Certificate of Compliance

Certificate: 70116279 **Master Contract:** 161129

Project: 80185907 **Date Issued:** 2024-09-12

Issued To: **General Monitors, Incorporated.**
16782 Von Karman Ave. Unit 14
Irvine, California, 92606
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 T5	**– With Cemented Joint**
Class I, Division 1, Groups B, C, & D T5	**– With Flanged Joint (Canada only)**
Class I, Division 1, Groups A, B, C, & D T5	**– With Flanged Joint (U.S. only)**
Ex db IIC T5 Gb	**– With Cemented Joint**
Ex db IIB+H2 T5 Gb	**– With Flanged Joint**
Class I, Zone 1, AEx db IIC T5 Gb	**– With Cemented Joint**
Class I, Zone 1, AEx db IIB+H2 T5 Gb	**– With Flanged Joint**

Class I, Division 2, Groups A, B, C, & D T4

Ex nA nC IIC T4 Gc
Class I, Zone 2, AEx nA nC 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

S5000 transmitter (model S5000-abc0eefffgggh), also referred to as the "S5000 Gas Monitor" controller, either Cemented or Flanged Joint versions. Rated 12-30 VDC, 1.0 A max. input provided by an SELV source. Output Alarm Relay Contacts are rated 250 V, 30 VDC, 5.0 A; -55°C ≤ Ta ≤ +75°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

a is for Enclosure Material:
0 = Aluminum – IIB+H2 / B, C, D (flanged/non-cemented)
1 = Aluminum – IIC / A (cemented)
2 = Stainless Steel – IIB+H2 / B, C, D (flanged/non-cemented)
3 = Stainless Steel – IIC / A (cemented)

b is for Output Communications
0 = Bluetooth/ Modbus/ HART 1.25 mA
1 = Bluetooth/ Modbus/ HART 3.5 mA
2 = Bluetooth/ Modbus/ HART 1.25 mA/ RELAYS
3 = Bluetooth/ Modbus/ HART 3.5 mA/ RELAYS
4 = No Bluetooth/ Modbus/ HART 1.25 mA
5 = No Bluetooth/ Modbus/ HART 3.5 mA
6 = No Bluetooth/ Modbus/ HART 1.25 mA/ RELAYS
7 = No Bluetooth/ Modbus/ HART 3.5 mA/ RELAYS

c is for Relay State:
0 = No Relays
1 = Latch Alarm / Non-Latch Warn De-Energized
2 = Latch Alarm / Non-Latch Warn Energized
3 = Latch Alarm / Latch Warn De-Energized
4 = Latch Alarm / Latch Warn Energized
5 = Non-Latch Alarm / Non-Latch Warn De-Energized
6 = Non-Latch Alarm / Non-Latch Warn Energized
7 = Non-Latch Alarm / Latch Warn De-Energized
8 = Non-Latch Alarm / Latch Warn Energized

ee is for an Additional Feature selection:
00 = None (standard)
01= Stainless Steel Tag
02 = HART Off (Factory Setting)
03 = Stainless Steel Tag / Hart Off (Factory Setting)
04 = UI Assy –1 with Bluetooth Disabled
05 = Stainless Steel Tag / UI Assy –1 with Bluetooth Disabled
06 = BCM Modbus (Isolated)
07 = SS Tag/BCM Modbus (Isolated)

fff is for Sensor 1 selection:
ggg is for Sensor 2 selection:

Digital Sensor	IR400/IR700 gas detector/ sensor	Passive HC head sensor (Combustible)	Passive H2S head sensor (Toxic)	ULTIMA® XIR Plus sensor
D00 = No Sensor or Sensor Body (transmitter only)	R00 = No Sensor R13 = Methane, AL [^]	C00 = No Sensor C04 = 10058-1, SS (screen) [^]	M00 = No Sensor M04 = 50448-1, SS, 0-100	00 = No Sensor

