Certificate of Compliance

Certificate: 70116284 **Master Contract:** 167534

Project: 80185904 **Date Issued:** 2024-09-13

Issued To: **MSA - The Safety Company**
1000 Cranberry Woods Dr
Cranberry Township, Pennsylvania, 16066-5296
United States

Attention: Larry Vlagea

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: *Konstantin Rybalko*
Konstantin Rybalko

C US

PRODUCTS

CLASS 4828 01 - SIGNAL APPLIANCES- Combustible Gas Detection Instruments-For Hazardous Locations
CLASS 4828 81 - SIGNAL APPLIANCES- Combustible Gas Detection Instruments-For Hazardous Locations - Certified to U.S. Standards

Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1 AEx db IIC T6 Gb

Class II, Division 1, Groups E, F, & G T6

Class II, Division 2, Groups F & G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21 AEx tb IIIC T85°C Db

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Certificate: 70116284
Project: 80185904

Master Contract: 167534
Date Issued: 2024-09-13

Type 4X Enclosure Rating

- ULTIMA® X5000 Transmitter (model A-X5000-*a*F*cdeffggh*), also referred to as the "X5000 Gas Monitor" controller. Rated 11-30 VDC, 4.0 A max. input provided by an SELV source. Output Alarm Relay Contacts are rated 250 VAC, 30 VDC, 5.0 A; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

a is for Enclosure Material:
0 = Stainless Steel – ¾" NPT
1 = Aluminum – ¾" NPT
2 = Stainless Steel – M25

c is for Bluetooth:
0 = Yes
1 = No

d is for Output Communication:
1 = Analog/HART/Relays
3 = Analog/HART/Relays/Isolated Modbus

e is 0 = Default place holder, not relevant to certification

ff is for Sensor 1 selection:
gg is for Sensor 2 selection:

ULTIMA® XIR Plus sensor	Digital Sensor
00 = No Sensor	00 = No Sensor or Sensor Body (transmitter only)
AA = IR Combustible 0 – 100% LEL – 5% Methane [#]	01 = No Sensor (sensor body w/blank element)
AB = IR Combustible 0 – 100% LEL – 2.1 % Propane [#]	02 = No Sensor (sensor body (No FRIT) w/blank element)
AC = IR Combustible 0 – 100% LEL – 4.4 % Methane [#]	
AD = IR Combustible 0 – 100% LEL – 1.7% Propane [#]	
AK = IR Combustible 0 – 100% LEL – 2.5% Acetone [#]	Digital Sensor (With FRIT) model (combustible)
AS = IR Combustible 0 – 100% LEL – 1.2% Benzene [#]	
BY = IR Combustible 0 – 100% LEL – 3.3 Ethanol [#]	60 = Combustible, 0-100% LEL – 5% Methane [^]
CD = IR Combustible 0 – 100% LEL – 2.7% Ethylene [#]	61 = Combustible, 0-100% LEL – 2.1% Propane [^]
CF = IR Combustible 0 – 100% LEL – 3% Ethylene Oxide [#]	62 = Combustible, 0-100% LEL – 1.05% Heptane [^]
CJ = IR Combustible 0 – 100% LEL – 1.1% Hexane [#]	63 = Combustible, 0-100% LEL – 0.8% Nonane [^]
CP = IR Combustible 0 – 100% LEL – 2% Isopropanol [#]	64 = Combustible, 0-100% LEL – 4.0% Hydrogen [^]
DJ = IR Combustible 0 – 100% LEL – 1.7% Methyl Methacrylate [#]	65 = Combustible, 0-100% LEL – 4.4 % Methane [^]
FJ = IR Combustible 0 – 100% LEL – 3.1% Ethanol [#]	66 = Combustible, 0-100% LEL – 1.7% Propane [^]
FL = IR Combustible 0 – 100% LEL – 2.3% Ethylene [#]	67 = Combustible, 0-100% LEL – 0.85% Heptane [^]
FM = IR Combustible 0 – 100% LEL – 2.6% Ethylene Oxide [#]	68 = Combustible, 0-100% LEL – 0.7% Nonane [^]
FN = IR Combustible 0 – 100% LEL – 1 % Hexane [#]	
FP = IR Combustible 0 – 100% LEL – 1% Hexane [#]	Digital Sensor (With FRIT) model (toxic) – Fine threads Any two digit number
Any 2 letters – Toxic Gas Sensor	Digital Sensor (No-FRIT) model (toxic) – Coarse threads Any two digit number

