Quick Start Guide
MS-00825-0100-9740, Rev. AD
September 2026

Rosemount™ CX2100 In-Situ Oxygen Analyzer



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⚠ WARNING

Follow installation guidelines

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

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

Explosions

Explosions could result to death or serious injuries.

Do not open when an explosive atmosphere may be present.

Electrical shock

Failure to install covers and ground leads could result in serious injury or death.

Do not open the junction box cover or display cover while energized.
Install all protective covers, clamps, and ground leads after installation.
Ensure that power terminals are covered by a plastic door and HART® terminals are accessible.

Connect all devices to the proper electrical and pressure sources.

Physical access

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

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

⚠ CAUTION

For Rosemount CX2100TR Remote Electronics Transmitter, only use cables and certified cable glands rated ≥ 185 °F (85 °C).

Tampering or unauthorized substitution of parts and procedures can affect the performance and cause unsafe operation of your process

Use only factory documented components for repair.

1 Specifications required for approvals

Maximum altitude	9842 ft. (3000 m)
Over voltage category	II
Pollution degree	4
Relative humidity	5 to 95 percent non-condensing
Supply voltage	85 to 250 V_{AC}

Table 1-1: Probe, diffuser, and accessory temperature limits

	Process	Process mounting
Standard probe	–40 to +1300 °F (–40 to +704 °C)	N/A
Wall flange seal	–40 to +392 °F (–40 to +200 °C)	N/A
Stainless steel snubber diffuser	Up to 750 °F (400 °C)	Up to 392 °F (200 °C)
Ceramic diffuser	Up to 1517 °F (825 °C)	Up to 392 °F (200 °C)
Alloy C-276 diffuser	Up to 1300 °F (704 °C)	Up to 392 °F (200 °C)
Bypass accessory	Up to 2000 °F (1093 °C)	Up to 392 °F (200 °C)
Abrasive shield accessory	Up to 1300 °F (704 °C)	Up to 392 °F (200 °C)
Extended temperature range (part of Advanced Features option,DA2)	–40 to +1562 °F (–40 to +850 °C)	N/A

Table 1-2: Ambient temperature limits

	Product operation	LCD display operation
Remote mount probe	–40 to +194 °F (–40 to +90 °C)	N/A
Remote mount transmitter	–40 to +149 °F (–40 to +65 °C)	–4 to +149 °F (–20 to +65 °C)
Integral mount probe	–40 to +149 °F (–40 to +65 °C)	–4 to +149 °F (–20 to +65 °C)

2 Installation

2.1 Mechanical installation

Most combustion processes run only slightly negative or positive in pressure, so that the probe flange is for mechanical mounting only.

The probe is not rated for high pressures. If this is a new installation, Emerson can supply a weld plate for welding to the flat flue gas duct surfaces.

2.1.1 Install Rosemount CX2100-PI Integral Probe or CX2100-DR Direct Replacement Probe

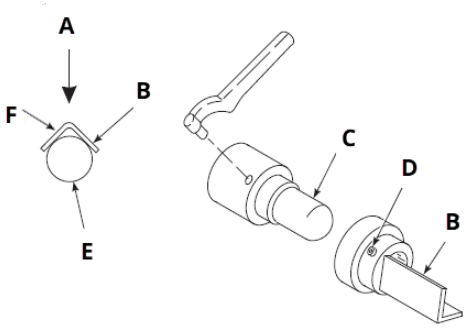
Prerequisites

Ensure all components are available to install the probe.

Procedure

1. If using a ceramic of Hastelloy diffusion element with a vee-deflector, the vee-deflector must be correctly oriented. Before inserting the probe, check the direction of the gas flow in the duct. Orient the vee-deflector so the apex points upstream towards the flow. See Figure 2-1.

Figure 2-1: Orienting optional vee deflector



A. Gas flow direction
B. Vee deflector
C. Diffusion element
D. Set screw
E. Filter
F. Apex

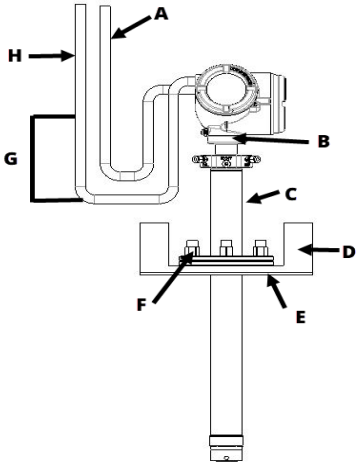
a. Loosen the set screws.

b. Rotate the vee-deflector to the desired position.

c. Retighten the set screws.

2. In vertical installations, ensure the system cable drops vertically from the analyzer and the conduit is routed below the level of the analyzer or junction box housing.
This drip loop, shown in Figure 2-2, minimizes the possibility that moisture will damage the electronics.

Figure 2-2: Drip loop and Insulation Removal



A. Logic input/output, 4-20 mA signal
B. Clamp screw
C.

Note

Replace insulation after installing analyzer.

D. Insulation
E. Stack or duct metal wall
F. Adapter plate
G. Drip loop
H. Line voltage

Note

CX2100PI Integral Analyzer is shown. You may orient the probe in any direction. Emerson does not recommend vertical up orientation due to the possibility of particulate settling on the cell.

Note

The electronic display orientation in the integral probe or remote transmitter is adjustable through the electronic menu.

3. If using the standard square weld plate, weld or bolt the plate onto the duct.
The through hole diameter in the stack or duct wall and refractory material must be at least 2.5 in. (63.5 mm).