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Date Issued: 2024-09-12

D01 = No Sensor (sensor body w/blank element (Fine Thread) D02 = None - Sensor Body Only (Course Threads, Div 2 only) D60 = Combustible, 0-100% LEL – 5% Methane [#] D61 = Combustible, 0-100% LEL – 2.1% Propane [#] D62 = Combustible, 0-100% LEL – 1.05% Heptane [#] D63 = Combustible, 0-100% LEL – 0.8% Nonane [#] D64 = Combustible, 0-100% LEL – 4.0% Hydrogen [#] D65 = Combustible, 0-100% LEL – 4.4% Methane [#] D66 = Combustible, 0-100% LEL – 1.7% Propane [#] D67 = Combustible, 0-100% LEL – 0.85% Heptane [#] D68 = Combustible, 0-100% LEL – 0.7% Nonane [#] Dxx = Any 2-digit code not listed above –Toxic gas sensor	R14 = Propane, AL [^] R31 = Methane, SS [^] R32 = Propane, SS [^] R34 = Hexane SS [^] R35 = Pentane SS [^] R36 = Ethylene SS [^] R37 = Butane SS [^] R38 = Ethane SS [^] R52 = Carbon Dioxide. 0-5000 ppm, SS	C07 = 11159-1L, SS [^] C08 = 11159-2L, SS, High Temp. [^] C11 = 11159-1, SS [^] C12 = 11159-2, SS, High Temp. [^] C09 = 11159-8L, SS 0-20% LFL[^] C10 = 11159-8, SS, 0-20% LFL[^]	ppm (screen) M05 = 50448-5, SS, 0-50 ppm (screen) M06 = 50448-9, SS, 0-20 ppm (screen) M11 = 51457-1L, SS, 0-100 ppm M12 = 51457-5L, SS, 0-50 ppm M13 = 51457-9L, SS, 0-20 ppm M14 = 51457-1, SS, 0-100 ppm M15 = 51457-5, SS, 0-50 ppm M16 = 51457-9, SS, 0-20 ppm	AA = IR Combustible 0 – 100% LEL – 5% Methane [#] AB = IR Combustible 0 – 100% LEL – 2.1 % Propane [#] 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 [#] AS = IR Combustible 0 – 100% LEL – 1.2% Benzene [#] BY = IR Combustible 0 – 100% LEL – 3.3 Ethanol [#] CD = IR Combustible 0 – 100% LEL – 2.7% Ethylene [#] CF = IR Combustible 0 – 100% LEL – 3% Ethylene Oxide [#] CJ = IR Combustible 0 – 100% LEL – 1.1% Hexane [#] CP = IR Combustible 0 – 100% LEL – 2% Isopropanol [#] DJ = IR Combustible 0 – 100% LEL – 1.7% Methyl Methacrylate [#] FJ = IR Combustible 0 – 100% LEL – 3.1% Ethanol [#] FL = IR Combustible 0 – 100% LEL – 2.3% Ethylene [#] FM = IR Combustible 0 – 100% LEL – 2.6% Ethylene Oxide [#] FN = IR Combustible 0 – 100% LEL – 1 % Hexane [#] FP = IR Combustible 0 – 100% LEL – 1% Hexane [#] Any 2 letters – Toxic Gas Sensor

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 paint options:

0 = no paint
1 = Gray
2 = Blue
3 = Yellow
4 = White

Conditions of Acceptability:

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, IR400 infrared (IR) sensor and Passive HC Sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.
2. The flameproof 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. While all approved devices can be connected, in order to maintain the Type 4X/IP66 rating, the connected equipment shall have the Type 4X/IP66 rating.
5. It is recognized that other equipment (i.e. Sensor and/or Junction Box) will be present in the final installation, thus the final Temperature Code rating will be limited by the Sensor and/or Junction Box due to higher code rating.
6. Other than the S5000 with IR400, combustible gas detection performance compliance to Standard 60079-29-1, CSA C22.2 No. 152-M1984 and FM 6310/6320 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/III or Zone 21].
7. The S5000 combustible gas detection system consists of appropriate combinations of the S5000 transmitter, optional remote-mounted S5000 Junction Box, optional remoted-mounted JB5000 Junction Box, Digital Sensor (With FRIT), IR400 Gas Detector/ Sensor, ULTIMA® XIR Plus gas sensor and Passive HC sensors.

Class I, Division 1, Groups A, B, C, & D T6	**– With Cemented Joint**
Class I, Division 1, Groups B, C, & D T6	**– With Flanged Joint (Canada only)**
Class I, Division 1, Groups A, B, C, & D T6	**– With Flanged Joint (U.S. only)**
Ex db IIC T6 Gb	**– With Cemented Joint**
Ex db IIB+H2 T6 Gb	**– With Flanged Joint**
Class I, Zone 1, AEx db IIC T6 Gb	**– With Cemented Joint**
Class I, Zone 1, AEx db IIB+H2 T6 Gb	**– With Flanged Joint**

