



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEX Scheme visit www.iecex.com

Certificate No.: IECEX SIR 17.0016X

Issue No: 2

Certificate history:

Status: **Current**

Issue No. 2 (2018-09-20)

Issue No. 1 (2018-03-16)

Date of Issue: **2018-09-20**

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Issue No. 0 (2018-01-08)

Applicant: **General Monitors, Inc**
26776 Simpatica Circle
Lake Forest, CA 92630
United States of America

Equipment: **S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).**

Optional accessory:

Type of Protection: **Flameproof, Dust Protection by Enclosure and Ex n.**

Marking:
Refer to certificate annex for full marking.

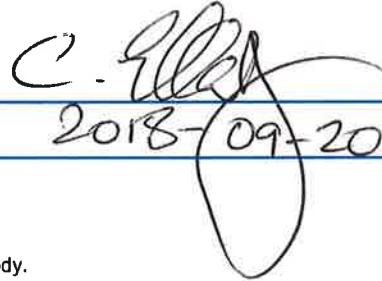
Approved for issue on behalf of the IECEX
Certification Body:

C Ellaby

Position:

Deputy Certification Manager

Signature:
(for printed version)


2018-09-20

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEX Website](http://www.iecex.com).

Certificate issued by:

SIRA Certification Service
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom

sira
CERTIFICATION





IECEX Certificate of Conformity

Certificate No: IECEx SIR 17.0016X Issue No: 2
Date of Issue: 2018-09-20 Page 2 of 4
Manufacturer: **General Monitors, Inc**
26776 Simpatica Circle
Lake Forest, CA 92630
United States of America

Additional Manufacturing location(s):

General Monitors (Ireland) Limited
Ballybrit Business Park
Galway
Ireland

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-15 : 2010 Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-29-1 : 2007 Edition:1	Explosive Atmospheres - Part 29-1: Gas Detectors - Performance requirements of detectors for flammable gases
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/SIR/ExTR17.0204/00](#) [GB/SIR/ExTR17.0252/00](#) [GB/SIR/ExTR18.0158/00](#)

Quality Assessment Report:

[GB/SIR/QAR07.0014/06](#) [US/UL/QAR10.0004/05](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The S5000 Gas Monitor fixed gas detection system is designed to measure specified percentage volumes of methane and propane gases or a variety of toxic gases or oxygen. The system comprises an S5000 transmitter base unit and an optional S5000 Junction Box fitted with an arrangement of up to a pair of two factory-configured combustible, toxic or oxygen gas sensors. The transmitter enclosure is fitted with associated circuitry, connection facilities and an LED display visible through the viewing window of the enclosure.

Refer to the Annexe for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to the Annexe



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DETAILS OF CERTIFICATE CHANGES (for Issues 1 and above):

This issue, Issue 2, recognises the following changes: refer to the certificate annexe to view a comprehensive history:

1. The introduction of applicable assessment, checklist and label drawing revisions to apply IEC 60079-15:2010 Zone 2 approval to the pre-existing Zone 1 Ex db (and Ex tb) Digital Sensor assembly having the FRIT (stainless steel sintered element) and utilizes either a catalytic sensing element (Combustible) construction type for the S5000 Gas Monitor fixed combustible gas detection configurations or an electrochemical sensing element (Toxic and Oxygen) construction type for toxic or oxygen detection; now being referenced as Digital Sensor (With FRIT).
2. Introduction of Zone 2-only "Digital Sensor (No FRIT)" electrochemical sensor version; per the applicable assessment, checklist entries and new label drawing to apply IEC 60079-15:2010.
3. The Marking, the Product Description and the Model Code Tables were amended to include the applicable Zone 2 approval coding for the Digital Sensor (With FRIT) and the Digital Sensor (No FRIT) models.
4. Specific Conditions of Use was amended to revise the present reference of "Digital Sensor" to "Digital Sensor (With FRIT)" and introduce appropriate Conditions for the Digital Sensor (No FRIT) version.
5. Conditions of Manufacture was amended to revise the present reference of "Digital Sensor" to "Digital Sensor (With FRIT)", add Condition referencing "Dielectric Voltage Withstand Test" for Digital Sensor (With FRIT) version and introduce appropriate Conditions for the Digital Sensor (No-FRIT) version.
6. Inclusion of the IP rating for each equipment enclosure as part of both the marking.
7. Added the alternate General Monitors (Ireland) Limited factory to the Manufacturer's Name and Address section.