4. If the system has an abrasive shield with a dust seal, check the dust seal gaskets. Make sure the joints in the two gaskets are staggered 180 degrees and that the gaskets are in the hub grooves as the transmitter slides into the 15-degree forcing cone in the abrasive shield.

NOTICE

Emerson recommends an abrasive shield for abrasive particulates in the flue gas stream and for longer probes to provide support.

NOTICE

If process temperatures will exceed 392 °F (200 °C), use anti-seize compound on the stud threads to ease future removal of the analyzer. Refer to the conditions for safe use in the Product certifications section of the *Quick Start Guide* for maximum flange temperature.

5. Insert the probe with a new gasket installed through the opening in the mounting flange and bolt the unit to the flange.

Note

Take care when inserting a probe with a dust seal. Push probe straight so as to not deform the seal between the O_2 cell and probe.

6. If installing a CX2100 PI Integral Probe, ensure the analyzer is properly earthed by way of both internal and external points.

NOTICE

Uninsulated stacks or ducts may cause ambient temperatures around the electronics to rise, which may cause overheating damage to the electronics.

If you removed duct work insulation for analyzer mounting, replace the insulation afterwards. Ensure the probe installation does not obscure the warnings on the housing covers.

a. If installing a CX2100PI Integral Electronics Probe, position the transmitter to the correct orientation for your process by loosening the clamp and clamp screw. Once the transmitter has been positioned in the correct orientation, tighten the clamp and clamp screw back onto the probe.

⚠ WARNING

The quick connect clamp is part of the enclosures.

To maintain the integrity of the enclosures for hazardous and ordinary locations approvals, the clamp must be installed with the clamp screw at the correct torque per Table 2-1.

NOTICE

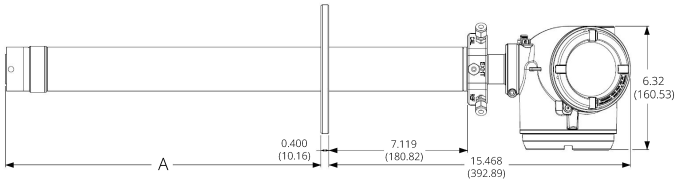
Do not twist the transmitter more than 180 degrees to protect cable assembly.

Table 2-1: Quick connect clamp screw specifications

Screw material	Torque	Property class	Screw thread
Stainless steel	31 ± 1 in-lb	A4-70 SHCS	M5 x 0.8

Figure 2-3: CX2100-PI Integral Analyzer with ordinary locations approved snubber diffuser

An integral probe consists of a transmitter directly attached to a probe body.



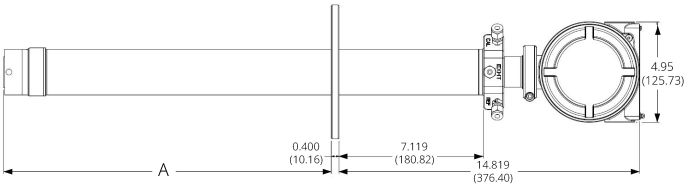
A. Insertion depth

Note

Measurement units are in inches (mm).

Figure 2-4: CX2100 DR Direct Replacement Probe with ordinary locations approved snubber diffuser

A direct replacement (DR) probe consists of a junction box directly attached to a probe body via a quick connect clamp.

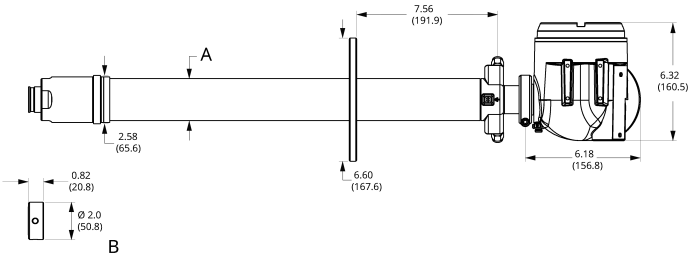


A. Insertion depth

Note

Measurement units are in inches (mm).

Figure 2-5: CX2100-PI Integral Analyzer with hazardous locations approved flame arrestor and snubber diffuser

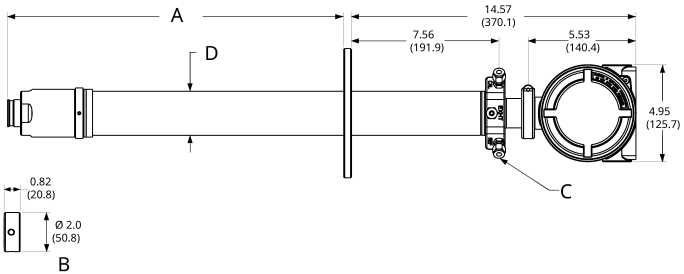


A. Standard tube 2.25 in. (57 mm)
B. Snubber holder

Note

Measurement units are in inches (mm).

Figure 2-6: CX2100-DR Direct Replacement Probe with hazardous locations approved flame arrestor and snubber diffuser



A. Insertion depth
B. Snubber holder
C. 1/4-inch Tube fitting
D. Standard tube 2.25 in (57 mm)

Note

Measurement units are in inches (mm).

Dimension A for Figure 2-3 and Figure 2-4are listed in Table 2-2.