Independently certified Ex Equipment Sensors or Ex Component Sensors are denoted by [^]
Combustible gas sensors certified for performance as part of this report are denoted by [#]
Toxic gas sensors have not been certified for performance.

h *is* for Tag:
0 = None
T# = (# = 1, 2, or 3) Stainless Steel affixed tags

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Certificate: 70116284
Project: 80185904

Master Contract: 167534
Date Issued: 2024-09-13

Conditions of Certification:

1. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connection of the Digital Sensor (With FRIT) and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
2. The Flameproof and Explosionproof joints shall not be repaired.
3. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.
4. The ULTIMA® X5000 combustible gas detection system consists of appropriate combinations of the ULTIMA® X5000 Transmitter, optional remote-mounted X5000 or JB5000 Junction Box, Digital Sensor (With FRIT) and ULTIMA® XIR Plus Sensor.
5. Combustible Gas Detection performance compliance does not imply that the equipment will detect gas during and after exposure to dust or fibers in suspension, in air conditions [i.e. Class II, Class III or Zone 21].
6. Only combustible gas Digital sensor (With FRIT) certified for Class I, Division 1/Class I, Zone 1 explosionproof/flame proof evaluated with the ULTIMA® X5000 Transmitter are acceptable.

Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T4
Ex nA IIC T4 Gc
Class I, Zone 2, AEx nA IIC T4 Gc

Class II, Division 1, Groups E, F, & G T6

Class II, Division 2, Groups F&G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21, AEx tb IIIC T85°C Db

Type 4X Enclosure Rating

- ULTIMA® X5000 Transmitter (model A-X5000-*abc**0**effggh* - where model string character ***d*** must equal "0"), also referred to as the "X5000 Gas Monitor" controller. Rated 11-30 VDC, 4.0 A max. input provided by an SELV source; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

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a is for Enclosure Material:
0 = Stainless Steel – ¾" NPT
1 = Aluminum – ¾" NPT
2 = Stainless Steel – M25

c is for Bluetooth:
0 = Yes
1 = No

d is for Output Communication:
0 = Analog/HART (No Relays allowed)

e is 0 = Default place holder, not relevant to certification

ff is for Sensor 1 selection:
gg is for Sensor 2 selection:

ULTIMA® XIR Plus sensor	Digital Sensor
00 = No Sensor	00 = No Sensor or Sensor Body (transmitter only)
AA = IR Combustible 0 – 100% LEL – 5% Methane [#]	01 = No Sensor (sensor body w/blank element)
AB = IR Combustible 0 – 100% LEL – 2.1 % Propane [#]	02 = No Sensor (sensor body (No FRIT) w/blank element)
AC = IR Combustible 0 – 100% LEL – 4.4 % Methane [#]	
AD = IR Combustible 0 – 100% LEL – 1.7% Propane [#]	
AK = IR Combustible 0 – 100% LEL – 2.5% Acetone [#]	Digital Sensor (With FRIT) model (combustible)
AS = IR Combustible 0 – 100% LEL – 1.2% Benzene [#]	
BY = IR Combustible 0 – 100% LEL – 3.3 Ethanol [#]	60 = Combustible, 0-100% LEL – 5% Methane [^]
CD = IR Combustible 0 – 100% LEL – 2.7% Ethylene [#]	61 = Combustible, 0-100% LEL – 2.1% Propane [^]
CF = IR Combustible 0 – 100% LEL – 3% Ethylene Oxide [#]	62 = Combustible, 0-100% LEL – 1.05% Heptane [^]
CJ = IR Combustible 0 – 100% LEL – 1.1% Hexane [#]	63 = Combustible, 0-100% LEL – 0.8% Nonane [^]
CP = IR Combustible 0 – 100% LEL – 2% Isopropanol [#]	64 = Combustible, 0-100% LEL – 4.0% Hydrogen [^]
DJ = IR Combustible 0 – 100% LEL – 1.7% Methyl Methacrylate [#]	65 = Combustible, 0-100% LEL – 4.4 % Methane [^]
FJ = IR Combustible 0 – 100% LEL – 3.1% Ethanol [#]	66 = Combustible, 0-100% LEL – 1.7% Propane [^]
FL = IR Combustible 0 – 100% LEL – 2.3% Ethylene [#]	67 = Combustible, 0-100% LEL – 0.85% Heptane [^]
FM = IR Combustible 0 – 100% LEL – 2.6% Ethylene Oxide [#]	68 = Combustible, 0-100% LEL – 0.7% Nonane [^]
FN = IR Combustible 0 – 100% LEL – 1 % Hexane [#]	
FP = IR Combustible 0 – 100% LEL – 1% Hexane [#]	Digital Sensor (With FRIT) model (toxic) – Fine threads Any two digit number
Any 2 letters – Toxic Gas Sensor	
	Digital Sensor (No-FRIT) model (toxic) – Coarse threads Any two digit number