Annex:

[IECEx SIR 17.0016X issue 2 Annexe.pdf](#)

Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



Marking:

S5000 Transmitters: IP66

Cemented Joint version:

Ex db IIC T5 Gb
Ex tb IIIC T85°C Db
Ex nA nC IIC T4 Gc
-55°C ≤ Ta ≤ +75°C
IEC 60079-29-1

Flanged Joint version:

Ex db IIB+H2 T5 Gb
Ex tb IIIC T85°C Db
Ex nA nC IIC T4 Gc
-55°C ≤ Ta ≤ +75°C
IEC 60079-29-1

Notes to Standard IEC 60079-29-1:

1. Applies only to the S5000 Gas Monitor fixed Combustible Gas Detection System.
2. IEC 60079-31 compliance does not imply that the equipment will detect gas during and after exposure to dust and fibers in suspension in air conditions.

S5000 Junction Boxes: IP66

Cemented Joint versions:

Ex db IIC T6 Gb
Ex tb IIIC T85°C Db
Ex nA IIC T6 Gc
-55°C ≤ Ta ≤ +75°C

Flanged Joint versions:

Ex db IIB+H2 T6 Gb
Ex tb IIIC T85°C Db
Ex nA IIC T6 Gc
-55°C ≤ Ta ≤ +75°C

Digital Sensor:

With FRIT: IP65

Ex db IIC T5 Gb
Ex tb IIIC T85°C Db
Ex db nA IIC T5 Gc
-55°C ≤ Ta ≤ +60°C

No FRIT: IP55

Ex nA IIC T5 Gc
-55°C ≤ Ta ≤ +60°C

Equipment:

The S5000 Gas Monitor fixed gas detection system is designed to measure specified percentage volumes of methane and propane gases or a variety of toxic gases or oxygen. The system comprises an S5000 transmitter base unit and an optional S5000 Junction Box fitted with an arrangement of up to a pair of two factory-configured combustible, toxic or oxygen gas sensors. The transmitter enclosure is fitted with associated circuitry, connection facilities and an LED display visible through the viewing window of the enclosure.

The S5000 Transmitter is the control unit of the S5000 Gas Monitor fixed gas detection system and the enclosure of the transmitter is designed for Flameproof (Ex db) and Dust protection by enclosure (Ex tb) with Non-Sparking/ Protected Sparking (Ex nA nC) protection. The enclosure is provided with 3/4" NPT threaded entries and a certified adapter is supplied for M25 entries which can be fitted with the sensors described below or suitably certified cable entry devices or blanking plugs. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

The S5000 Junction Boxes are the remote mounting units of S5000 Gas Monitor fixed gas detection system and the Junction Box enclosure is designed for Flameproof (Ex db) and Dust protection by enclosure (Ex tb) with Non-Sparking (Ex nA) protection. The enclosure is provided with 3/4" NPT threaded entries and a certified adapter is supplied for M25 entries which can be fitted with the sensors described below or suitably certified cable entry devices or blanking plugs. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

The Digital Sensor (With FRIT) assembly utilizes either a catalytic sensing element (Combustible) construction type for the S5000 Gas Monitor fixed combustible gas detection configurations or an electrochemical sensing element (Toxic and Oxygen) construction type for toxic or oxygen detection. The FRIT (sinter element) is located in the lower sensor element housing assembly, which has a fine thread pattern machined to mate to the thread pattern of the upper sensor body assembly. The Digital Sensor (With FRIT) is designed for Flameproof (Ex db), Dust protection by enclosure (Ex tb) and Non-Sparking (Ex db nA). The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP65.

