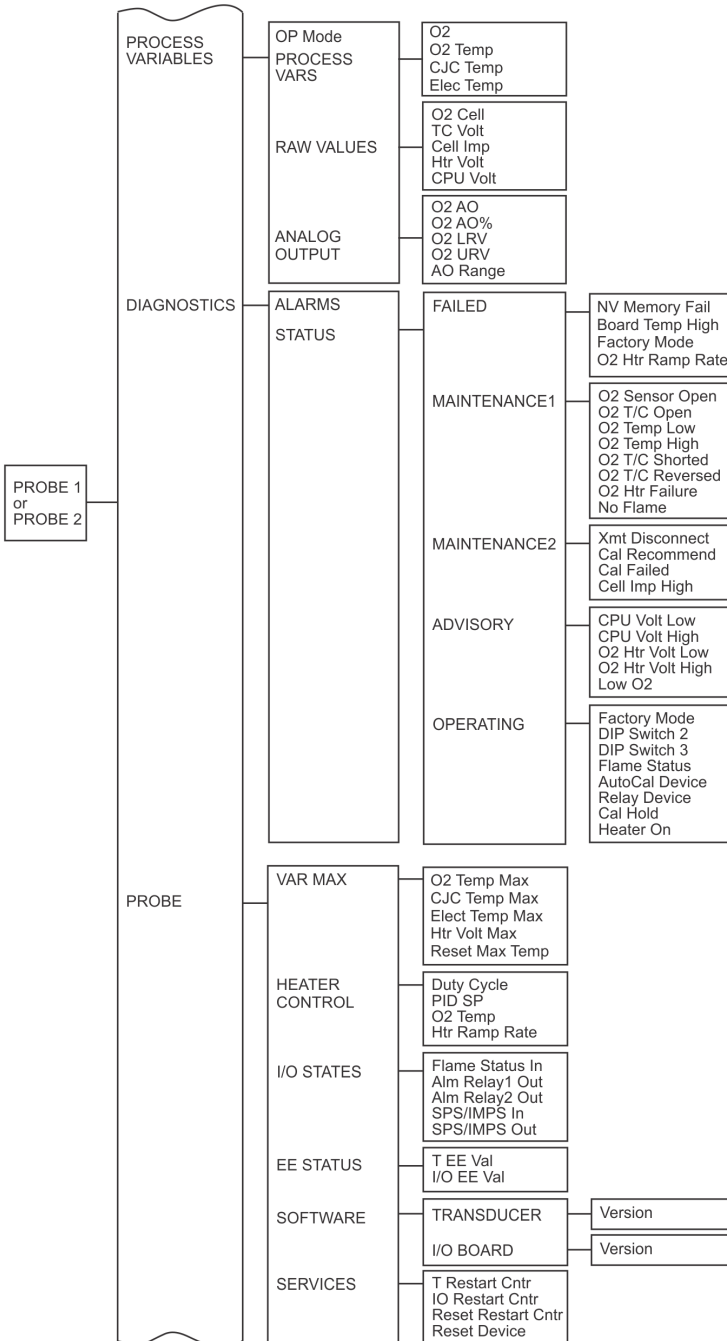
The Rosemount Xi can be used to change the software and alarm settings, to adjust the high and low gas settings, and to initiate the calibration sequence. Refer to the following control descriptions. Use the control keys on the front panel of the Rosemount Xi ([Figure 4-1](#)) to navigate and edit the Rosemount Xi menu (refer to the [Figure 4-2](#)).

- *MENU* toggles between three main menu options: *System*, *Probe1*, and *Probe2* (if available). The top level of the selected main menu is displayed.
- *DIAG* toggles between the *Alarms* list of the three main menus. All faults and warnings related to the selected main menu device are displayed.
- *ENTER* saves newly entered data and returns you to the previous menu level.
- *EXIT* returns you to the previous menu level without saving newly entered data. When navigating the menu tree, pressing *EXIT* returns you to the main menu.
- *Up/Down* keys scroll up and down through menu items. During data entry, the *Up/Down* keys increment and decrement the data values.
- *Left* arrow key returns you to the previous menu level. During data entry, the *Left* arrow key moves the cursor one digit to the left.
- *Right* arrow key advances you to the next menu level and, when a menu item is highlighted, selects the item from a list of menu options. During data entry, the *Right* arrow key moves the cursor one digit to the right.