Table 2-2: Removal/Installation dimensions for probes with snubber diffusers

Probe length	No hazardous locations certifications	
	Insertion depth with snubber diffuser	Insertion depth with abrasive shield
18 in. (0.457 m)	15.826 in. (0.402 m)	13.1 in. (0.333 m)
3 ft. (0.91 m)	33.826 in. (0.859 m)	31.1 in. (0.79 m)
6 ft. (1.83 m)	69.826 in. (1.774 m)	67.1 in. (1.704 m)

Probe length	No hazardous locations certifications	
	Insertion depth with snubber diffuser	Insertion depth with abrasive shield
9 ft. (2.74 m)	105.826 in. (2.690 m)	103.1 in (3.533 m)
12 ft. (3.66 m)	141.826 in. (3.602 m)	139.1 in. (3.533 m)

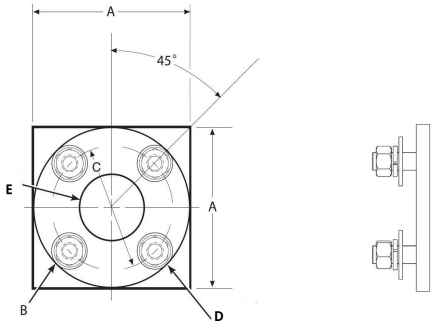
Dimension A for Figure 2-6 are listed in Table 2-3.

Table 2-3: Removal/Installation dimensions for probes with snubber diffusers in hazardous locations

Probe length	Insertion depth	Insertion depth snubber holder	Insertion depth ceramic diffuser	Insertion depth Hastelloy diffuser
18 in. (457 mm)	17.2 in. (437 mm)	17.4 in. (442 mm)	21 in. (533 mm)	21 in. (533 mm)
3 ft. (0.91 m)	35.2 in. (894 mm)	35.4 in. (899 mm)	39 in. (991 mm)	39 in. (991 mm)

Probe length	Insertion depth	Insertion depth snubber holder	Insertion depth ceramic diffuser	Insertion depth Hastelloy diffuser
6 ft. (1.83 m)	71.2 in. (1,808 mm)	71.4 in. (1,814 mm)	75 in. (1,905 mm)	75 in. (1,905 mm)

Figure 2-7: Probe installation square weld plates



A. Square weld plate length (see Figure 2-7)
B. Thread size (see Figure 2-7)
C. Bolt circle diameter (see Figure 2-7)
D. Four studs, lock washers, and nuts equally spaced on C, diameter BC
E. Inner dimension (see Figure 2-7)

Table 2-4: Installation square weld plate dimensions

	ANSI 2-inch Class 150	ANSI 3-inch Class 150	DIN65 PN10	DIN100 PN06
A (square weld plate length)	6 in. (152 mm)	7.75 in. (197 mm)	7.5 in. (191 mm)	8.46 in. (215 mm)
B (thread size)	⅝-11 unified national thread (UNC) - 2B	⅝-11 UNC	M16 x 2.0	M16 x 2.0 - 6H
C (bolt hole diameter)	4.75 in. (121 mm)	6 in. (152 mm)	5.71 in. (145 mm)	6.69 in. (170 mm)
E (inner dimension)	2.5 in. (64 mm)	3.25 in. (83 mm)	2.5 in. (64 mm)	3.25 in. (83 mm)

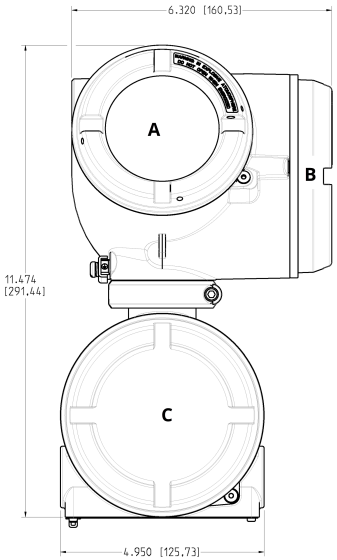
Table 2-5: Mounting flange dimensions

	ANSI 2-inch Class 150	ANSI 3-inch Class 150	DIN65 PN10	DIN100 PN06
Outer diameter	6.6 in. (168 mm)	7.5 in. (191 mm)	7.28 in. (185 mm)	8.3 in. (211 mm)
Bolt circle diameter	4.75 in. (121 mm)	6 in. (152 mm)	5.71 in. (145 mm)	6.7 in. (170 mm)

	ANSI 2-inch Class 150	ANSI 3-inch Class 150	DIN65 PN10	DIN100 PN06
Bolt hole diameter	0.75 in. (19 mm)	0.75 in. (19 mm)	0.71 in. (18 mm)	0.71 in. (18 mm)

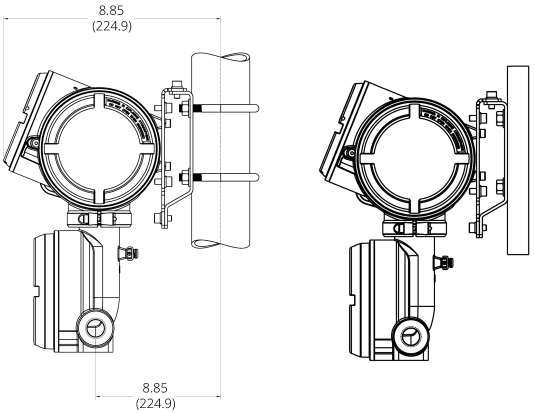
2.1.2 Install Rosemount CX2100 TR Remote Electronics

Figure 2-8: Remote electronics transmitter



A. Local operator interface (LOI) cover
B. Terminal transmitter cover
C. Blind junction box cover

Figure 2-9: CX2100 Remote Electronics mounted on pole or wall



Procedure

1. For a Rosemount CX2100 configuration with the remote electronics option, install the probe according to Install Rosemount CX2100-PI Integral Probe or CX2100-DR Direct Replacement Probe
2. Install the remote electronics unit using the mounting bracket kit on a wall, standpipe, or similar structure.

NOTICE

Use only bolts supplied with the electronics analyzer.

2.2 Electrical installation

All wiring must conform to local and national codes.