Independently certified Ex Equipment Sensors or Ex Component Sensors are denoted by [^]
Combustible gas sensors certified for performance as part of this report are denoted by [#]
Toxic gas sensors have not been certified for performance.

h *is* for Tag:
0 = None
T# = (# = 1, 2, or 3) Stainless Steel affixed tags

Conditions of Certification:

1. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connection of the Digital Sensor (With FRIT) and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
2. The Flameproof and Explosionproof joints shall not be repaired.

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3. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.
4. The ULTIMA® X5000 combustible gas detection system consists of appropriate combinations of: the ULTIMA® X5000 Transmitter, optional remote-mounted X5000 or JB5000 Junction Box, Digital Sensor (With FRIT) and ULTIMA® XIR Plus Sensor.
5. Combustible Gas Detection performance compliance does not imply that the equipment will detect gas during and after exposure to dust or fibers in suspension, in air conditions [i.e. Class II, Class III or Zone 21].
6. Only combustible gas Digital sensor (With FRIT) certified for Class I, Division 1/Class I, Zone 1 explosionproof/flame proof and evaluated with the ULTIMA® X5000 Transmitter are acceptable for this Combustible Gas Detection approval.

Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T6
Ex nA IIC T6 Gc
Class I, Zone 2, AEx nA IIC T6 Gc

Class II, Division 1, Groups E, F & G T6

Class II, Division 2, Groups F & G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21, AEx tb IIIC T85°C Db

Type 4X Enclosure Rating

- ULTIMA® X5000 Junction Box (10179509, 10179511, 10179513) [for use as a remotely mounted pass-through when connected to an approved fixed combustible gas detection control unit (transmitter)]; Rated 11-30 VDC, 1.0 A max. input provided by an SELV source; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

10179509 = ULTIMA® X5000 Junction Box, Stainless Steel, ¾" NPT
10179511 = ULTIMA® X5000 Junction Box, Stainless Steel, M25
10179513 = ULTIMA® X5000 Junction Box, Aluminum, ¾" NPT

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Conditions of Certification:

1. The Junction Box shall only receive power from equipment powered by an SELV source equal to or less than the input rating of the Junction Box.
2. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for the connection of input power and sensors such as the Digital Sensor (With FRIT) and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
3. The Flameproof and Explosionproof joints shall not be repaired.
4. It is recognized that other equipment (i.e. Sensor and/or Transmitter) will be present in the final installation, thus the final Temperature Code rating will be limited by the Sensor and/or Transmitter due to higher code rating.
5. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.
6. In Combustible Gas Detection performance applications, the Junction Box can be used to construct the ULTIMA®X5000 Gas Monitor fixed combustible gas detection system; remotely mounted, receiving power from a suitably approved transmitter/ control unit (ULTIMA® X5000 Transmitter) while providing protection for the connections to other portions of the system.

Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T6
Ex nA IIC T6 Gc
Class I, Zone 2, AEx nA IIC T6 Gc

Class II, Division 1, Groups E, F & G T6

Class II, Division 2, Groups F & G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21, AEx tb IIIC T85°C Db

Type 4X Enclosure Rating

- JB5000 Junction Box (10213879, 10213893) [for use as a remotely mounted pass-through when connected to an approved fixed combustible gas detection control unit (transmitter)]. Rated 11-30 VDC, 1.0 A max. input

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provided by an SELV source; -55°C ≤ Ta ≤ +75°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

10213879 = JB5000 Junction Box, Stainless Steel, ¾" NPT
10213893 = JB5000 Junction Box, Stainless Steel, M25

Conditions of Certification:

1. The Junction Box shall only receive power from equipment powered by an SELV source equal to or less than the input rating of the Junction Box.
2. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for the connection of input power and sensors such as the Digital Sensor (With FRIT) and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
3. The Flameproof and Explosionproof joints shall not be repaired.
4. It is recognized that other equipment (i.e. Sensor and/or Transmitter) will be present in the final installation, thus the final Temperature Code rating will be limited by the Sensor and/or Transmitter due to higher code rating.
5. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.
6. In Combustible Gas Detection performance applications, the Junction Box can be used to construct the ULTIMA®X5000 Gas Monitor fixed combustible gas detection system; remotely mounted, receiving power from a suitably approved transmitter/ control unit (ULTIMA® X5000 Transmitter) while providing protection for the connections to other portions of the system.

Class I, Division 1, Groups B, C, & D T6
Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T6

Ex nA IIC T6 Gc
Class I, Zone 2, AEx nA IIC T6 Gc

Class II, Division 1, Groups E, F & G T6
Class III, Division 1, T6

Type 4X Enclosure Rating

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- ULTIMA® XIR Plus sensor (A-5K-SENS-*aa-b-c-d-e*) [for use as a remote detector head (sensor) when connected to an approved fixed combustible gas detection control unit]. Rated 7-30 VDC, 800 mA max. input provided by an SELV source powered transmitter to which connection is made; digital communication output; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

aa is for Combustible Gas Type (performance):

AA	= IR 0 – 100% LEL – 5% Methane	CJ	= IR 0 – 100% LEL – 1.1% Hexane
AB	= IR 0 – 100% LEL – 2.1 % Propane	CP	= IR 0 – 100% LEL – 2% Isopropanol
AC	= IR 0 – 100% LEL – 4.4% Methane	DJ	= IR 0 – 100% LEL – 1.7% Methyl Methacrylate
AD	= IR 0 – 100% LEL – 1.7% Propane	FJ	= IR 0 – 100% LEL – 3.1% Ethanol
AK	= IR 0 – 100% LEL – 2.5% Acetone	FL	= IR 0 – 100% LEL – 2.3% Ethylene
AS	= IR 0 – 100% LEL – 1.2% Benzene	FM	= IR 0 – 100% LEL – 2.6% Ethylene Oxide
BY	= IR 0 – 100% LEL – 3.3% Ethanol	FN	= IR 0 – 100% LEL – 1 % Hexane
CD	= IR 0 – 100% LEL – 2.7% Ethylene	FP	= IR 0 – 100% LEL – 1% Hexane
CF	= IR 0 – 100% LEL – 3% Ethylene Oxide		

b is 0 = Stainless Steel

c is F = CSA North American

d is for Sensor Body:
1 = ¾" NPT 2 = M25

e is 0 = Not relevant to certification

Conditions of Certification:

1. The ULTIMA® XIR Plus sensor is assessed for Explosion-proof construction as stand-alone equipment to be used as a component of a combustible gas detection system where combustible performance testing shall be conducted in the end product.
2. The non-incendive ULTIMA® XIR Plus sensor shall only be powered by the ULTIMA® X5000 transmitter in order to satisfy the Division 2 and Ex nA classifications.
3. The flameproof joints shall not be repaired.
4. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.
5. The ULTIMA® XIR Plus sensor is provided with a ¾" NPT thread and shall only be connected to a suitably certified enclosure. The installation to the certified enclosure shall be with five fully engaged threads, tightened wrench-tight.
6. The ULTIMA® XIR Plus sensor shall be connected directly to a suitably certified junction box or instrument for the hazardous area of installation and thereby provide Ex protection for the flying lead connections.
7. Cable-glands, blanking elements, adapters, when used within the final assembly, shall be certified and suitable for the type of protection of the enclosure. These shall maintain the protection concept and the degree of protection IP66.

