Certificate of Compliance

Certificate: 70116279 **Master Contract:** 161129

Project: 80033108 **Date Issued:** August 06, 2020

Issued To: **General Monitors, Incorporated**
26776 Simpatica Circle
Lake Forest, California, 92630
United States

Attention: Frederick Bock

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: Laura Li
Laura Li

C US

PRODUCTS

CLASS - C482801 - SIGNAL APPLIANCES - Combustible Gas Detection Instruments-For Hazardous Locations

CLASS - C482881 - SIGNAL APPLIANCES-Combustible Gas Detection Instruments For Hazardous Location-Certified to U.S. Standards

	S5000 Transmitter:
Hazardous Location Designations:	Cemented Joint version
	Class I, Division 1, Groups A, B, C, and D T5 (Canada & U.S.)
	Ex db IIC T5 Gb (Canada)
	Class I, Zone 1, AEx db IIC T5 Gb (U.S.)
	C22.2 No. 152 (Canada)

	60079-29-1 (Canada)
	ANSI/ISA-60079-29-1 (U.S.)
	FM 6320 (U.S.)
	Class I, Division 2, Groups A, B, C, and D T4 (Canada & U.S.)
	Ex nA nC IIC T4 Gc (Canada)
	Class I, Zone 2, AEx nA nC IIC T4 Gc (U.S.)
	C22.2 No. 152 (Canada)
	60079-29-1 (Canada)
	ANSI/ISA-60079-29-1 (U.S.)
	FM 6320 (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6* (Canada & U.S.)
	Ex tb IIIC T85°C Db* (Canada)
	Zone 21, AEx tb IIIC T85°C Db* (U.S.)
	Type 4X, IP66 Enclosure Rating

Hazardous Location Designations:	<u>Flanged Joint version</u>
	Class I, Division 1, Groups B, C, and D T5 (Canada)
	Class I, Division 1, Groups A, B, C, and D T5 (U.S.)
	Ex db IIB+H2 T5 Gb (Canada)
	Class I, Zone 1, AEx db IIB+H2 T5 Gb (U.S.)
	C22.2 No. 152 (Canada)
	60079-29-1 (Canada)
	ANSI/ISA-60079-29-1 (U.S.)
	FM 6320 (U.S.)
	Class I, Division 2, Groups A, B, C, and D T4 (Canada & USA)
	Ex nA nC IIC T4 Gc (Canada)
	Class I, Zone 2, AEx nA nC IIC T4 Gc (U.S.)
	C22.2 No. 152 (Canada)
	60079-29-1 (Canada)
	ANSI/ISA-60079-29-1 (U.S.)
	FM 6320 (U.S.)

	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6* (Canada & U.S.)
	Ex tb IIIC T85°C Db* (Canada)
	Zone 21, AEx tb IIIC T85°C Db* (U.S.)
	Type 4X, IP66 Enclosure Rating

- S5000 transmitter (model S5000-*abcdeefffgggh*), 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. Refer to the Annex for the model coding breakout.

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/IP 66 rating, the connected equipment shall have the Type 4X/IP 66 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 FM6320 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].

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, and Passive HC sensors.

	S5000 Junction Boxes:
Hazardous Location Designations:	Cemented Joint version
	Class I, Division 1, Groups A, B, C, and D T6 (Canada & U.S.)
	Ex db IIC T6 Gb (Canada)
	Class I, Zone 1, AEx db IIC T6 Gb (U.S.)
	Class I, Division 2, Groups A, B, C, and D T6 (Canada & U.S.)
	Ex nA IIC T6 Gc (Canada)
	Class I, Zone 2, AEx nA IIC T6 Gc (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6 (Canada & U.S.)
	Ex tb IIIC T85°C Db (Canada)
	Zone 21, AEx tb IIIC T85°C Db (U.S.)
	Type 4X, IP66 Enclosure Rating