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

S5000 Junction Box p/n 324240-*a* Cemented Joint or Flanged Joint versions [for use as a remotely mounted pass-through when connected to an approved fixed Combustible gas detection control unit (transmitter)]; Rated 12-30 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.

a is for configuration:

Material	Joint Style	Color	a
Stainless Steel	Flange Joint (non-cemented)	No Paint	1
		Gray	5
		Blue	9
		Yellow	13
		White	17
	Cemented Joint	No Paint	3
		Gray	7
		Blue	11
		Yellow	15
		White	19

Material	Joint Style	Color	a
Aluminum	Flange Joint (non-cemented)	No Paint	2
		Gray	6
		Blue	10
		Yellow	14
		White	18
	Cemented Joint	No Paint	4
		Gray	8
		Blue	12
		Yellow	16
		White	20

Conditions of Acceptability:

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, IR400 infrared (IR) sensor, ULTIMA® XIR Plus gas sensor and Passive HC Sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.
2. The flameproof 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. While all approved devices can be connected, in order to maintain the Type 4X/IP66 rating, the connected equipment shall have the Type 4X/IP66 rating.
5. 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.

6. 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.
7. In Combustible Gas Detection performance applications, the Junction Box can be used to construct the S5000 Gas Monitor fixed combustible gas detection system; remotely mounted, receiving power from a suitably approved transmitter/ control unit (S5000 Transmitter) while providing protection for the connections to other portions of the system.

Class I, Division 1, Groups A, B, C, and D T5
Ex db IIC T5 Gb
Class I, Zone 1, AEx db IIC T5 Gb

Class I, Division 2, Groups A, B, C, and D T5
Ex db nA IIC T5 Gc
Class I, Zone 2, AEx db nA IIC T5 Gc

Class II, Division 1, Groups E, F & G T5
Class II, Division 2, Groups F & G T5
Class III, Division 1, T5

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

Type 3X Enclosure Rating

Digital Sensor (With FRIT) (A-5K-SENS-*aa-b-F-d-e*) [for use either integral to or as a remote detector head (sensor) when connected to an approved fixed Combustible gas detection control unit]; Rated 24 VDC, 250 mA max. input provided by an SELV source powered transmitter to which connection is made; digital communication output; -55°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP65.

aa is for Gas Type:

Performance Approved	Not Performance Approved
60 = Combustible, 0-100% LEL – 5% Methane 61 = Combustible, 0-100% LEL – 2.1% Propane 62 = Combustible, 0-100% LEL – 1.05% Heptane 63 = Combustible, 0-100% LEL – 0.8% Nonane 64 = Combustible, 0-100% LEL – 4.0% Hydrogen 65 = Combustible, 0-100% LEL – 4.4% Methane 66 = Combustible, 0-100% LEL – 1.7% Propane 67 = Combustible, 0-100% LEL – 0.85% Heptane 68 = Combustible, 0-100% LEL – 0.7% Nonane	01 = None – Transmitter with Sensor Body Only (Fine Threads Div 1 & 2) w/blanking element aa = Any two-digit number (Fine Threads Div 1 & 2)

b is for Material type:
0 = Stainless Steel
1 = Aluminum

d is for Sensor Body:
0 = No Sensor Body
1 = ¾" NPT
2 = M25
e is reserved for future use
0 = None

Conditions of Acceptability:

1. The Digital Sensor (With FRIT) sensor is assessed as stand-alone equipment to be used as a component of a combustible gas detection system where combustible performance testing was conducted in the end product.
2. The flameproof 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. If the sensor is uninstalled, the instruction manual shall be referenced prior to reinstalling.
5. The Digital Sensor (With FRIT) 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 Digital Sensor (With FRIT) shall only be fitted to enclosures having a maximum reference pressure of 34.4 bars or lower.
7. The Digital Sensor (With FRIT) 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.
8. In combustible gas detection performance applications, the appropriate Digital Sensor (With FRIT) model number was used to construct the S5000 Gas Monitor fixed combustible gas detection system; mounted onto either the S5000 transmitter, S5000 Junction Box, or JB5000 Junction Box enclosures and receive power and control from the transmitter.
9. Combustible gas detection performance compliance to Standard 60079-29-1, CSA C22.2 No. 152-M1984 and FM 6310/6320 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/III or Zone 21].