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8. In Combustible Gas Detection performance applications, the ULTIMA® XIR Plus sensor can be used to construct the ULTIMA®X5000 Gas Monitor fixed combustible gas detection system; mounted onto either the ULTIMA® X5000 Transmitter or ULTIMA® X5000 or JB5000 Junction Box enclosures and receive power and control from the transmitter.
9. The XIR Plus Sensor enclosure with Sensor Guard (opaque cover) or enclosure must fully contain the optical radiation and comply with a suitable type of protection as required by the involved EPL, complying with one of the following conditions:
   a) An enclosure for which protection regarding ingress of an explosive dust atmosphere is provided, such as dust protection "t" enclosures" (IEC 60079-31), or
   b) An enclosure that provides a minimum ingress protection of IP 6X and where no internal absorbers are to be expected and complying with “Tests of enclosures” in IEC 60079-0.

CLASS 4828 02 - SIGNAL APPLIANCES- Toxic Gas Detection Instruments – For Hazardous Locations
CLASS 4828 82 - SIGNAL APPLIANCES- Toxic Gas Detection Instruments – For Hazardous Locations - Certified to U.S. Standards

Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class II, Division 1, Groups E, F, & G T6

Class II, Division 2, Groups F & G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21, AEx tb IIIC T85°C Db

Type 4X Enclosure Rating

- ULTIMA® X5000 Transmitter (model A-X5000-*a***F***cdeffggh*), also referred to as the “X5000 Gas Monitor” controller. Rated 11-30 VDC, 4.0 A max. input provided by an SELV source. Output Alarm Relay Contacts are rated 250 VAC, 30 VDC, 5.0 A; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

a is for Enclosure Material:
0 = Stainless Steel – ¾” NPT
1 = Aluminum – ¾” NPT
2 = Stainless Steel – M25

c is for Bluetooth:
0 = Yes
1 = No

d is for Output Communication:
1 = Analog/HART/Relays
3 = Analog/HART/Relays/Isolated Modbus

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e is 0 = Default place holder, not relevant to certification

ff is for Sensor 1 selection:
gg is for Sensor 2 selection:

ULTIMA® XIR Plus sensor	Digital Sensor
00 = No Sensor Any two letters – Toxic Gas or Combustible Gas Sensor (Not performance assessed)	00 = No Sensor or Sensor Body (transmitter only) 01 = No Sensor (sensor body w/blank element) 02 = No Sensor (sensor body (No FRIT) w/blank element) Any two digits – Toxic Gas or Combustible Gas Sensor (Not performance assessed) [^]

Independently certified Ex Equipment Sensors or Ex Component Sensors (Not performance assessed) are denoted by [^]

h *is* for Tag:
0 = None
T# = (# = 1, 2, or 3) Stainless Steel affixed tags

Conditions of Certification:

1. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connection of the Digital Sensor (With FRIT) and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
2. The Flameproof and Explosionproof joints shall not be repaired.
3. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.

Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T4
Ex nA IIC T4 Gc
Class I, Zone 2, AEx nA IIC T4 Gc

Class II, Division 1, Groups E, F, & G T6

Class II, Division 2, Groups F & G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21, AEx tb IIIC T85°C Db

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Type 4X Enclosure Rating

- ULTIMA® X5000 Transmitter (model A-X5000-*abc**0**effggh* - where model string character ***d*** must equal "0"), also referred to as the "X5000 Gas Monitor" controller. Rated 11-30 VDC, 4.0 A max. input provided by an SELV source. Without Alarm Relay Contacts; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

a is for Enclosure Material:
0 = Stainless Steel – ¾" NPT
1 = Aluminum – ¾" NPT
2 = Stainless Steel – M25

c is for Bluetooth:
0 = Yes
1 = No

d is for Output Communication:
0 = Analog/HART (No Relays allowed)

e is 0 = Default place holder, not relevant to certification

ff is for Sensor 1 selection:
gg is for Sensor 2 selection:

ULTIMA® XIR Plus sensor	Digital Sensor
01 = No Sensor Any two letters – Toxic Gas or Combustible Gas Sensor (Not performance assessed)	00 = No Sensor or Sensor Body (transmitter only) 01 = No Sensor (sensor body w/blank element) 02 = No Sensor (sensor body (No FRIT) w/blank element) Any two digits – Toxic Gas or Combustible Gas Sensor (Not performance assessed) [^]

Independently certified Ex Equipment Sensors or Ex Component Sensors (Not performance assessed) are denoted by [^]

h *is* for Tag:
0 = None
T# = (# = 1, 2, or 3) Stainless Steel affixed tags

Conditions of Certification:

1. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connection of the Digital Sensor and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
2. The Flameproof and Explosionproof joints shall not be repaired.
3. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.