Hazardous Location Designations:	Flanged Joint version
	Class I, Division 1, Groups B, C, and D T6 (Canada)
	Class I, Division 1, Groups A, B, C, and D T6 (U.S.)
	Ex db IIB+H2 T6 Gb (Canada)
	Class I, Zone 1, AEx db IIB+H2 T6 Gb (U.S.)
	Class I, Division 2, Groups A, B, C, and D T6 (Canada & U.S.)
	Ex nA IIC T6 Gc (Canada)
	Class I, Zone 2, AEx nA IIC T6 Gc (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6 (Canada & U.S.)
	Ex tb IIIC T85°C Db (Canada)
	Zone 21, AEx tb IIIC T85°C Db (U.S.)
	Type 4X, IP66 Enclosure Rating

- S5000 Junction Box p/n 324240-3 and 324240-4 - Cemented Joint versions OR p/n 324240-1 and 324240-2 - 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. Refer to the Annex for the model coding breakout.

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/IP 66 rating, the connected equipment shall have the Type 4X/IP 66 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 theS5000 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.

Hazardous Location Designations:	Digital Sensor (With FRIT):
	Class I, Division 1, Groups A, B, C, and D T5 (Canada & U.S.)
	Ex db IIC T5 Gb (Canada)
	Class I, Zone 1, AEx db IIC T5 Gb (U.S.)
	C22.2 No. 152 (Canada)
	60079-29-1 (Canada)
	ANSI/ISA-60079-29-1 (U.S.)
	FM 6320 (U.S.)
	Class I, Division 2, Groups A, B, C, and D T5 (Canada & U.S.)
	Ex db nA IIC T5 Gc (Canada)
	Class I, Zone 2, AEx db nA IIC T5 Gc (U.S.)
	60079-29-1 (Canada)
	ANSI/ISA-60079-29-1 (U.S.)
	FM 6320 (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T5* (Canada & U.S.)
	Ex tb IIIC T85°C Db* (Canada)
	Zone 21, AEx tb IIIC T85°C Db* (U.S.)
	Type 3X, IP65 Enclosure Rating

- Digital Sensor (With FRIT) (A-5K-SENS-*aa-b-c-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. Refer to the Annex for the model coding breakout.

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 or S5000 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 FM6320 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 - C482802 - SIGNAL APPLIANCES - Toxic Gas Detection Instruments – For Hazardous Locations
CLASS - C482882 - SIGNAL APPLIANCES - Toxic Gas Detection Instruments – For Hazardous Locations - Certified to U.S. Standards

	S5000 Transmitters:
Hazardous Location Designations:	Cemented Joint version
	Class I, Division 1, Groups A, B, C, and D T5 (Canada & U.S.)
	Ex db IIC T5 Gb (Canada)
	Class I, Zone 1, AEx db IIC T5 Gb (U.S.)
	Class I, Division 2, Groups A, B, C, and D T4 (Canada & U.S.)
	Ex nA nC IIC T4 Gc (Canada)
	Class I, Zone 2, AEx nA nC IIC T4 Gc (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6 (Canada & U.S.)
	Ex tb IIIC T85°C Db (Canada)
	Zone 21, AEx tb IIIC T85°C Db (U.S.)
	Type 4X, IP66 Enclosure Rating

Hazardous Location Designations:	Flanged Joint version
	Class I, Division 1, Groups B, C, and D T5 (Canada)
	Class I, Division 1, Groups A, B, C, and D T5 (U.S.)
	Ex db IIB+H2 T5 Gb (Canada)
	Class I, Zone 1, AEx db IIB+H2 T5 Gb (U.S.)
	Class I, Division 2, Groups A, B, C, and D T4 (Canada & U.S.)
	Ex nA nC IIC T4 Gc (Canada)
	Class I, Zone 2, AEx nA nC IIC T4 Gc (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6 (Canada & U.S.)
	Ex tb IIIC T85°C Db (Canada)
	Zone 21, AEx tb IIIC T85°C Db (U.S.)
	Type 4X, IP66 Enclosure Rating

- S5000 transmitter (model S5000-*abcdeefffgggh*), 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. Refer to the Annex for the model coding breakout.

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 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/IP 66 rating, the connected equipment shall have the Type 4X/IP 66 rating.