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 T5	**– With Cemented Joint**
Class I, Division 1, Groups B, C, & D T5	**– With Flanged Joint (Canada only)**
Class I, Division 1, Groups A, B, C, & D T5	**– With Flanged Joint (U.S. only)**
Ex db IIC T5 Gb	**– With Cemented Joint**
Ex db IIB+H2 T5 Gb	**– With Flanged Joint**

Class I, Zone 1, AEx db IIC T5 Gb – With Cemented Joint
Class I, Zone 1, AEx db IIB+H2 T5 Gb – With Flanged Joint

Class I, Division 2, Groups A, B, C, & D T4

Ex nA nC IIC T4 Gc
Class I, Zone 2, AEx nA nC 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

S5000 transmitter (model S5000-*abc0eefffgggh*), also referred to as the "S5000 Gas Monitor" controller, either Cemented or Flanged Joint versions. Rated 12-30 VDC, 1.0 A max. input provided by an SELV source. Output Alarm Relay Contacts are rated 250 V, 30 VDC, 5.0 A; -55°C ≤ Ta ≤ +75°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

a is for Enclosure Material:
0 = Aluminum – IIB+H2 / B, C, D (flanged/non-cemented)
1 = Aluminum – IIC / A (cemented)
2 = Stainless Steel – IIB+H2 / B, C, D (flanged/non-cemented)
3 = Stainless Steel – IIC / A (cemented)

b is for Output Communications
0 = Bluetooth/ Modbus/ HART 1.25 mA
1 = Bluetooth/ Modbus/ HART 3.5 mA
2 = Bluetooth/ Modbus/ HART 1.25 mA/ RELAYS
3 = Bluetooth/ Modbus/ HART 3.5 mA/ RELAYS
4 = No Bluetooth/ Modbus/ HART 1.25 mA
5 = No Bluetooth/ Modbus/ HART 3.5 mA
6 = No Bluetooth/ Modbus/ HART 1.25 mA/ RELAYS
7 = No Bluetooth/ Modbus/ HART 3.5 mA/ RELAYS

c is for Relay State:
0 = No Relays
1 = Latch Alarm / Non-Latch Warn De-Energized
2 = Latch Alarm / Non-Latch Warn Energized
3 = Latch Alarm / Latch Warn De-Energized
4 = Latch Alarm / Latch Warn Energized
5 = Non-Latch Alarm / Non-Latch Warn De-Energized
6 = Non-Latch Alarm / Non-Latch Warn Energized
7 = Non-Latch Alarm / Latch Warn De-Energized
8 = Non-Latch Alarm / Latch Warn Energized

ee is for an Additional Feature selection:
00 = None (standard)
01= Stainless Steel Tag
02 = HART Off (Factory Setting)
03 = Stainless Steel Tag / Hart Off (Factory Setting)
04 = UI Assy –1 with Bluetooth Disabled
05 = Stainless Steel Tag / UI Assy –1 with Bluetooth Disabled
06 = BCM Modbus (Isolated)
07 = SS Tag/BCM Modbus (Isolated)

fff is for Sensor 1 selection:
ggg is for Sensor 2 selection:

Digital Sensor	IR400/IR700 gas detector/ sensor	Passive HC head sensor (Combustible)	Passive H2S head sensor (Toxic)
D00 = No Sensor or Sensor Body (transmitter only) D01 = No Sensor (sensor body w/blank element (Fine Thread) D02 = None - Sensor Body Only (Course Threads, Div 2 only) Dxx = Any 2-digit code not listed above –Toxic gas sensor	R00 = No Sensor R52 = Carbon Dioxide. 0-5000 ppm, SS	C00 = No Sensor C04 = 10058-1, SS (screen) [^] C07 = 11159-1L, SS [^] C08 = 11159-2L, SS, High Temp. [^] C11 = 11159-1, SS [^] C12 = 11159-2, SS, High Temp. [^] C09 = 11159-8L, SS 0-20% LFL[^] C10 = 11159-8, SS, 0-20% LFL[^]	M00 = No Sensor M04 = 50448-1, SS, 0-100 ppm (screen) M05 = 50448-5, SS, 0-50 ppm (screen) M06 = 50448-9, SS, 0-20 ppm (screen) M11 = 51457-1L, SS, 0-100 ppm M12 = 51457-5L, SS, 0-50 ppm M13 = 51457-9L, SS, 0-20 ppm M14 = 51457-1, SS, 0-100 ppm M15 = 51457-5, SS, 0-50 ppm M16 = 51457-9, SS, 0-20 ppm

Toxic gas sensors have not been certified for performance.

h is for paint options:

0 = no paint
1 = Gray
2 = Blue
3 = Yellow
4 = White

Conditions of Acceptability:

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, IR700 infrared (IR) sensor, ULTIMA® XIR Plus sensor and Passive H2S Sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.
2. The flameproof 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. While all approved devices can be connected, in order to maintain the Type 4X/IP66 rating, the connected equipment shall have the Type 4X/IP66 rating.
5. The S5000 toxic gas detection system consists of appropriate combinations of: the S5000 transmitter, optional remote-mounted S5000 Junction Box, optional remoted-mounted JB5000 Junction Box, Digital Sensor (With or Without FRIT), IR700 Gas Detector/ Sensor, ULTIMA® XIR Plus gas sensor or Passive H2S sensors.