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Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc



Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).

The Digital Sensor (No FRIT) assembly, without the FRIT element, is excluded from combustible gas detection and is an Ex nA only electrochemical sensing element (Toxic and Oxygen) construction type for toxic and oxygen detection. The Digital Sensor (No-FRIT) model is limited to Zone 2 and therefore limits the Junction Box or Main Transmitter to which it is integrally installed to Zone 2. The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP55.

The S5000 system makes use of three sensor types including a Digital Sensor for combustible, toxic or oxygen gas detection, Universal Gas (passive sintered) Sensors for combustible or toxic gas detection and an IR (infrared) sensor for combustible gas detection, all mounted via conduit entries. The permitted sensor configurations follow:

- Two-Digital Sensors (combustible, toxic or oxygen) installed either integral to the S5000 transmitter, one integral and one remote via a S5000 Junction Box or two remote via two separate S5000 Junction Boxes.
- One IR400 sensor (combustible) and one Digital Sensor (combustible, toxic or oxygen) installed either integral to the S5000 transmitter or remotely via a S5000 Junction Box
- One Universal Gas (passive sintered) Sensor (combustible or toxic) installed either integral to the S5000 transmitter or one remote via a S5000 Junction Box

The product model code options of the S5000 gas detection systems (Combustible, toxic or oxygen) featuring the S5000 transmitter, S5000 Junction Boxes, IR400 sensor, Universal Gas (passive sintered) sensors and the Digital Sensors component are shown in the Model Code Options section below. The applicable configuration limitations resulting from the hazardous area classifications can be derived in the model codes. The equipment enclosures have been separately tested against the requirements of IEC 60529 for Ingress Protection levels.

Model Code Options:

The ULTIMA® X5000 Gas Monitor fixed gas detection system:

The S5000 Transmitter:

Model coding appearing on the transmitter enclosure are shown below:

S5000 transmitter (equipment)		
Model reference	Description	Coding/System Limitations
S5000- <i>abcdeeffggg</i>	<p>Transmitter control unit of the Fixed Gas Detection System for use in explosive gas atmospheres: where up to two sensor may be connected either coupled to the transmitter enclosure or one coupled to the transmitter and the other coupled to the Junction Box enclosure – only one sensor per Junction Box permitted; two Digital Sensors or/ one IR400 sensor and one Digital Sensor or/ one Universal Gas H2S sensor (Toxic – Passive Sintered) or/ one Universal Gas HC sensor (Combustible – Passive Sintered)</p> <p>a is for Enclosure Material: 0 = Aluminum – IIB+H2 (flanged/non-cemented) 1 = Aluminum – IIC (cemented) 2 = Stainless Steel – IIB+H2 (flanged/non-cemented) 3 = Stainless Steel – IIC (cemented)</p> <p>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</p> <p>c is for Relay State:</p>	<p><i>transmitter only, without sensors</i></p> <p>- cemented joint window assembly</p> <p>Ex db IIC T5 Gb Ex tb IIIC T85°C Db Ex nA nC IIC T4 Gc Tamb: -55°C ≤ Ta ≤ +75°C</p> <p>- flanged joint window assembly</p> <p>Ex db IIB+H2 T5 Gb Ex tb IIIC T85°C Db Ex nA nC IIC T4 Gc Tamb: -55°C ≤ Ta ≤ +75°C</p>

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Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