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Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T6
Ex nA IIC T6 Gc
Class I, Zone 2, AEx nA IIC T6 Gc

Class II, Division 1, Groups E, F & G T6

Class II, Division 2, Groups F & G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21, AEx tb IIIC T85°C Db

Type 4X Enclosure Rating

- ULTIMA® X5000 Junction Box (10179509, 10179511, 10179513); Rated 11-30 VDC, 1.0 A max. input provided by an SELV source; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

10179509 = ULTIMA® X5000 Junction Box, Stainless Steel, ¾" NPT
10179511 = ULTIMA® X5000 Junction Box, Stainless Steel, M25
10179513 = ULTIMA® X5000 Junction Box, Aluminum, ¾" NPT

Conditions of Certification:

1. The Junction Box shall only receive power from equipment powered by an SELV source equal to or less than the input rating of the Junction Box.
2. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for the connection of input power and sensors such as the Digital Sensor and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
3. The Flameproof and Explosionproof joints shall not be repaired.
4. It is recognized that other equipment (i.e. Sensor and/or Transmitter) will be present in the final installation, thus the final Temperature Code rating will be limited by the Sensor and/or Transmitter due to higher code rating.
5. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.

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Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T6
Ex nA IIC T6 Gc
Class I, Zone 2, AEx nA IIC T6 Gc

Class II, Division 1, Groups E, F & G T6

Class II, Division 2, Groups F & G T6
Class III, Division 1, T6

Ex tb IIIC T85°C Db
Zone 21, AEx tb IIIC T85°C Db

Type 4X Enclosure Rating

- JB5000 Junction Box (10213879, 10213893); Rated 11-30 VDC, 1.0 A max. input provided by an SELV source; -55°C ≤ Ta ≤ +75°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

10213879 = JB5000 Junction Box, Stainless Steel, ¾" NPT
10213893 = JB5000 Junction Box, Stainless Steel, M25

Conditions of Certification:

1. The Junction Box shall only receive power from equipment powered by an SELV source equal to or less than the input rating of the Junction Box.
2. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for the connection of input power and sensors such as the Digital Sensor and ULTIMA® XIR Plus sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
3. The Flameproof and Explosionproof joints shall not be repaired.
4. It is recognized that other equipment (i.e. Sensor and/or Transmitter) will be present in the final installation, thus the final Temperature Code rating will be limited by the Sensor and/or Transmitter due to higher code rating.
5. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.

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Class I, Division 1, Groups B, C, & D T6
Class I, Division 1, Groups A, B, C, & D T6
Ex db IIC T6 Gb
Class I, Zone 1, AEx db IIC T6 Gb

Class I, Division 2, Groups A, B, C, & D T6

Ex nA IIC T6 Gc
Class I, Zone 2, AEx nA IIC T6 Gc

Class II, Division 1, Groups E, F & G T6
Class III, Division 1, T6

Type 4X Enclosure Rating

- ULTIMA® XIR Plus sensor (A-5K-SENS-*aa-b-c-d-e*); Rated 7-30 VDC, 800 mA max. input provided by an SELV source powered transmitter to which connection is made; digital communication output; -40°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

aa is for Toxic Gas Type (Not Performance Assessed):
any two letters

b is 0 = Stainless Steel

c is F = CSA North American

d is for Sensor Body:
1 = ¾" NPT 2 = M25

e is 0 = Not relevant to certification

Conditions of Certification:

1. The ULTIMA® XIR Plus sensor is assessed for Explosion-proof construction as stand-alone equipment.
2. The non-incendive ULTIMA® XIR Plus sensor shall only be powered by the ULTIMA® X5000 transmitter in order to satisfy the Division 2 and Ex nA classifications.
3. The flameproof joints shall not be repaired.
4. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.
5. The ULTIMA® XIR Plus sensor is provided with a ¾" NPT thread and shall only be connected to a suitably certified enclosure. The installation to the certified enclosure shall be with five fully engaged threads, tightened wrench-tight.