**Figure 4-2: Xi menu**

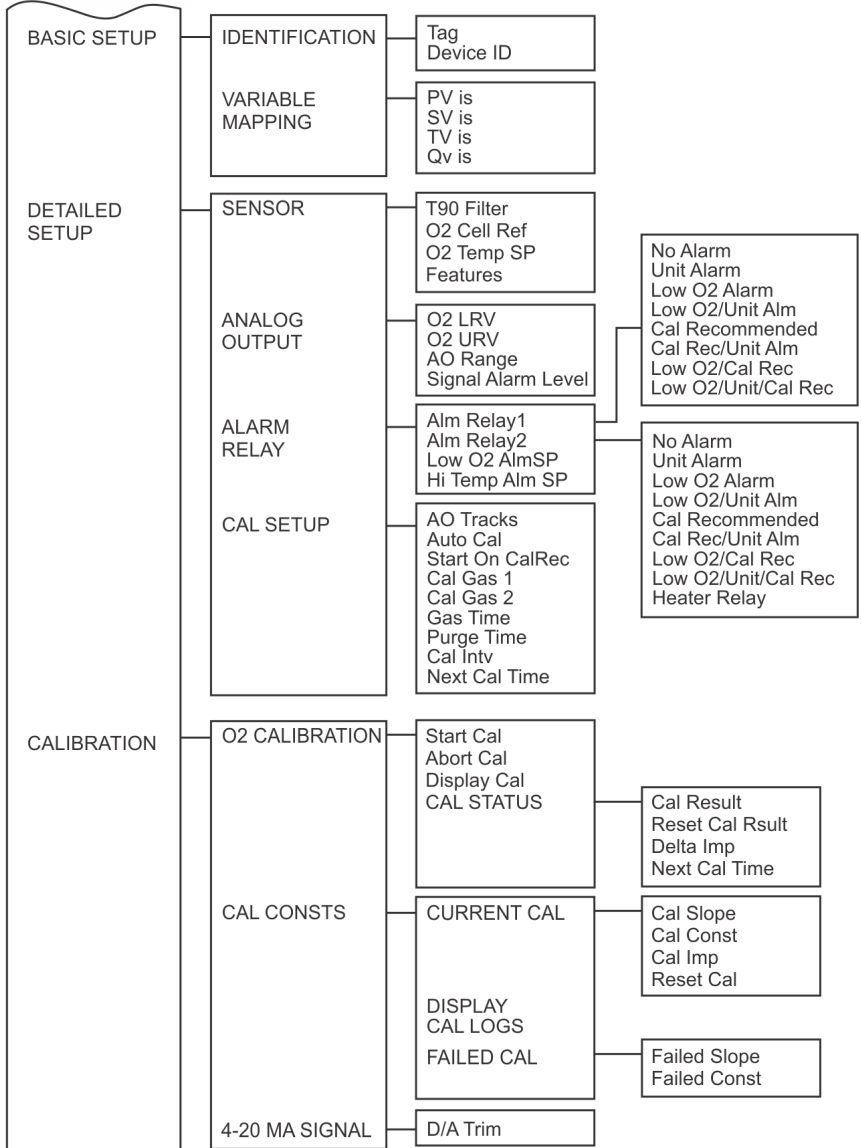


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(CONTINUED ON SHEET 3)

(CONTINUED FROM SHEET 2)



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### 4.1.3 Password protection

Beginning with Rosemount Xi system software version 1.05 or higher, the main display and diagnostic screens of the Rosemount Xi can be viewed at any time, but further access and unauthorized configuration changes can be prevented by enabling a password protection feature. However, the Rosemount Xi is shipped with password protection disabled.

Password protection can be enabled by selecting **System Main Menu > Configure > LCD > Enable Password** (see [Figure 4-2](#)).

The factory default upon enabling the password protection is *ROSE*, but the password can consist of any 4 alpha/numeric characters.

If you forget the password, do one of the following:

- In North America, call Emerson's Rosemount Customer Central at 1-800-999-9307.
- For everywhere else, contact your nearest Emerson representative or go to [Emerson.com](http://Emerson.com).