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, Passive H2S sensors.

	S5000 Junction Boxes:
Hazardous Location Designations:	Cemented Joint version
	Class I, Division 1, Groups A, B, C, and D T6 (Canada & U.S.)
	Ex db IIC T6 Gb (Canada)
	Class I, Zone 1, AEx db IIC T6 Gb (U.S.)
	Class I, Division 2, Groups A, B, C, and D T6 (Canada & U.S.)
	Ex nA IIC T6 Gc (Canada)
	Class I, Zone 2, AEx nA IIC T6 Gc (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6 (Canada & U.S.)
	Ex tb IIIC T85°C Db (Canada)
	Zone 21, AEx tb IIIC T85°C Db (U.S.)
	Type 4X, IP66 Enclosure Rating

Hazardous Location Designations:	Flanged Joint version
	Class I, Division 1, Groups B, C, and D T6 (Canada)
	Class I, Division 1, Groups A, B, C, and D T6 (U.S.)
	Ex db IIB+H2 T6 Gb (Canada)
	Class I, Zone 1, AEx db IIC T6 Gb (U.S.)
	Class I, Division 2, Groups A, B, C, and D T6 (Canada & U.S.)
	Ex nA IIC T6 Gc (Canada)
	Class I, Zone 2, AEx nA IIC T6 Gc (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T6 (Canada & U.S.)
	Ex tb IIIC T85°C Db (Canada)
	Zone 21, AEx tb IIIC T85°C Db (U.S.)
	Type 4X, IP66 Enclosure Rating

- S5000 Junction Box p/n 324240-3 and 324240-4 - Cemented Joint versions OR p/n 324240-1 and 324240-2 - Flanged Joint versions; Rated 12-30 VDC, 1.0 A max. input provided by an SELV source; -55°C ≤ Ta ≤ +75°C. Refer to the Annex for the model coding breakout.

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 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/IP 66 rating, the connected equipment shall have the Type 4X/IP 66 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.

Hazardous Location Designations:	Digital Sensor (With FRIT):
	Class I, Division 1, Groups A, B, C, and D T5 (Canada & U.S.)
	Ex db IIC T5 Gb (Canada)
	Class I, Zone 1, AEx db IIC T5 Gb (U.S.)
	Class I, Division 2, Groups A, B, C, and D T5 (Canada & U.S.)
	Ex db nA IIC T5 Gc (Canada)
	Class I, Zone 2, AEx db nA IIC T5 Gc (U.S.)
	Class II, Division 1, Groups E, F & G; Division 2, Groups F & G; Class III, Divisions 1 & 2; T5 (Canada & U.S.)
	Ex tb IIIC T85°C Db (Canada)
	Zone 21, AEx tb IIIC T85°C Db (U.S.)
	Type 3X, IP65 Enclosure Rating

- Digital Sensor (With FRIT) (A-5K-SENS-*aa-b-c-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. Refer to the Annex for the model coding breakout.

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.

Hazardous Location Designations:	Digital Sensor (No-FRIT):
	Class I, Division 2, Groups A, B, C, and D T5 (Canada & U.S.)
	Ex nA IIC T5 Gc (Canada)
	Class I, Zone 2, AEx nA IIC T5 Gc (U.S.)
	IP55 Enclosure Rating

- Digital Sensor (No-FRIT) (A-5K-SENS-*aa-b-c-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. Refer to the Annex for the model coding breakout

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.