This section shows multiple wiring diagrams. Always refer to the diagrams that apply to your configuration and disregard all other wiring diagrams.

⚠ WARNING

Electrical shock

Failure to install covers, clamps, and ground leads could result in serious injury or death.

Disconnect and lock out power before wiring the AC terminals.
Install all protective covers and ground leads after installation.
To meet the safety requirements of CSA/IEC/UL 61010-1 and ensure safe operation of the equipment, connect the main electrical power supply through a circuit breaker (minimum 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, keep another external means of disconnecting the power supply from the equipment close by. Circuit breakers or switches must comply with a recognized standard, such as IEC 947.
To maintain proper earth grounding, ensure a positive connection exists between the analyzer housing and earth. The connecting ground wire must be 14 AWG minimum.

To maintain Explosion-proof protection for hazardous area installations, all cable entry devices and conduit plugs for unused apertures must be certified Flameproof and suitable for the conditions of use. Make sure they are properly installed.
All unused conduit entries must be closed by a suitable conduit plug as to meet the requirements of the applicable codes and standards. Do not use a conduit plug with a thread adapter.
Install any threaded rigid metal conduit or cable glands per applicable codes and standards.
Figure 2-10 shows conduit entries. If conduit entries are not marked as M20, the entries are ½ in. NPT.

NOTICE

To maintain CE compliance, ensure a good connection exists between the mounting flange bolt and earth.

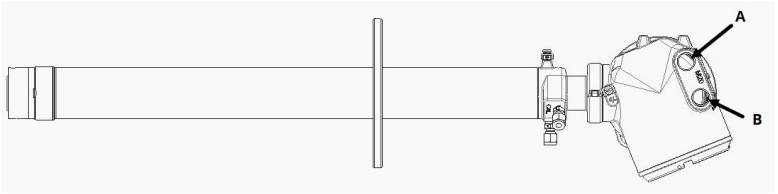
2.2.1 Wire Rosemount CX2100 Transmitter for integral or remote configuration

Procedure

1. Remove the terminal transmitter cover from the transmitter.

2. Use the conduit entries shown in Figure 2-10 to route the line power and Channel **A/B/C** cables into the analyzer housing.

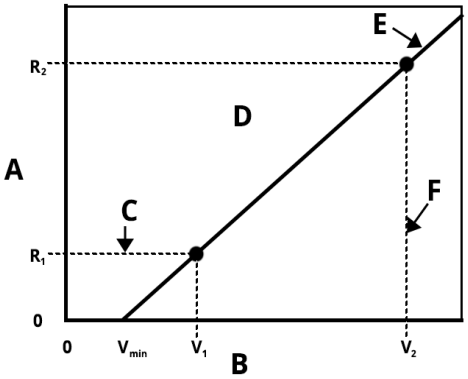
Figure 2-10: Conduit Entries for CX2100 Integral Probe



A. To channel A, B, and C signal lines
B. To power

3. Connect the line power (**L1** wire) to the **L1 Line Power** terminal, the neutral (**L2** wire) to the **L2/N** terminal, and the ground wire to the ground lug.
The analyzer accepts line voltage between 85 and 250 Vac. No setup is required. See Figure 2-12.

Figure 2-11: CX2100 Loop resistance and supply voltage



A. Loop resistance (Ω)
B. Supply voltage (V)
C. Minimum load for communication
D. Operating region
E. Load limit line
F. Maximum voltage

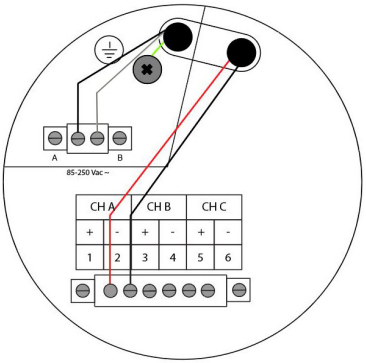
Table 2-6: Load resistance and voltage supply limits for externally powered analyzer

R_1(Ω)	250
R_2(Ω)	1,061
V_{min} (V)	4.25
V_1(V)	9.88
V_2(V)	30

Table 2-7: Load resistance for internally powered analyzers

$R_{max}(\Omega)$	820
$V_{nom}(V)$	24

Figure 2-12: Wiring for CX2100 Transmitter - Power and Channel A 4-20 mA



A. `L1`: Line power
B. `L2`: Neutral power

Table 2-8: Available channels

Signal	Channel A		Channel B		Channel C	
Wiring terminal	1	2	3	4	5	6
Inputs/ output	mA output (HART®)		Relay or Autocalibration		Relay or Flame Safety Interlock	

Table 2-9: CX2100 Power requirements and consumption

Analyzer input voltage and frequency	85 to 250 Vac, 50/60 Hz
Analyzer heater maximum output power	250 W
Remote probe input maximum voltage	250 Vac
Remote probe input power	200 Watts at 115 V

Table 2-10: Conductor sizing and wire gauge for CX2100 Transmitter

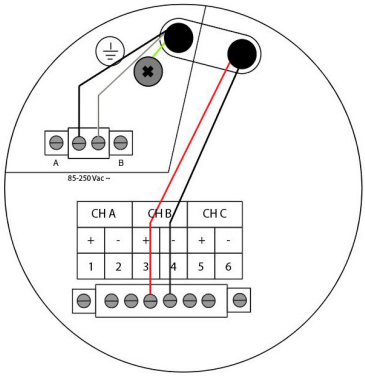
	Conductor sizing	Wire gauge
Line/Neutral/Earth	1.5 to 2.5 mm^2	16 to 12 AWG
Channel A/Channel B/ Channel C	0.25 to 2.5 mm^2	24 to 12 AWG

4. Connect the analog output wires at the **Channel A** terminals according to Figure 2-12. The transmitter electronics analog output can be either active or passive (meaning an internal or external power supply).