S5000 transmitter (equipment)		
Model reference	Description	Coding/System Limitations
	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 <i>d</i> is 1 for ATEX/IECEx <i>ee</i> is for an Additional Feature selection: 00 = None (standard) 01 = Stainless Steel Tag <i>fff</i> is for Sensor 1 selection: <i>ggg</i> is for Sensor 2 selection: Sensors: for Sensor Selection <i>fff</i> or <i>ggg</i> : (Independently certified Ex Equipment Sensors or Ex Component Sensors forming the Combustible Gas Detection System, per 60079-29-1, are denoted by [^]) - Digital Sensor selections include, D00 = No Sensor or Sensor Body (transmitter only) D01 = No Sensor (sensor body (With FRIT) w/blank element) D02 = No Sensor (sensor body (No FRIT) w/blank element) D10 = Carbon Monoxide, 0-100 ppm D11 = Carbon Monoxide, 0-500 ppm D12 = Carbon Monoxide, 0-1000 ppm D14 = Carbon Monoxide, Hydrogen Resistant 0-100 ppm D16 = Oxygen, 0-25% D17 = Oxygen, 0-25% Solvent Tolerant D20 = Hydrogen Sulfide, 0-10 ppm D21 = Hydrogen Sulfide, 0-50 ppm D22 = Hydrogen Sulfide, 0-100 ppm D23 = Hydrogen Sulfide, 0-500 ppm D30 = Chlorine, 0-5 ppm (No FRIT-Zone 2 only) D31 = Chlorine, 0-10 ppm (No FRIT-Zone 2 only) D32 = Chlorine, 0-20 ppm (No FRIT-Zone 2 only) D35 = Chlorine Dioxide, 0-3 ppm (No FRIT-Zone 2 only) D40 = Ammonia, 0-100 ppm (No FRIT-Zone 2 only) D41 = Ammonia, 0-1000 ppm (No FRIT-Zone 2 only) D50 = Sulfur Dioxide, 0-25 ppm (No FRIT-Zone 2 only) D51 = Sulfur Dioxide, 0-100 ppm (No FRIT-Zone 2 only) D60 = Combustible, 0-100% LEL – 5% Methane [^] D61 = Combustible, 0-100% LEL – 2.1% Propane [^] D65 = Combustible, 0-100% LEL – 4.4 % Methane [^] D66 = Combustible, 0-100% LEL – 1.7% Propane [^] D70 = Hydrogen, 0-1000 ppm (No FRIT – Zone 2 only) D71 = Ethylene Oxide, 0-10 ppm (No FRIT-Zone 2 only) D72 = Nitrogen oxide, 0-100 ppm D73 = Nitrogen Dioxide, 0-10 ppm (No FRIT-Zone 2 only) D74 = Hydrogen Chloride, 0-50 ppm (No FRIT-Zone 2 only) D75 = Hydrogen Cyanide, 0-50 ppm D76 = Hydrogen Fluoride, 0-10 ppm (No FRIT-Zone 2 only) -IR400 gas detector/ sensor selections include, R00 = No Sensor R13 = Methane, AL [^] R14 = Propane, AL [^]	Zone 1 Combustible Gas Detection Systems: main transmitter + two Digital Sensors (With FRIT) units (one sensor maybe connected to one Junction Box) (cemented) Ex db IIC T5 Gb Ex tb IIIC T85°C Db Tamb: -55°C ≤ Ta ≤ +60°C (flanged) Ex db IIB+H2 T5 Gb Ex tb IIIC T85°C Db Tamb: -55°C ≤ Ta ≤ +60°C Zone 1 Combustible Gas Detection Systems: main transmitter + one IR400 + one Digital Sensor (With FRIT) (one sensor maybe connected to one Junction Box) (cemented and flanged) Ex db IIB+H2 T5 Gb Ex tb IIIC 100°C Db Tamb: -55°C ≤ Ta ≤ +75°C Zone 1 Combustible Gas Detection Systems: main transmitter + one Universal Gas HC (Combustible – Passive Sintered) sensor head (one sensor maybe connected to one Junction Box) (cemented) Ex db IIC T4 Gb Tamb: -40°C ≤ Ta ≤ +70°C (flanged) Ex db IIB+H2 T4 Gb Tamb: -40°C ≤ Ta ≤ +70°C

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Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