APPLICABLE REQUIREMENTS

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

CAN/CSA C22.2 No. 0-10	General Requirements - Canadian Electrical Code, Part II
CAN/CSA C22.2 No. 94.1-15	Enclosures for Electrical Equipment, Non-Environmental Considerations
ANSI/UL 50 (Thirteenth Edition)	Enclosures for Electrical Equipment, Non-Environmental Considerations
CAN/CSA C22.2 No. 94.2-15	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/UL 50E (Second Edition)	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA C22.2 No. 60529:05 (r. 2015)	Degrees of Protection Provided By Enclosures (IP Code)
ANSI/IEC 60529-2004 (r. 2011)	Degrees of Protection Provided By Enclosures (IP Code)
CAN/CSA C22.2 No. 61010-1-12	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory use — Part 1: General Requirements
ANSI/ISA 61010-1 (82.02.01) Third Edition	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory use — Part 1: General Requirements
FM Class 3810:2005	Approval Standard for Electrical Equipment for Measurement, Control and Laboratory Use
CAN/CSA C22.2 No. 30-1986	Explosion-Proof Enclosure for Use in Class I Hazardous Locations
FM Class 3600:2011	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements
FM Class 3615:2006	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	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”
CAN/CSA C22.2 No. 25-1966	Enclosures for Use in Class H 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	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”
CAN/CSA C22.2 No. 213-2015	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations
ANSI/ISA 12.12.01-2015	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations
FM Class 3611:2004	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
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	Explosive Atmospheres – Part 15: Equipment Protection by Type of Protection “n”
CSA C22.2 No. 152-M1984	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 6320:2014	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:

CAN/CSA C22.2 No. 30-1986	Explosion-Proof Enclosure for Use in Class I Hazardous Locations
FM Class 3615:2006	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	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	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 6320:2014	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
UL 121201 (2017)	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	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:

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
CSA C22.2 No. 60079-0-19	Explosive atmospheres — Part 0: Equipment — General requirements
ANSI/UL 60079-0 2019	Explosive atmospheres — Part 0: Equipment — General requirements
UL 121201 (2017)	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	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

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

- The following common marking requirements shall appear on the enclosures of the S5000 Transmitter, S5000 Junction Box, JB5000 Junction Box and Digital Sensor -
    - Manufacturer's name, "General Monitors (an MSA Company)", "GM" or "MSA" logo with CSA Master Contract Number "161129" or "161129" in lieu of Manufacturer's name, adjacent to the CSA Mark.
    - Model number: as specified in the PRODUCTS section.
    - Electrical ratings: as specified in the PRODUCTS section.
    - Ambient temperature rating: as specified in the PRODUCTS section, above (may be abbreviated).
    - Enclosure ratings: as specified in the PRODUCTS section, above (may be abbreviated).
    - Manufacturing date in MMYY format, or serial number, traceable to month of manufacture.
    - If applicable, an indication of the manufacturing location, if the equipment is manufactured at multiple locations.
    - ISO 60417, Symbol 5019 ⏚ adjacent to the equipment ground (protective conductor) terminal.
      Note: May be cast into the enclosure body or separately marked.
    - ISO 3864 Symbol B.3.1 ⚠ or ISO 7000 symbol 0434 ⚠ (triangle with exclamation point), or alternatively a marking to warn the installer in order to consult the installation instructions before determining the temperature rating of the cable to be connected to the terminals.
      Note: May be provided beside terminals or in a location visible before and during connection.
    - The CSA Mark, as shown on page 1 of the Certificate of Conformity.
    - Hazardous Location designation: as specified in the PRODUCTS section, above.
    - Temperature Code: as specified in the PRODUCTS section, above.
    - "17.70116279X", adjacent to the CSA Mark
    - The following cautions and warnings shall be in English and in French -
        - "⚠ WARNING – DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING ALL INSTRUCTIONS, WARNINGS AND CAUTIONS IN INSTRUCTION/ OPERATOR'S MANUAL MANS5000" (or technically equivalent text)"

- "WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS IN THE MANUAL"

- The following additional markings shall appear on the enclosure of the S5000 Transmitter -
  - "C22.2 No. 152", adjacent to the CSA Mark
  - "60079-29-1", adjacent to the CSA Mark (per CAN/CSA C22.2 No. 60079-29-1:17)
  - "ANSI/ISA-60079-29-1", adjacent to the CSA Mark (per FM 6320 & ANSI/ISA 60079-29-1)
  - The following additional cautions and warnings shall be in English and in French -
    - "⚠WARNING – DO NOT OPEN WHEN ENERGIZED OR WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT"
    - "USE CABLE WITH INSULATION RATED AT LEAST 24°C ABOVE SURROUNDING AMBIENT"