Class I, Division 1, Groups A, B, C, & D T6 – **With Cemented Joint**
Class I, Division 1, Groups B, C, & D T6 – **With Flanged Joint (Canada only)**
Class I, Division 1, Groups A, B, C, & D T6 – **With Flanged Joint (U.S. only)**

Ex db IIC T6 Gb – **With Cemented Joint**
Ex db IIB+H2 T6 Gb – **With Flanged Joint**

Class I, Zone 1, AEx db IIC T6 Gb – **With Cemented Joint**
Class I, Zone 1, AEx db IIB+H2 T6 Gb – **With Flanged Joint**

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

S5000 Junction Box p/n 324240-*a* Cemented Joint or Flanged Joint versions [for use as a remotely mounted pass-through when connected to an approved fixed toxic gas detection control unit (transmitter)]; Rated 12-30 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.

a is for configuration:

Material	Joint Style	Color	a
Stainless Steel	Flange Joint (non-cemented)	No Paint	1
		Gray	5
		Blue	9
		Yellow	13
		White	17
	Cemented Joint	No Paint	3
		Gray	7
		Blue	11
		Yellow	15
		White	19

Material	Joint Style	Color	a
Aluminum	Flange Joint (non-cemented)	No Paint	2
		Gray	6
		Blue	10
		Yellow	14
		White	18
	Cemented Joint	No Paint	4
		Gray	8
		Blue	12
		Yellow	16
		White	20

Conditions of Acceptability:

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, IR700 infrared (IR)

sensor, ULTIMA® XIR Plus gas sensor and Passive H2S Sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.

2. The flameproof 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. While all approved devices can be connected, in order to maintain the Type 4X/IP66 rating, the connected equipment shall have the Type 4X/IP66 rating.
5. 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.
6. 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.

Class I, Division 1, Groups A, B, C, and D T5
Ex db IIC T5 Gb
Class I, Zone 1, AEx db IIC T5 Gb

Class I, Division 2, Groups A, B, C, and D T5

Ex db nA IIC T5 Gc
Class I, Zone 2, AEx db nA IIC T5 Gc

Class II, Division 1, Groups E, F & G T5
Class II, Division 2, Groups F & G T5
Class III, Division 1, T5

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

Type 3X Enclosure Rating

Digital Sensor (With FRIT) (A-5K-SENS-*aa-b-F-d-e*) [for use either integral to or as a remote detector head (sensor) when connected to an approved fixed toxic gas detection control unit]; Rated 24 VDC, 250 mA max. input provided by an SELV source powered transmitter to which connection is made; digital communication output; -55°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP65.

aa is for Gas Type:

01 = None – Transmitter with Sensor Body Only (Fine Threads Div 1 & 2) w/blanking element
aa = Any two-digit number (Fine Threads Div 1 & 2)

b is for Material type:
0 = Stainless Steel
1 = Aluminum
d is for Sensor Body:
0 = No Sensor Body
1 = ¾" NPT
2 = M25
e is reserved for future use
0 = None

Conditions of Acceptability:

1. The flameproof joints shall not be repaired.
2. 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.
3. If the sensor is uninstalled, the instruction manual shall be referenced prior to reinstalling.
4. The Digital Sensor (With FRIT) 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.
5. The Digital Sensor (With FRIT) shall only be fitted to enclosures having a maximum reference pressure of 34.4 bars or lower.
6. The Digital Sensor (With FRIT) 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.