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6. Cable-glands, blanking elements, adapters, when used within the final assembly, shall be certified and suitable for the type of protection of the enclosure. These shall maintain the protection concept and the degree of protection IP66.
7. The XIR Plus Sensor enclosure with Sensor Guard (opaque cover) or enclosure must fully contain the optical radiation and comply with a suitable type of protection as required by the involved EPL, complying with one of the following conditions:
   a) An enclosure for which protection regarding ingress of an explosive dust atmosphere is provided, such as dust protection "t" enclosures" (IEC 60079-31), or
   b) An enclosure that provides a minimum ingress protection of IP 6X and where no internal absorbers are to be expected and complying with “Tests of enclosures” in IEC 60079-0.

APPLICABLE REQUIREMENTS

The following standards are applicable to the X5000 Transmitter with relays (A-X5000-*abcdeffggh)*, X5000 Junction Box, JB5000 Junction Box and XIR Plus sensor approvals for the Division 1, the Zone 1 and the dust ignition proof classifications identified in the Products section.

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CSA-C22.2 No. 94.1:15 *Second Edition (R2020)*	Enclosures for Electrical Equipment, Non-Environmental Considerations
ANSI/UL 50-15 *Thirteenth Edition*	Enclosures for Electrical Equipment, Non-Environmental Considerations
CSA C22.2 No. 94.2-15 *Second Edition*	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/UL 50E-15 *Second Edition*	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA-C22.2 No. 61010-1-12 *(R2017)*	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory use — Part 1: General Requirements
ANSI/UL 61010-1-2012 *Third Edition (May 11, 2012)*	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory use — Part 1: General Requirements
FM 3810:2018	Approval Standard for Electrical Equipment for Measurement, Control and Laboratory Use
CSA C22.2 No. 30-M1986 *(R2016)*	Explosion-Proof Enclosure for Use in Class I Hazardous Locations
FM 3600:2018	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements
FM 3615:2018	Approval Standard for Explosionproof Electrical Equipment General Requirements
CSA C22.2 No. 60079-0:19	Explosive atmospheres — Part 0: Equipment — General requirements
ANSI/UL 60079-0-2019 *Seventh Edition*	Explosive atmospheres — Part 0: Equipment — General requirements
CAN/CSA C22.2 No. 60079-1:16	Explosion atmospheres – Part 1: Equipment protection by flameproof enclosures “d”
ANSI/ISA 60079-1 (12.22.01) -2009 (R2013) *Sixth Edition*	Explosion atmospheres – Part 1: Equipment protection by flameproof enclosures “d”
CSA C22.2 No. 25-1966 *(R2014)*	Enclosures for Use in Class I Groups E, F, and G Hazardous Locations
FM 3616:2011	Approval Standard for Dust-Ignition Electrical Equipment General Requirements
CAN/CSA C22.2 No. 60079-31:15 *(R2020)*	Explosion atmospheres – Part 31: Equipment dust ignition protection by enclosure “t”
ANSI/ISA 60079-31 (12.10.03)-2015	Explosion atmospheres – Part 31: Equipment dust ignition protection by enclosure “t”
CSA C22.2 No. 152-M1984 *(R2016)*	Combustible gas detection instruments
CAN/CSA-C22.2 No. 60079-29-1:17	Explosive atmospheres — Part 29-1: Gas detectors — Performance requirements of detectors for flammable gases
ANSI/ISA-60079-29-1 (12.13.01)-2013	Explosive atmospheres — Part 29-1: Gas detectors — Performance requirements of detectors for flammable gases
FM 6310/6320:2018	Approval Standard for Combustible Gas Detectors

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In addition to the Ordinary Locations standards mentioned above, the following Hazardous Locations standards are applicable only to the X5000 Transmitter without relays (A-X5000-*abc**0**effggh)*, X5000 Junction Box and JB5000 Junction Box and XIR Plus Sensor for Division 2 and Zone 2 classifications identified in the Products section above.