4–20 mA signal The 4–20 mA signal represents the O_2 value. Superimposed on the 4-20 mA signal is HART® information that is accessible through a communication device or AMS software.

5. Connect optional **`Autocalibration`** or **`Relay Output`** leads to **Channel B** as shown in Figure 2-13.

Figure 2-13: Wiring for CX2100 Transmitter - Channel B Rosemount SPS 4001B or relay



A. **`L1`**: Line power
B. **`L2`**: Neutral power

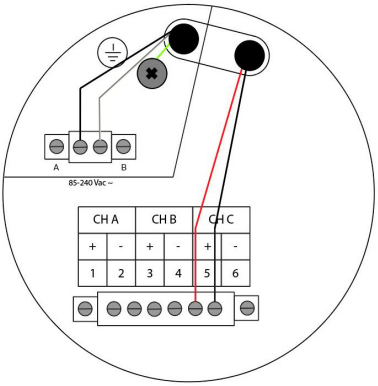
If **Channel B** is configured to **`Relay`**, you can use the output signal to trigger an alarm. The **Channel B** output signal can provide a calibration handshake signal to a Rosemount SPS 4001B Autocalibration System. Refer to the Rosemount SPS 4001B Manual for maintaining SPS wiring details.

⚠ WARNING

If using an SPS 4001B, install it in a non-hazardous, explosive-free environment.

6. Connect optional **Flame Safety Interlock** or **Relay Output** leads to **Channel C** as shown in Figure 2-14.

Figure 2-14: Wiring for CX2100 Transmitter - Channel C Flame safety interlock or relay



A. **L1**: Line power
B. **L2**: Neutral power

If **Channel C** is configured to **Relay**, you can use the output signal to trigger an alarm.
If **Channel C** is configured to **Flame Safety Interlock**, **Channel C** will accept a discrete input from a dry contact relay.

7. Reinstall cover on transmitter.

Note

For NEMA® 4X, IP66, and IP88 requirements, use thread sealing PTFE tape or paste on male threads of conduit to provide a water and dust tight seal. Always ensure a proper seal by installing the electronics housing cover(s) so that metal contacts metal. Use Rosemount O-rings.

8. Plug and seal unused conduit connections on the transmitter housing to avoid moisture accumulation on the terminal side.

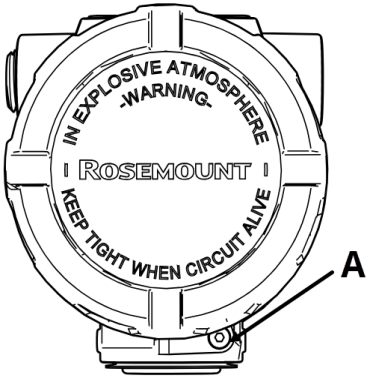
2.2.2 Install cover jam screw

For transmitter housings shipped with a cover jam screw, install the screw after wiring and powering up the transmitter.

Proper installation and use of the cover jam screw is required to maintain hazardous location approvals.

The cover jam screw is intended to prevent removing the transmitter cover in flameproof environments without using tools.

Figure 2-15: Cover jam screw



A. Cover jam screw

Procedure

1. Verify the cover jam screw is completely threaded into the housing.
2. Install the transmitter housing cover and verify that the cover is tight against the housing.
3. Using an M4 hex wrench, loosen the jam screw until it contacts the transmitter cover.
4. Turn the jam screw an additional ½ turn counterclockwise to secure the cover.

   NOTICE

   Applying excessive torque may strip the threads.

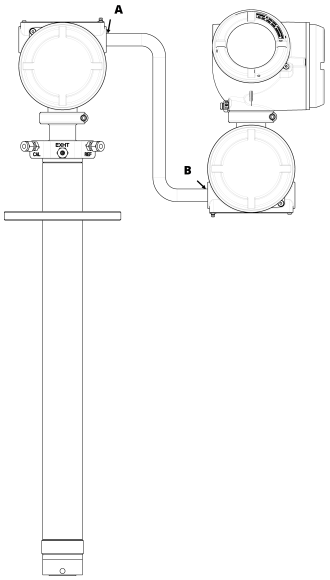
5. Verify the cover cannot be removed.

2.2.3 Wire Rosemount CX2100 junction boxes for remote configuration

The remote electronics junction box is located on the CX2100TR Remote Electronics Transmitter.

When installing a CX2100 remote configuration consisting of a CX2100 Direct Replacement (DR) Probe and CX2100TR Remote Electronics Transmitter, a multi-conductor power/signal cable connects the probe to the remote electronics transmitter as shown in Figure 2-16.