S5000 transmitter (equipment)		
Model reference	Description	Coding/System Limitations
	R43 = Methane, SS [^] R44 = Propane, SS [^] R16 = Pentane, AL R17 = Butane, AL R20 = Ethylene, AL R47 = Butane, SS R48 = Ethane, SS R50 = Ethylene, SS -Universal Gas HC head sensor selections include, C00 = No Sensor C07 = 11159-1L, Stainless Steel [^] C08 = 11159-2L, Stainless Steel, High Temp. [^] C11 = 11159-1, Stainless Steel [^] C12 = 11159-2, Stainless Steel, High Temp. [^] C09 = 11159-8L, Stainless Steel C10 = 11159-8, Stainless Steel -Universal Gas H2S head sensor selections include, M00 = No Sensor M11 = 51457-1L, Stainless Steel, 0-100 ppm M12 = 51457-5L, Stainless Steel, 0-50 ppm M13 = 51457-9L, Stainless Steel, 0-20 ppm M14 = 51457-1, Stainless Steel, 0-100 ppm M15 = 51457-5, Stainless Steel, 0-50 ppm M16 = 51457-9, Stainless Steel, 0-20 ppm 000 = No Sensor selection if Sensor 1 is not equal to C00 (Universal Gas HC head sensor or Universal Gas H2S head sensor), D## = Digital Sensor selection only if Sensor 1 = R## or D## (IR400 or Digital Sensor)	Zone 2 Toxic Systems: main transmitter + one Digital Sensor (With FRIT) model + any other listed sensor (one sensor maybe connected to one Junction Box) (cemented or flanged) Ex db nA IIC T5 Gc Tamb: -55°C ≤ Ta ≤ +60°C Zone 2 Toxic Systems: main transmitter + one Digital Sensor (No FRIT) model + any other listed sensor (one sensor maybe connected to one Junction Box) (cemented or flanged) Ex nA IIC T4 Gc The coding of any attached sensor limits the coding of the transmitter/ system.

Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



The S5000 Junction Boxes:

Model coding appearing on the Junction Box enclosures are shown below:

S5000 Junction Boxes (equipment)		
Model reference	Description	Coding/System Limitations
324240-1	S5000 Junction Box; Stainless Steel, IIB + H2 (flanged/non-cemented)	<i>Junction Box only, without a sensor</i> Ex db IIB+H2 T6 Gb
324240-2	S5000 Junction Box; Aluminium, IIB+H2 (flanged/non-cemented)	Ex tb IIIC T85°C Db Ex nA IIC T6 Gc Tamb: -55°C ≤ Ta ≤ +75°C <i>Zone 1 configurations:</i> <i>With one Digital Sensor (With FRIT) model connected</i> Ex db IIB+H2 T5 Gb Ex tb IIIC T85°C Db Tamb: -55°C ≤ Ta ≤ +60°C <i>With one IR400 connected</i> Ex db IIB+H2 T5 Gb Ex tb IIIC 100°C Db Tamb: -55°C ≤ Ta ≤ +75°C <i>With one Universal Gas HC (Combustible – Passive Sintered) or one Universal Gas H2S (Toxic – Passive Sintered) connected</i> Ex db IIB+H2 T4 Gb Tamb: -40°C ≤ Ta ≤ +70°C <i>Zone 2 configurations:</i> <i>With one Digital Sensor (With FRIT) model</i> Ex db nA IIC T5 Gc Tamb: -55°C ≤ Ta ≤ +60°C <i>Zone 2 configurations:</i> <i>With one Digital Sensor (No FRIT) model</i> Ex nA IIC T4 Gc Tamb: -55°C ≤ Ta ≤ +60°C The coding of any attached sensor limits the coding of the junction boxes.

Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



S5000 Junction Boxes (equipment)		
Model reference	Description	Coding/System Limitations
324240-3	S5000 Junction Box; Stainless Steel, IIC (cemented)	<i>Junction Box only, without a sensor</i>
324240-4	S5000 Junction Box; Aluminium, IIC (cemented)	<p>Ex db IIC T6 Gb Ex tb IIIC T85°C Db Ex nA IIC T6 Gc Tamb: -55°C ≤ Ta ≤ +75°C</p> <p><i>Zone 1 configurations:</i> With one Digital Sensor (With FRIT) model connected Ex db IIC T5 Gb Ex tb IIIC T85°C Db Tamb: -55°C ≤ Ta ≤ +60°C</p> <p><i>With one IR400 connected</i> Ex db IIB+H2 T5 Gb Ex tb IIIC 100°C Db Tamb: -55°C ≤ Ta ≤ +75°C</p> <p><i>With one Universal Gas HC (Combustible – Passive Sintered) or one Universal Gas H2S (Toxic – Passive Sintered) connected</i> Ex db IIC T4 Gb Tamb: -40°C ≤ Ta ≤ +70°C</p> <p><i>Zone 2 configurations:</i> With one Digital Sensor (With FRIT) model Ex db nA IIC T5 Gc Tamb: -55°C < Ta < +60°C</p> <p><i>Zone 2 configurations:</i> With one Digital Sensor (No FRIT) model Ex nA IIC T4 Gc Tamb: -55°C < Ta < +60°C</p> <p>The coding of any attached sensor limits the coding of the junction boxes.</p>

Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



The Digital Sensor:

Model coding appearing on the sensor enclosure are shown below:

Digital Sensor, gas sensor (equipment)		
Model reference	Description	Coding
A-5K-SENS-aa-b-c-d-e	<p>Digital Sensor (With FRIT) model (combustible); where the following applies</p> <p>aa is for Gas Type: 01 = No Sensor (sensor body (With FRIT) w/blank element) 60 = Combustible, 0-100% LEL – 5% Methane 61 = Combustible, 0-100% LEL – 2.1% Propane 65 = Combustible, 0-100% LEL – 4.4% Methane 66 = Combustible, 0-100% LEL – 1.7 % Propane</p> <p>b is for Material type 0 = Stainless Steel 1 = Aluminum</p> <p>c is for the listed Approval: A = ATEX/IECEX</p> <p>d is for Sensor Body: 0 = No Sensor Body 1 = ¾" NPT 2 = M25</p> <p>e is 0 = Not relevant to certification</p>	<p>Ex db IIC T5 Gb Ex tb IIIC T85°C Db Ex db nA IIC T5 Gc Tamb: -55°C ≤ Ta ≤ +60°C</p>
	<p>Digital Sensor (With FRIT) model (toxic); where the following applies</p> <p>aa is for Gas Type: 01 = No Sensor (sensor body (With FRIT) w/blank element) 10 = Carbon Monoxide, 0-100 ppm 11 = Carbon Monoxide, 0-500 ppm 12 = Carbon Monoxide, 0-1000 ppm 14 = Carbon Monoxide, Hydrogen Resistant 0-100 ppm 16 = Oxygen, 0-25% 17 = Oxygen, 0-25% Solvent Tolerant 20 = Hydrogen Sulfide, 0-10 ppm 21 = Hydrogen Sulfide, 0-50 ppm 22 = Hydrogen Sulfide, 0-100 ppm 23 = Hydrogen Sulfide, 0-500 ppm 72 = Nitrogen oxide, 0-100 ppm 75 = Hydrogen Cyanide, 0-50 ppm</p> <p>b is for Material type: 0 = Stainless Steel 1 = Aluminum</p> <p>c is for the listed Approval: A = ATEX/IECEX</p> <p>d is for Sensor Body: 0 = No Sensor Body 1 = ¾" NPT 2 = M25</p> <p>e is 0 = Not relevant to certification</p>	
	<p>Digital Sensor (No FRIT) model (toxic); where the following applies</p> <p>aa is for Gas Type: 02 = No Sensor (sensor body (No FRIT) w/blank element) 30 = Chlorine, 0-5 ppm (Zone 2 only) 31 = Chlorine, 0-10 ppm (Zone 2 only) 32 = Chlorine, 0-20 ppm (Zone 2 only)</p>	<p>Ex nA IIC T5 Gc Tamb: -55°C ≤ Ta ≤ +60°C</p>