CSA C22.2 No. 30-M1986 *(R2016)*	Explosion-Proof Enclosure for Use in Class I Hazardous Locations
FM 3615:2018	Approval Standard for Explosionproof Electrical Equipment General Requirements
CAN/CSA C22.2 No. 60079-0:19	Explosive atmospheres — Part 0: Equipment — General requirements
ANSI/UL 60079-0-2019 *Seventh Edition*	Explosive atmospheres — Part 0: Equipment — General requirements
CAN/CSA C22.2 No. 60079-1:16	Explosion atmospheres – Part 1: Equipment protection by flameproof enclosures “d”
ANSI/ISA 60079-1 (12.22.01) -2013	Explosion atmospheres – Part 1: Equipment protection by flameproof enclosures “d”
CSA C22.2 No. 213-17	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations
ANSI/UL 121201-2017 *Ninth Edition (R2019)*	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations
CAN/CSA-C22.2 No. 60079-15:12	Explosive Atmospheres – Part 15: Construction, Test and Marking of Type of Protection “n” Electrical Apparatus
ANSI/ISA 60079-15 (12.12.02)-2012 *Fourth Edition*	Explosive Atmospheres – Part 15: Construction, Test and Marking of Type of Protection “n” Electrical Apparatus
FM 3600:2018	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements
FM 3611:2018	Approval Standard for Nonincendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Division 1 and 2, Hazardous (Classified) Locations

Notes:

Products certified under Class(es) C482801 have been certified under CSA’s ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca

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Supplement to Certificate of Compliance

Certificate: 70116284 **Master Contract:** 167534

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80185904	2024-09-13	Update to report 70116284 for the X5000 Gas Monitor to add ST microprocessor option and a firmware update to allow use of XIR Plus Point XIR Detector.
80139313	2022-09-28	Update to report 70116284 due to replacement of obsolete components, addition of alternate controllers and minor editorial updates in the X5000 Gas Monitor.
80061856	2022-04-18	X5000 transmitter add Isolated Modbus and wireless HART communication options and update firmware update to 1.04.3092. XIR Plus sensor T-code changed to T6, added Type 4X and firmware to 3.2. Assess system to 2018 edition of FM 3810, FM 3600, FM 3615, FM 6310/6320, and FM 3611. Insulation temperature warning moved to user instructions. Update descriptive document list, markings, and factory test parameters.
80033111	2020-06-18	Update report 70116284 to add the JB5000 Junction Box enclosure and electronics to the Ultima X5000 assembly configuration for gas detection performance in hazardous locations. The JB5000 enclosure and electronics was evaluated at CSA under project 80027765 to be include as a new configuration option within this certification. Addition of JB5000 junction box drawings and revision of several drawings. Update to the latest edition of CSA C22. No. 60079-0, edition 7 and UL 60079-0, edition 7. Removal of “Division 2” and “Ex db nA” classifications from X5000 transmitter listing with relays Option 1. Option 0 of X5000 Transmitter (no relays) will continue to have Division 2 and Ex nA classifications. Changes to several temperature codes.
70199266	2019-06-14	Update Report 70116284 to include revised drawings and instruction manual. This project updates cosmetic changes and features to the X5000 firmware, added other combustible gases for the Digital Sensor (With FRIT) and XIR Plus sensor. Alternate pre-amp board (Diffusion Supervision) added for CO and H2S toxic Digital sensor version with FRIT with additional model codes for these sensors were introduced.

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70209710	2019-02-26	Updated report 70116284 to include the revised nameplate approval drawing, the revised product instruction manual and the addendum to the manual.
70171765	2018-11-07	Reformatted report 70116284 to better align with the IECEx-ATEX report and added Zone 2 and Division 2 approval for the existing XP/ Ex db ULTIMA® X5000 Transmitter and ULTIMA® XIR Plus Sensor.
70116284	2017-04-20	Original certification of the ULTIMA® X5000 fixed combustible/ toxic gas monitor making use of Protection Type “Ex d” Flame-proof and Class I, Division 1 Explosion-proof to cover the intended use in potentially explosive gas atmospheres for fixed combustible gas detection performance.

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