Figure 2-16: CX2100 remote electronics configuration



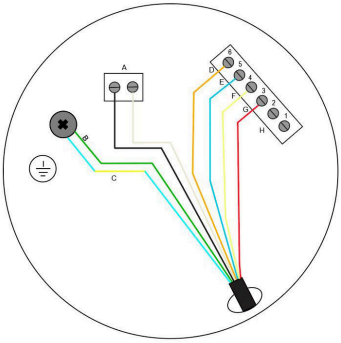
A. DR probe junction box conduit entries
B. Remote electronics junction box conduit entry

Figure 2-17: Channel B Rosemount SPS 4001B output wiring



A. SPS 4001B output
B. Handshake

Figure 2-18: Junction box wiring



A. Heater (`HTR`) (Black and white)
B. Safety ground (Green)
C. Shields (transmitter wiring only) (Yellow)
D. Oxygen (O_2+) (Orange)
E. Oxygen (O_2-) (Cyan)
F. Thermocouple (`TC+`) (Yellow)
G. `TC–` (Red)
H. `RTD`

Figure 2-19: Discrete input wiring (internally powered)



A. Discrete input
B. Channel C
C. Flame Safety Interlock relay

Procedure

1. Remove the cover from the junction box.
2. You can use either of the two conduit entries to route the cable into the junction box housing.
3. Connect the heater power lines to the two `HTR` terminals.
4. Connect the O_2 signal lines to the `O2–` and `O2+` terminals.
5. Connect the thermocouple (TC) lines to the `TC–` and `TC+` terminals.
6. Connect the safety ground wire to the ground lug.
7. If wiring the transmitter junction box, terminate the shield at the transmitter junction box housing.
8. Reinstall cover on junction box.

9. For NEMA® 4X, IP66, and IP68 requirements, use thread sealing PTFE tape or paste on male threads of conduit to provide a water and dust tight seal. Always ensure a proper seal by installing the electronics housing cover(s) so that metal contacts metal. Use Rosemount O-rings.

10. Plug and seal unused conduit connections on the transmitter housing to avoid moisture accumulation on the terminal side.

2.3 Pneumatic installation

2.3.1 Calibration gas

Emerson recommends the following calibration gas concentrations for typical applications operating below 10 percent O_2:

- Low gas (0.4 percent O_2, balance N_2)
- High gas (8.0 percent O_2, balance N_2)

For higher O_2 applications, like winbox O_2, Emerson recommends:

- Low gas (0.4 percent to 2 percent O_2, balance N_2)

  Note

  Emerson recommends using a low gas value that spans the application's range of measurement and that has a minimum delta of 4 percent O_2 from the high gas value.

- High gas (21 percent O_2, balance N_2 or dry bottle air)

Refer to the *Rosemount CX2100 Product Data Sheet* for calibration gas performance specifications.

NOTICE

Failure to use proper gases will result in erroneous readings.

Do not use 100 percent nitrogen as a low gas (zero gas). Emerson recommends using between 0.4 percent and 2.0 percent O_2 for the zero gas. Do not use gases with hydrocarbon concentrations of more than 40 parts per million.

NOTICE

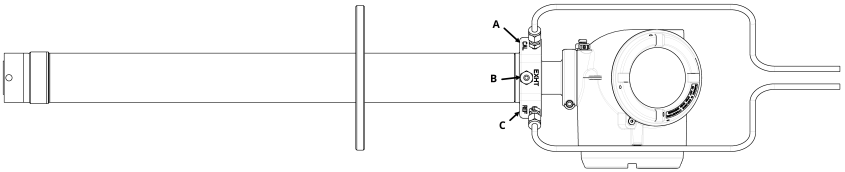
Before washing down the ducts, verify that the analyzers have been powered down and removed from the wash areas.

NOTICE

Damage can result from having a cold analyzer exposed to process gases.

Upon completing installation, ensure that the analyzer is turned on and operating before firing up the combustion process.
During outages, if possible, leave all analyzers running to prevent condensation and premature aging from thermal cycling.

Figure 2-20: Calibration gas connections



A. **CAL** is calibration gas in
B. **EXHT** is reference air vent
C. **REF** is reference air in

NOTICE

Calibration port (**CAL**) must be closed during normal operation. Reference air vent (**EXHT**) must always be open.

Reference air components are included in the optional manual calibration panel and the Rosemount SPS 4001B Single Probe Autocalibration Sequencer.

NOTICE

The optional SPS 4001B Sequencer can be used with the CX2100, 6888, and Oxymitter oxygen analyzers. Ensure the analyzers are configured for autocalibration when using the SPS 4001 B Sequencer.

See the Rosemount SPS 4001B Reference Manual for wiring and pneumatic connections.

Note

A source of instrument air is optional at the transmitter for reference air use. Since the device can be equipped with an in-place calibration feature, you can make provisions to permanently connect calibration gas bottles to the transmitter. If you are permanently connecting the calibration gas bottles, use a check valve next to the calibration fittings on the integral electronics. The check valve is to prevent breathing of the calibration gas and subsequent flue gas condensation and corrosion. The check valve is in addition to the stop valve in the calibration gas kit and solenoid valves in the SPS 4001B.

2.4 Installation of legacy probes with Rosemount CX2100 Remote Electronics

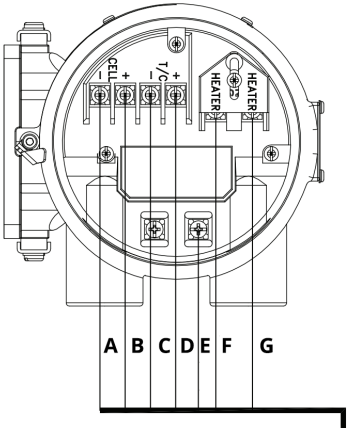
Refer to Rosemount 6888 Manual or Rosemount Oxymitter DR Manual for installation instructions.

2.4.1 Wire Rosemount 6888 or Oxymitter Direct Replacement (DR) Probe with CX2100 Remote Electronics Transmitter

Procedure

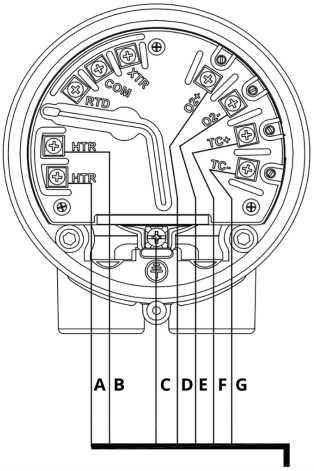
1. Remove cover from probe.
2. Feed all DR probe wiring through the probe's line power conduit.
3. Connect DR probe heater power leads to DR probe connectors as shown in Figure 2-21 or Figure 2-22.