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Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



Digital Sensor, gas sensor (equipment)		
Model reference	Description	Coding
	35 = Chlorine Dioxide, 0-3 ppm (Zone 2 only) 40 = Ammonia, 0-100 ppm (Zone 2 only) 41 = Ammonia, 0-1000 ppm (Zone 2 only) 50 = Sulfur Dioxide, 0-25 ppm (Zone 2 only) 51 = Sulfur Dioxide, 0-100 ppm (Zone 2 only) 70 = Hydrogen, 0-1000 ppm (Zone 2 only) 71 = Ethylene Oxide, 0-10 ppm (Zone 2 only) 73 = Nitrogen Dioxide, 0-10 ppm (Zone 2 only) 74 = Hydrogen Chloride, 0-50 ppm (Zone 2 only) 76 = Hydrogen Fluoride, 0-10 ppm (Zone 2 only) b is for Material type: 0 = Stainless Steel 1 = Aluminum c is for the listed Approval: A = ATEX/IECEX d is for Sensor Body: 0 = No Sensor Body 1 = 3/4" NPT 2 = M25 e is 0 = Not relevant to certification	

The IR400 Sensor:

Model coding appearing on the sensor enclosure are shown below:

IR400 Sensor, gas sensor (equipment)		
Model reference	Description	Coding
IR400	Detector/ Sensor (combustible); provides a 4-20mA output with Modbus or optional Hart output	Ex db IIB+H ₂ T5 Gb Ex tb IIIC T100°C Db Tamb: -60°C ≤ Ta ≤ +75°C

The Universal Gas (passive sintered) Sensors HC & H2S Sensor Heads, models no. 11159 (HC) and 51457 (H2S):

Model coding appearing on the sensor enclosure are shown below:

Universal Gas (passive sintered) Sensor, two types (equipment)		
Model reference	Description	Coding
11159-1 11159-2 11159-8* 11159-1L 11159-2L 11159-8L* *Excluded from the combustable gas detection performance approval (60079-29-1))	HC sensor head; Passive Sintered (combustible); provides a 4-20mA output with Modbus or optional Hart output.	Ex db IIC T4 Gb Tamb: -40°C ≤ Ta ≤ +70°C
51457-1 51457-5 51457-9 51457-1L 51457-5L 51457-9L	H2S sensor head; Passive Sintered (Toxic); provides a 4-20mA output with Modbus or optional Hart output.	

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Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).



Specific Conditions of Use:

S5000 transmitter:

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. This fixed equipment apparatus is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connection of the both the Digital Sensor and IR400 infrared (IR) sensors and Universal Gas Sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.
3. The flameproof joints shall not be repaired.

S5000 Junction Box:

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. The flameproof joints shall not be repaired.

Digital Sensor (With FRIT) model:

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. The flameproof joints shall not be repaired.
3. If the sensor is uninstalled, the equipment manufacturer shall be contacted prior to reinstalling.
4. The Digital Sensor is provided with a 3/4" NPT thread and shall only be connected to a suitably certified junction box or instrument for the hazardous area of installation and thereby provide Ex protection for the flying lead connections. The installation to the certified enclosure shall be with five fully engaged threads, tightened wrench-tight.
5. The Digital Sensor shall only be fitted to enclosures having a maximum reference pressure of 34.4 bars or lower.
6. For combustible gas detection performance applications, the appropriate Digital Sensor model number shall only be used to construct the S5000 Gas Monitor fixed gas detection system; mounted onto either the S5000 transmitter or S5000 Junction Box enclosures and receive power and control from the transmitter.
7. The Digital Sensor 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.
8. The Ingress Protection rating is exclusively based upon the installation instruction for orientation specified in the operating manual.