A *Lock* icon is displayed at the top right corner of the main display when password protection is in effect.

The password protection relocks itself after a certain number of seconds with no button pushes (defined as *revert time* in the same *LCD setup* menu). You can also force the front panel to be locked by selecting **System Main Menu > Log Off**. The *Log Off* selection performs on function if the password feature is disabled.

The Rosemount Xi has a *Reset* function that reestablishes all factory default conditions, including the password protection feature, i.e., the password protection falls back to a disabled condition after a reset.

## 4.2 Operation via HART/AMS

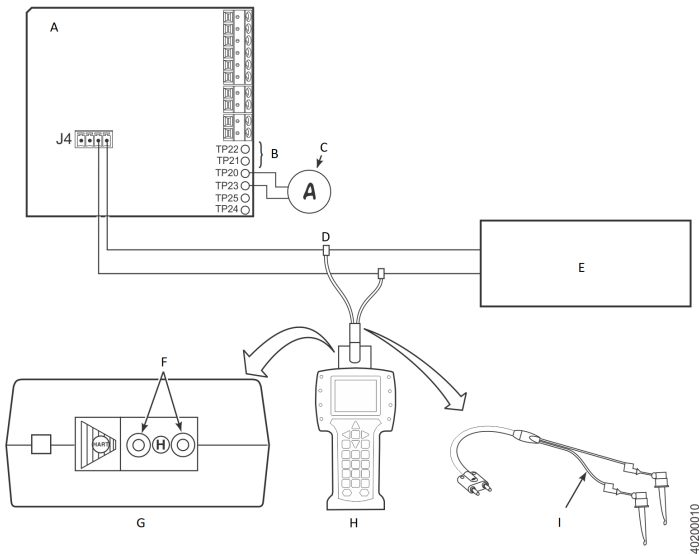
The Field Communicator is a handheld communications interface device. It provides a common communications link to all microprocessor-based instruments that are HART compatible. The handheld communicator contains a liquid crystal display (LCD) and 21 keys. A pocket-sized manual, included with the Field Communicator, details the specific functions of all the keys.

The Field Communicator accomplishes its task using a frequency shift keying (FSK) technique. With the use of FSK, high-frequency digital communications signals are superimposed on the Rosemount Xi's 4-20 mA current loop. The Field Communicator does not disturb the 4-20 mA signal, as no net energy is added to the loop.

### 4.2.1 Field communicator signal line connections

When working at the Rosemount Xi, the Field Communicator can be connected directly to test points TP21 and TP22 on the Rosemount Xi I/O board as shown in Figure 4-3. The AM+ and AM- test points are provided to monitor the 4-20 mA signal without breaking into the loop.

**Figure 4-3: Field Communicator connection at the Rosemount Xi**



- A. Rosemount Xi I/O Board
- B. To Field Communicator
- C. 4-20 mA Signal Monitor (Customer Supplied)
- D. 4-20 mA Signal Line
- E. Control Room/AMS or Data Acquisition System
- F. Loop Connectors
- G. Field Communicator Rear Panel
- H. Field Communicator
- I. Lead Set

### 4.3 Offline and online operations

The Field Communicator can be operated both offline and online.

Offline operations are those in which the communicator is not connected to the O<sub>2</sub> probe. Offline operations include interfacing the Field Communicator

with a PC (refer to applicable HART documentation regarding HART/PC applications).

In the online mode, the Field Communicator is connected to the 4-20 mA analog output signal line. The communicator is connected in parallel to the O<sub>2</sub> probe or in parallel to the 250 ohm load resistor.

## A Safety instructions for the wiring and installation of this apparatus

The following safety instructions apply specifically to all EU member states. They should be strictly adhered to in order to assure compliance with the Low Voltage Directive. Non-EU states should also comply with the following unless superseded by local or national standards.