Figure 2-21: Oxymitter DR probe



A. Blue (oxygen [O2]-)
B. Orange (O2+)
C. Red (thermocouple [TC]-)
D. Yellow (TC+)
E. Green (ground [GND])
F. White (heater [HTR])
G. Black (HTR)

Figure 2-22: 6888 DR probe



A. White (HTR)
B. Black (HTR)
C. Green (GND)
D. Orange (O2+)
E. Blue (O2-)
F. Yellow (TC+)
G. Red (TC-)

4. Connect O_2 signal and thermocouple wires to DR probe connectors.
5. Run the seven-conductor cable from the probe installation site to the remote electronics transmitter installation site.
    a. Install the seven-conductor cable at the remote electronics junction box.
    b. Connect the heater power lines to the two **HTR** terminals shown in Figure 2-18.
    c. Connect the oxygen signal lines to the **O2–** and **O2+** terminals shown in Figure 2-18.
    d. Connect the thermocouple lines to the **TC–** and **TC+** terminals shown in Figure 2-18.
    e. Connect the safety ground wire to the ground lug as shown in Figure 2-18.
    f. Terminate the shield at the transmitter junction box housing.
    g. Reinstall cover on junction box.

2.4.2 Wiring Rosemount CX2100DR to Rosemount 6888 Xi

Refer to Rosemount 6888 Xi Manual for installation instructions.

3 Configuration, start-up, and operation

For complete details regarding product configuration, start-up, operation, and calibration, refer to the Rosemount™ CX2100 In-Situ Oxygen Analyzer Manual.

4 Product certifications

4.1 Directive information

A copy of the Declaration of Conformity can be found at the end of the Quick Start Guide.

The most recent revision of the Declaration of Conformity can be found at Emerson.com.

4.2 Ordinary location certification

As standard, the transmitter has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by a nationally recognized test laboratory (NRTL), as accredited by the Federal Occupational Safety and Health Administration (OSHA).

4.3 Installing equipment in North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is offered through a special option code, contact the manufacturer for more information.

4.4 North America

4.4.1 USA

Model string option code	E5, KB	
CSA Certificate	80200788	
Markings	**CX2100TR**	Class 1, Zone 1 AEx db IIB+H2 T6 Gb Class 1, Div 1 Gp B, C, D, T6 –40 °C ≤ T_a ≤ +65 °C
	CX2100PI	Class 1, Zone 1 AEx db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +65 °C
	CX2100DR	Class 1, Zone 1 AEx db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +90 °C

Conditions of acceptability

1. Units installed with conduit runs must have suitably certified conduit seals installed at the enclosure.
2. Units installed with other than conduit runs and conduit seals, must be fitted with certified or listed cable glands for use in "Class I, Zone 1, Ex/AEx db IIB+H2" and "Class I, Division 1, Group B, C and D" or better, suitable for the ambient temperature range.
3. Flameproof joints are not intended to be repaired.
4. Clamp Screw requires Class 70 tensile strength.
5. To maintain T3, flange temperature must not exceed 190 °C.
6. To maintain T4, flange temperature must not exceed 115 °C.

4.4.2 Canada

Model string option	E6, KB	
CSA Certificate	80200788	
Markings	**CX2100TR**	Ex db IIB+H2 T6 Gb Class 1, Div 1 Gp B, C, D, T6 –40 °C ≤ T_a ≤ +65 °C
	CX2100PI	Ex db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +65 °C
	CX2100DR	Ex db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +65 °C

Conditions of acceptability

1. Units installed with conduit runs must have suitably certified conduit seals installed at the enclosure.
2. Units installed with other than conduit runs and conduit seals, must be fitted with certified or listed cable glands for use in "Class I, Zone 1, Ex/AEx db IIB+H2" and "Class I, Division 1, Group B, C and D" or better, suitable for the ambient temperature range.
3. Flameproof joints are not intended to be repaired.
4. Clamp Screw requires Class 70 tensile strength.
5. To maintain T3, flange temperature must not exceed 190 °C.
6. To maintain T4, flange temperature must not exceed 115 °C.

4.5 Europe

4.5.1 ATEX

ATEX model string option code	E1	
ATEX Certificate	ATEX CSACa 24ATEX1010X	
Markings	 II 2 G	
	CX2100TR	Ex db IIB+H2 T6 Gb Class 1, Div 1 Gp B, C, D, T6 –40 °C ≤ T_a ≤ +65 °C
	CX2100PI	Ex db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +65 °C
	CX2100DR	Ex db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +65 °C

Specific Conditions of Use (X):

1. Flameproof joints are not intended to be repaired.
2. Clamp screw requires Class 70 tensile strength.
3. To maintain T3, flange temperature must not exceed 190 °C.
4. To maintain T4, flange temperature must not exceed 115 °C.

4.6 International

4.6.1 IECEx

Model string option code	E7	
IECEx Certificate	IECEx CSA 24.0048X	
Markings	**CX2100TR**	Ex db IIB+H2 T6 Gb Class 1, Div 1 Gp B, C, D, T6 –40 °C ≤ T_a ≤ +65 °C
	CX2100PI	Ex db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +65 °C
	CX2100DR	Ex db IIB+H2 T3...T4 Gb Class 1, Div 1 Gp B, C, D, T3...T4 –40 °C ≤ T_a ≤ +65 °C

Specific Conditions of Use (X):

1. Flameproof joints are not intended to be repaired.
2. Clamp screw requires Class 70 tensile strength.
3. To maintain T3, flange temperature must not exceed 190 °C.
4. To maintain T4, flange temperature must not exceed 115 °C.