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Annexe to: IEC Ex SIR 17.0016X Issue 2

Applicant: General Monitors Inc

Apparatus: **S5000 Gas Monitor fixed gas detection system (Transmitter and Junction Boxes) and Digital Sensor (With FRIT and No FRIT).**



Digital Sensor (No FRIT) model:

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. The Digital Sensor is provided with a 3/4" NPT thread and shall only be connected to a suitably certified junction box or instrument for the hazardous area of installation and thereby provide Ex protection for the flying lead connections.
3. The Digital Sensor 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.
4. The Ingress Protection rating is exclusively based upon the installation instruction for orientation specified in the operating manual.

Conditions of Manufacture:

S5000 transmitter:

1. Dielectric Voltage Withstand Test (per IEC 60079-15, clause 23.2.1)
At the end of manufacture, each S5000 transmitter shall be subjected to an electric strength test using a test voltage of 1500 Vac or 2100 Vdc applied between the following test locations for a minimum of 60 seconds. Alternatively, a voltage of 1800 Vac or 2520 Vdc may be applied for 0.1 second. There shall be no evidence of breakdown.
 - a. Between the input terminals and the relay terminals.
 - b. Between the metallic enclosure and the relay terminals.

Digital Sensor (With FRIT and No FRIT) models:

1. Dielectric Voltage Withstand Test (per IEC 60079-15, clause 23.2.1)
This testing may be performed on the complete Digital Sensor assembly (upper housing and sensor) or separately on the upper housing and the sensor prior to final assembly.
At the end of manufacture, each Digital Sensor shall be subjected to an electric strength test using a test voltage of 500 Vac or 850 Vdc applied between the following test locations for a minimum of 60 seconds. Alternatively, a voltage of 600 Vac or 1020 Vdc may be applied for 0.1 second. There shall be no evidence of breakdown.
 - a. Between P1, P2, P3 and P4 terminal pins and the metallic enclosure.

Full Certificate change history

Issue 1

1. Digital Sensor Specific Condition of Use referencing "maximum reference pressure" was revised, for a higher pressure value.
2. S5000 transmitter and S5000 Junction Box enclosure with an integral mounted Digital Sensor Condition of Manufacture referencing "hydrostatic pressure testing" was removed.

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Issue 2

1. The introduction of applicable assessment, checklist and label drawing revisions to apply IEC 60079-15:2010 Zone 2 approval to the pre-existing Zone 1 Ex db (and Ex tb) Digital Sensor assembly having the FRIT (stainless steel sintered element) and utilizes either a catalytic sensing element (Combustible) construction type for the S5000 Gas Monitor fixed combustible gas detection configurations or an electrochemical sensing element (Toxic and Oxygen) construction type for toxic or oxygen detection; now being referenced as Digital Sensor (With FRIT).
2. Introduction of Zone 2-only "Digital Sensor (No FRIT)" electrochemical sensor version; per the applicable assessment, checklist entries and new label drawing to apply IEC 60079-15:2010.
3. The Marking, the Product Description and the Model Code Tables were amended to include the applicable Zone 2 approval coding for the Digital Sensor (With FRIT) and the Digital Sensor (No FRIT) models.
4. Specific Conditions of Use was amended to revise the present reference of "Digital Sensor" to "Digital Sensor (With FRIT)" and introduce appropriate Conditions for the Digital Sensor (No FRIT) version.
5. Conditions of Manufacture was amended to revise the present reference of "Digital Sensor" to "Digital Sensor (With FRIT)", add Condition referencing "Dielectric Voltage Withstand Test" for Digital Sensor (With FRIT) version and introduce appropriate Conditions for the Digital Sensor (No-FRIT) version.
6. Inclusion of the IP rating for each equipment enclosure as part of both the marking.
7. Added the alternate General Monitors (Ireland) Limited factory to the Manufacturer's Name and Address section.

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