- The following additional markings shall appear on the enclosure of the S5000 Junction Box -
  - The following additional cautions and warnings shall be in English and in French -
    - "⚠ WARNING – DO NOT OPEN WHEN ENERGIZED OR WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT"
    - "USE WITH EQUIPMENT NOT COVERED UNDER THE S5000 CERTIFICATION FOR COMBUSTIBLE GAS DETECTION MAY REQUIRE ADDITIONAL EVALUATION AS A COMPONENT WITHIN A SUITABLY CERTIFIED SYSTEM"

- The following additional markings shall appear on the enclosure of the Digital Sensor (With FRIT) -
  - The following additional cautions and warnings shall be in English and in French -
    - "⚠WARNING – SEPARATE ONLY IN A NON-HAZARDOUS AREA"
    - "USE WITH EQUIPMENT NOT COVERED UNDER THE S5000 CERTIFICATION FOR COMBUSTIBLE GAS DETECTION MAY REQUIRE ADDITIONAL EVALUATION AS A COMPONENT WITHIN A SUITABLY CERTIFIED SYSTEM"

- The following additional markings shall appear on the enclosure of the Digital Sensor (No-FRIT) -
  - The following additional cautions and warnings shall be in English and in French -
    - "⚠ WARNING – SEPARATE ONLY IN A NON-HAZARDOUS AREA"

Nameplate adhesive label material approval information:

- The following marking label material is used -

The following markings are provided on an adhesive-type nameplate, CSA Certified under class 7921-06 and UL Recognized under Category Code PGDQ2. Nameplate is Type A - Heavy Duty, Pressure sensitive "300" with clear polyester lamination (3 to 4 mil) overall, manufactured by Nelson Name Plate Co., and consists of Autotex Steel label material and 3M 9472LE 300 series adhesive material. The nameplate is affixed to the side circumference of the unpainted cylindrical aluminum or stainless steel enclosure, and is suitable for indoor or

outdoor use on such metals. Additional labels or casted markings are located adjacent to enclosure entries, in order to identify the thread form of each entry for field wiring compartments.

- The following markings shall appear in the INSTRUCTION/ OPERATOR'S MANUAL accompanying each apparatus:

  The following cautions and warnings, or technically equivalent text, in English and in French (multiple warnings may be combined into one equivalent warning) -

  - "⚠ READ AND UNDERSTAND ALL INSTRUCTIONS, WARNINGS AND CAUTIONS PRIOR TO INSTALLATION OF ANY COMPONENTS OF THIS SYSTEM" (This literature shall accompany each apparatus)
  - "CAUTION – OPEN CIRCUIT BEFORE REMOVING COVER"
  - SEALING REQUIREMENTS -
    - Aluminum S5000 transmitter and Junction Box:
      "A SEAL SHALL BE INSTALLED WITHIN 18 in (450 mm) OF THE ENCLOSURE"
    - Stainless Steel S5000 transmitter, Junction Box and JB5000 Junction Box:
      "SEAL NOT REQUIRED".
  - "WARNING – DO NOT SEPARATE WHEN ENERGIZED" (*Note*: May be adjacent to the internal pluggable connectors)
  - "WARNING – DO NOT OPEN WHEN ENERGIZED OR WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
  - "WARNING – LIVE PARTS BEHIND COVER, OPEN CIRCUIT BEFORE REMOVING COVER – DO NOT CONTACT"
  - "WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS IN THE MANUAL"
  - "WARNING – NO INGRESS PROTECTIONS CLAIMS ARE MADE FOR COMBUSTIBLE GAS DETECTION PERFORMANCE"
  - "CAUTION: THIS AREA MUST BE FREE OF FLAMMABLE GASES DURING CALIBRATION"
  - "WARNING – FOR SAFETY REASONS THIS EQUIPMENT MUST BE OPERATED AND SERVICED BY QUALIFIED PERSONNEL ONLY. DO NOT OPERATE THIS EQUIPMENT UNTIL AFTER THE INSTRUCTION MANUAL IS READ AND UNDERSTOOD FOR PROPER INSTALLATION AND OPERATION"
  - "CAUTION: HIGH OFF-SCALE READING MAY INDICATE EXPLOSIVE CONCENTRATION" (not applicable to junction box without display)
  - "WARNING – WIRING TO OR FROM THIS DEVICE, WHICH ENTERS OR LEAVES THE SYSTEM ENCLOSURE, MUST UTILIZE WIRING METHODS SUITABLE FOR CLASS I, DIVISION 2 / ZONE 2 HAZARDOUS LOCATIONS, AS APPROPRIATE FOR THE INSTALLATION"
  - "WARNING – EXPLOSION HAZARD. DO NOT CONNECT OR DISCONNECT WHEN ENERGIZED"