4.7 Brazil

4.7.1 INMETRO

Applies to Rosemount CX2100 Remote Transmitter (TR) only.

Model string option code	E2
INMETRO Certificate	UL-BR 25.0981X / 00
Markings	Ex db IIB+H2 T6 Gb –40 °C ≤ T_a ≤ +65 °C

Specific Conditions of Use (X):
Equipment or schedule of limitations for Ex components (X):

1. Flameproof joints are not intended to be repaired.
2. Clamp screw requires Class 70 tensile strength.

4.8 China

4.8.1 NEPSI

Applies to Rosemount CX2100 Remote Transmitter (TR) only.

Model string option code	E3
NEPSI Certificate	GYJ25.1361X
Markings	Ex db IIB+H2 T6 Gb –40 °C～+65 °C

产品安全使用特殊条件

防爆合格证号后缀"X"表示该产品安全使用特殊条件，具体内容为：

1. 禁止维修产品隔爆接合面。
2. 压环紧固螺钉性能等级不得低于 A4-70。
3. 产品使用环境温度范围：–40℃～+65℃。

产品使用注意事项

1. 电气参数：额定电压85～250（Vac），50/60Hz；最大功率：270VA。
2. 产品设有接地装置，现场安装时必须可靠接地。
3. 产品在危险现场使用和维护时必须遵守"危险场所严禁开盖"的原则。
4. 电缆引入口必须配置防爆检验机构认可的相适宜的Ex 电缆引入装置或封堵 件，同时电缆引入装置或封堵件的安装使用必须遵守其使用说明书的要求。
5. 当电缆引入装置部位的温度高于 70 ℃ 以上时，电缆必须选用耐高温型密封 电缆。
6. 用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出 现的故 障，以杜绝损坏现象的发生。
7. 产品的安装、使用和维护应同时遵守产品使用说明书、GB/T 3836.13-2021"爆炸性 环境 第 13 部分：设备的修理、检修、修复和改造"、 GB 3836.15–2024"爆炸 性环境 第 15 部分：电气装置设计、选型、安装规范"、GB 3836.16–2024"爆炸性环境第 16 部分：电气 装置检查与维护规范"及 GB50257-2014 "电气装置安装工程爆炸和火灾危险环 境 电气装置 施工及验收规范"的有关规定。

5 Declaration of Conformity

EMERSON

EU DECLARATION OF CONFORMITY

CE

RAD1164 Rev. A

This declaration of conformity is issued under the sole responsibility of

Rosemount Inc.
6021 Innovation Blvd
Shakopee, MN 55379
USA

that the following products,

Rosemount™ Oxygen Analyzer model CX2100 Series

comply with the provisions of the European Union Directives, including the latest amendments, valid at the time this declaration was signed.

July 19, 2025 | Mark Lee | Vice President, Quality | Boulder, CO, USA

(signature & date of issue) (name) (function) (place of issue)

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: europeproductcompliance@emerson.com Phone: +40 374 132 035

ATEX Notified Bodies for EU Type Examination Certificates:
CSA Group Netherlands B.V. [Notified Body Number: 2813]
Utrechtseweg 310
6812 AR ARNHEM
Netherlands

ATEX Notified Body for Quality Assurance:
SGS Fimko Oy [Notified Body Number: 0598]
Takomotie 8
FI-00380 Helsinki
Finland

EMC Directive (2014/30/EU)
Harmonized Standards:
EN 61326-1:2013

Low Voltage Directive (2014/35/EU)
Harmonized Standards:
EN 61010-1:2010

RoHS Directive (2011/65/EU)
Harmonized Standards:
EN IEC 63000:2018

ATEX Directive (2014/34/EU)
(Only valid for Model CX2100TR)
ATEX CSACa 24ATEX1010X – Flameproof
Equipment Group II 2 G
Ex db IIB+H2 T6 Gb (-40°C ≤ Ta ≤ +65°C)

Harmonized Standards:
EN IEC 60079-0:2018
EN 60079-1:2014

6 China RoHS table

4.0 DISCLOSURE TABLES FOR COMBUSTION ANALYTICAL PRODUCTS

Table 1A: List of QSG's Applicable to Table 1B

Quick Start Guide P/N	Model #	Quick Start Guide (QSG) Description
00825-0100-9740	CX2100	Rosemount™ CX2100 In-Situ Oxygen QSG

Table 1B: Disclosure Table for QSG

含有China RoHS管控物质超过最大浓度限值的部件型号列表 [CX2100]
List of [CX2100] 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	O	O	O	O	O
传感器组件 Sensor Assembly	X	O	O	O	O	O
壳体组件 Housing Assembly	X	O	O	O	O	O

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.

O: 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.

Table 1D: Disclosure Table for Spare Parts

部件名称 Part Name	组装备件说明 Spare Parts Descriptions for Assemblies
电子组件 Electronics Assembly	电子显示器组装 LOI Display Assembly
	发射器印刷电路组件 Transmitter PCA Assembly
	电子连接器组件 Phoenix Connector Assembly
	电缆组件 Cable Assembly
	远程电缆组件 Remote Cable Assembly
	接线盒印刷电路组件 Junction Box PCA Assembly
	玻璃接头 Glassed Header
传感器组件 Sensor Assembly	传感器组件 Probe

Quick Start Guide
MS-00825-0100-9740, Rev. AD
September 2026

For more information: Emerson.com

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