Class I, Division 2, Groups A, B, C, and D T5

Ex nA IIC T5 Gc
Class I, Zone 2, AEx nA IIC T5 Gc

Digital Sensor (No-FRIT) (A-5K-SENS-*aa-b-F-d-e*); Rated 24 VDC, 250 mA max. input provided by an SELV source powered transmitter to which connection is made; digital communication output; -55°C ≤ Ta ≤ +60°C. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP55.

aa is for Gas Type:
02 = None - Transmitter with Sensor Body Only (Course Threads, Div 2 only) or
aa = Any two digit number (Course Threads Div 2 only)
b is for Material type:
0 = Stainless Steel
1 = Aluminum
d is for Sensor Body:
0 = No Sensor Body
1 = ¾" NPT

2 = M25
e is reserved for future use
0 = None

Conditions of Acceptability:

1. 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.
2. If the sensor is uninstalled, the instruction manual shall be referenced prior to reinstalling.
3. The Digital Sensor (No-FRIT) 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.
4. The Digital Sensor (No-FRIT) 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.
5. The Ingress Protection rating is exclusively based upon the installation instruction for orientation specified in the operating manual.
6. The Digital Sensor (No-FRIT) shall only be installed for external connection to suitably certified equipment (transmitters) providing transient protection set at a maximum transient overvoltage of 119 V (140% of 85 Vpeak). The operating manual shall reinforce this installation requirement.

Certificate: 70116279
Project: 80185907

Master Contract: 161129
Date Issued: 2024-09-12

APPLICABLE REQUIREMENTS

The following standards are applicable to the S5000 Transmitter, S5000 Junction Box, and the Digital Sensor (With FRIT) approvals for Division 1, Ex db, AEx db, Ex tb, AEx tb:

~~CAN/~~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 Class 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 Class 3600:2018	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements
FM Class 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 II Groups E, F, and G Hazardous Locations
FM Class 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 Class 6310/6320:2018	Approval Standard for Combustible Gas Detectors

The following standards are applicable only to the Digital Sensor (With FRIT) approvals for Division 2, Ex db nA and AEx db nA:

CSA C22.2 No. 30-M1986 *(R2016)*	Explosion-Proof Enclosure for Use in Class I Hazardous Locations
FM Class 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. 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 Class 6310/6320:2018	Approval Standard for Combustible Gas Detectors
CAN/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 Class 3600:2018	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements
FM Class 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

The following standards are applicable only to the Digital Sensor (No-FRIT) approvals:

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
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
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
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
CAN/CSA-C22.2 No. 60079-15:12	Explosive Atmospheres – Part 15: Construction, Test and Marking of Type of Protection "n" Electrical Apparatus
FM Class 3600:2018	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements
FM Class 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

Supplement to Certificate of Compliance

Certificate: 70116279 **Master Contract:** 161129

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
80185907	2024-09-12	Update to report 70116279 for the S5000 Gas Monitor to add ST microprocessor option and a firmware update to allow use of XIR Plus Point XIR Detector.
80178774	2023-08-29	Correct drawing revision, due to FIR follow-up, FC# 272897, FIR dated May 24, 2023
80134939	2022-09-28	Update to report 70116279 due to replacement of obsolete components, addition of alternate microcontrollers, updated firmware and minor editorial updates in the S5000 Series Gas Monitor.
80061860	2022-03-18	Updated report 70116279 to add the isolated Modbus communication to the S5000 transmitter, revise the firmware of S5000 transmitter to 1.03.1975 and upgrade model code. This project also verified that when tested to Nonane and Butanol, the 11159-8 sensor 0-20% LEL meets the requirements of CSA C22.2 No 60079-29-1. For the S5000 transmitter and Junction Box, update standards FM 3600:2011 to FM 3600:2018; FM 3615:2006 to FM 3615:2018; FM 6310/6320:2014 to FM 6310/6320:2018; FM 3611:2004 to FM 3611:2018; FM 3810:2005 to FM 3810:2018. For the Digital Sensor (with FRIT), update standards FM 3615:2006 to FM 3615:2018; FM 6310/6320:2014 to FM 6310/6320:2018. Move a warning formerly located on the nameplate to the user manual. Update descriptive documents list with new and updated drawings.
80033108	2020-08-06	Updated report 70116279 to add the certified JB5000 Junction Box enclosure to the S5000 assembly configuration for gas detection performance in hazardous locations per a compliance compatibility review. Update standards CSA C22.2 No. 60079-0:19 and ANSI/UL 60079-0-2019 and drawings. Added enclosure rating and additional sensor options in the model code to S5000 Transmitter, Junction Box and Digital sensor with FRIT version.
80008856	2019-10-28	Evaluation for update of report 70116279 to cover the witness testing project 70220417 on April 2019 and the witness testing project 80008858 on August 2019.

70116279	2017-04-27	Original certification of the S5000 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.