The following information shall appear in the INSTRUCTION/ OPERATOR'S MANUAL or in a data sheet, which shall be supplied with each unit:

- Unique sections dedicated to the compliance requirements associated with the S5000 Transmitter, S5000 Junction Boxes, JB5000 Junction Boxes, Digital Sensor (With FRIT) and Digital Sensor (No-FRIT)
- Manufacturer's contact information including name and address.
- Electrical ratings: As specified in the PRODUCTS section above.
- Physical specifications including weight and sizes.
- Description of the intended use
- Electrical and environmental specifications: permanently connected, Equipment Class II, Pollution Degree 2 inside of the enclosure, continuous operation and maximum altitude of 2000 m.
- Explanation of CAUTION, WARNING markings and symbols used.
- Instructions for installation, identification of terminal connections, protective earthing, operation, operating controls, sensor interconnection, cleaning, maintenance and service.
- Instruction to use certified or listed wire leads at the terminal block connections, suitable for temperatures in excess of the following:
  24 °C above maximum surrounding ambient for the S5000 transmitter.
  Maximum surrounding ambient for the S5000 Junction Box and JB5000 Junction Box.
- Instruction to use service personnel authorized by the manufacturer
- Specific commissioning instructions and, if necessary for safety, warnings against hazards which could arise during installation or commissioning of the equipment.
- A statement that the safety of any system incorporating the equipment is the responsibility of the assembler of the system.
- A statement that if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired
- Guidance on how to determine that the equipment is functioning correctly when used in applications where a hazard could be caused by an incorrect reading when measuring, indicating or detecting harmful or corrosive substances, or hazardous live electrical quantities.
- A list of the standards, including the issue date, with which the equipment is declared to comply.
- "As part of this Approval, it was verified that optional communication functions of this gas detection instrument while operating at the maximum transaction rate do not adversely affect the gas detection operation and functions of the instrument. This Approval, however, does not include or imply Approval of the communications protocol or functions provided by the software of this instrument or of the communications apparatus or software connected to this instrument."

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
80033108	2020-08-07	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	Reference GCA-1617: 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. Any testing required will be witnessed at Cranberry facility. SOFTWARE ASSESSMENT NOT INCLUDED.
70199111	2019-05-07	This project updates cosmetic changes and features to the S5000 firmware and added other gases for the Digital Sensor (With FRIT) for hydrogen, heptane and nonane. Alternate pre-amp board added for CO and H2S toxic sensor version with FRIT (Diffusion Supervision) with additional model codes for these sensors were introduced.
70209712	2019-02-27	Updated report 70116279 to include the revised nameplate approval drawing and the revised product instruction manual.
70172582	2018-09-14	Reformatted report 70116279 to better align with the IECEx-ATEX report and added Zone 2 and Division 2 approval for the original XP/ Ex db Digital Sensor, now called the Digital Sensor (With FRIT), and a new Zone 2-only Digital Sensor, the Digital Sensor (No-FRIT).
70136266	2017-08-21	This project covered the update of the S5000 firmware changes to revision 1.00.1689. Updates were made to the user interface to improve user experience, changed swap delay mode to be maintenance mode where Analog Output level is 3.5 mA and extended delay to 2 minutes.
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.