1. Adequate earth connections should be made to all earthing points, internal and external, where provided.
2. After installation or troubleshooting, all safety covers and safety grounds must be replaced. The integrity of all earth terminals must be maintained at all times.
3. Mains supply cords should comply with the requirements of IEC227 or IEC245.
4. All wiring shall be suitable for use in an ambient temperature of greater than 75 °C (167 °F).
5. All cable glands used should be of such internal dimensions as to provide adequate cable anchorage.
6. To ensure safe operation of this equipment, connection to the mains supply should only be made through a circuit breaker which will disconnect all circuits carrying conductors during a fault situation. The circuit breaker may also include a mechanically operated isolating switch. If it does not, then another means of disconnecting the equipment from the supply must be provided and clearly marked as such. Circuit breakers or switches must comply with a recognized standard, such as IEC947. All wiring must conform with any local standards.
7. Where equipment or covers are marked with the following symbol, hazardous voltages are likely to be present beneath. These covers should only be removed when power is removed from the



equipment - and then only by trained service personnel.

8. Where equipment or covers are marked with the following symbol, there is a danger from hot surfaces beneath. These covers should only be removed by trained service personnel when power is removed from the equipment. Certain surfaces may remain hot to



the touch.

9. Where equipment or covers are marked with the following symbol,



refer to the Reference Manual for instructions.

10. All graphical symbols used in this product are from one or more of the following standards: EN61010-1, IEC417, and ISO3864.
11. Where equipment or labels are marked "Do Not Open While Energized" or similar, there is a danger of ignition in areas where an explosive atmosphere is present. This equipment should only be opened when the power is removed and adequate time as specified in the label or in the instruction manual has been allowed for the equipment to cool down - and then only by trained service personnel.

## B Certifications

表格 1: 含有 China RoHS 管控物质超过最大浓度限值的部件型号列  
 Table 1: List of Model Parts with China RoHS Concentration above MCVs

部件名称 Part Name	有害物质 / Hazardous Substances					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr +6)	多溴联苯 Polybrominated biphenyls (PBB)	多溴联苯醚 Polybrominated diphenyl ethers (PBDE)
电子组件 Electronics Assembly	X	○	○	○	○	○
传感器组件 Sensor Assembly	X	○	○	○	○	○

本表格系依据 SJ/T11364 的规定而制作。

This table is proposed in accordance with the provision of SJ/T11364

○: 意为该部件的所有均质材料中该有害物质的含量均低于 GB/T 26572 所规定的限量要求。

O: Indicate that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

X: 意为在该部件所使用的的所有均质材料里, 至少有一类均质材料中该有害物质的含量高于 GB/T 26572 所规定的限量要求。

X: Indicate that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

No: RAD1130 Rev. B



# Declaration of Conformity



We,

Rosemount Inc.  
6021 Innovation Blvd  
Shakopee, MN 55379  
USA

declare under our sole responsibility that the product,

### Rosemount™ Advanced Electronics, Model Xi

Authorized Representative in Europe:

Emerson S.R.L., company No. J12/88/2006, Emerson 4  
street, Parcul Industrial  
Tetarom II, Cluj-Napoca 400638, Romania

Regulatory Compliance Shared Services Department  
Email: [europereproductcompliance@emerson.com](mailto:europereproductcompliance@emerson.com) Phone:  
+40 374 132 035


For product compliance destination sales  
questions in Great Britain, contact Authorized  
Representative:

Emerson Process Management Limited at  
[ukproductcompliance@emerson.com](mailto:ukproductcompliance@emerson.com) or +44 11  
6282 23 64, Regulatory Compliance Department.

Emerson Process Management Limited, company  
No 00671801, Meridian East, Leicester LE19 1UX,  
United Kingdom

to which this declaration relates, is in conformity with:

- 1) the relevant statutory requirements of Great Britain, including the latest amendments, as shown in the attached schedule.
- 2) the provisions of the European Union Directives, including the latest amendments, as shown in the attached schedule.

  
(signature & date of issue)

May 12, 2022

Mark Lee | Vice President, Quality | Boulder, CO, USA  
(name) (function) (place of issue)

**EMC Directive (2014/30/EU)**

Harmonized Standards:  
EN 61326-1:2013

**Electromagnetic Compatibility Regulations 2016 (S.I. 2016/1091)**

Designated Standards:  
EN 61326-1:2013

**Low Voltage Directive (2014/35/EU)**

Harmonized Standards:  
EN 61010-1:2010

**Electrical Equipment (Safety) Regulations 2016 (S.I. 2016/1101)**

Designated Standards:  
EN 61010-1:2010



**Quick Start Guide**  
**00825-0100-4889, Rev. AB**  
**October 2022**

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