Mining And Surface Certification (Pty) Ltd

2015/021934/07

THIS CERTIFICATE IS ISSUED AS AN I.A. CERTIFICATE IN TERMS OF THE MINE HEALTH AND SAFETY ACT, ACT NO 29 OF 1996 (AND REGULATIONS), THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993) AND REGULATION 17 OF THE ELECTRICAL MACHINERY REGULATIONS

IA CERTIFICATE	MASC S/21-8015X	**Issue**	2
Issue Date	07 May 2025	**Expiry Date**	29 September 2026
**** Based on Certificate No**	IECEx FMG 21.0021X	**Issue / Variations / Amendment**	6
Requested by	**MSA – The Safety Company** 1000 Cranberry Woods Township, PA 16066 United States of America		
Manufacturer	**General Monitors Inc** 16782 Von Karman Ave. Unit 14, Irvine, CA 92606 United States of America		
Description	The ULTIMA X5000 Gas Monitor consists of an ULTIMA X5000 Transmitter and an optional ULTIMA X5000 or JB5000 Junction Box. The ULTIMA X5000 Gas Monitor supports up to two ULTIMA XIR Plus point IR Detectors, up to two General Monitors Inc. Digital Sensors (Combustible w/ catalytic bead sensor, Toxic w/ electrochemical sensor, or Oxygen w/ electrochemical sensor), or one ULTIMA XIR Plus point IR detector and one Digital Sensor simultaneously. See **Base certificate Annex for full description.		
Equipment	ULTIMA X5000 Gas Monitor Fixed Gas Detection System (ULTIMA X5000 transmitter, ULTIMA X5000 or JB5000 Junction Box, and ULTIMA XIR Plus Sensor)		
MARKING: **Original marking as per certificate ** remains applicable.** **IA number must be added.**	**Type:** **Ex Marking:** **IA Number:** **Warnings:**	ULTIMA X5000 Gas Monitor Fixed Gas Detection System (ULTIMA X5000 transmitter, ULTIMA X5000 or JB5000 Junction Box, and ULTIMA XIR Plus Sensor) See **Base certificate Annex MASC S/21-8015X (To be additionally marked on equipment) See Base Certificate ** (original marking must be applied)	
Quality Assurance report (QAR) / Notification (QAN):	GB/CML/QAR22.0009/01 US/UL/QAR10.0004/11 FR/INE/QAR08.0011/14		

Compliance:

The equipment as described above has been allocated the rating Explosion Protected 'as above' utilizing the SANS/IEC Standards:

- SANS (IEC) 60079-0: 2019 Equipment - General requirements
- SANS (IEC) 60079-1: 2017 Equipment protection by flameproof enclosures "d"
- SANS (IEC) 60079-15: 2010 Equipment protection by type of protection "n"
- SANS (IEC) 60079-29-1: 2022 Gas detectors – Performance requirements of detectors for flammable gases
- SANS (IEC) 60079-31: 2014 Equipment dust ignition protection by enclosure "t"

Note: This certificate covers only the listed standards and does not imply compliance to any other standard, related or inferred. It is up to the manufacturer to ensure that the product complies to all relevant standards for the application.

Specific conditions of use "X":

- Refer to Annex A below for more details.

Conditions of manufacture:

- Refer to Annex A below for more details.

S. JORDAAN
TECHNICAL SPECIALIST

N. VILOJEN
TECHNICAL OFFICER

This certificate covers all units sold as long as the QAR/QAN remains valid.
According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory).

Apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:
SANS 10086 requirements;
Any conditions mentioned in the above certificate;
Any relevant requirements of the MHS Act;
Any restrictions and conditions enforced by the chief inspector of mines, principal inspector (Group I equipment) or chief inspector of factories (Group II equipment).

Mining And Surface Certification (Pty) Ltd
Unit 5 Lelyta Park, 45 Jurg Avenue, Hennopspark, Ext 87
Centurion 0157

ANNEX A

This document is based on and must be read in conjunction with certificate IECEx FMG 21.0021X.	
Description (According to Base Certificate) **	
"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."	
Issue	Issue 1: Supplemented for QAR review as per ARP 0108. IECEx SIR 17.0017X was replaced with IECEx FMG 21.0021X Issue 2: Supplemented for review as per ARP 0108 and NCoP 2398.
Standard compliance	See Base Certificate **
Specific conditions of use ("X")	• See **Base certificates Annex for Special conditions of safe use.
Conditions of manufacture	• None.
Conditions of Certification	• This IA Certificate covers all units sold from the date of this document to the expiry date of this certificate. • As per ARP 0108: 2018 / NCoP 2398: 2022 (as applicable) a maximum three yearly review is required on this IA Certificate (expiry is determined as per the QAR/QAN/QMS expiry date). • The apparatus must be additionally marked with the MASC marking details above. • This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date. • The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by the certificate on which this IA Certificate is based and any other conditions in this IA Certificate. • The certification on which this IA Certificate is based must remain valid. • The extent of the requirements in the ARP 0108:2018 / NCoP 2398: 2022 (as applicable), SANS 10108 and any other applicable regulations on the certification of the equipment must remain unchanged. • The Ex-quality assurance notification/report for the equipment must remain valid.
Conclusion:	• From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done as per the Base Certificate **. • The routine tests for production units according to the Base Certificate ** must be complied with (if applicable).

Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07
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IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEx FMG 21.0021X**

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Certificate history:

Issue 5 (2024-12-17)
Issue 4 (2024-11-15)
Issue 3 (2024-07-15)
Issue 2 (2024-04-04)
Issue 1 (2023-02-06)
Issue 0 (2022-08-09)

Status: **Current**

Issue No: 6

Date of Issue: 2025-04-09

Applicant: **MSA - THE SAFETY COMPANY**
1000 Cranberry Woods Dr
Cranberry Township
Pennsylvania 16066-5296
United States of America

Equipment: **ULTIMA X5000 Gas Monitor Fixed Gas Detection System (ULTIMA X5000 transmitter, ULTIMA X5000 or JB5000 Junction Box, and ULTIMA XIR Plus Sensor)**

Optional accessory:

Type of Protection: **Flameproof "db", Nonsparking "nA", and Dust Protection by Enclosure "tb"**

Marking:

Refer to certificate annex for full marking.

Approved for issue on behalf of the IECEx Certification Body: **J. E. Marquedant**

Position: **VP, Manager - Electrical Systems**

Signature:
(for printed version)

Date:
(for printed version)

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 www.iecex.com or use of this QR Code.

Certificate issued by:

FM Approvals LLC
One Technology Way
Norwood MA 02062
United States of America

IECEx Certificate of Conformity

Manufacturer: **MSA - THE SAFETY COMPANY**
1000 Cranberry Woods Dr
Cranberry Township
Pennsylvania 16066-5296
United States of America

Manufacturing locations: **General Monitors Ireland Ltd,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 equipment 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 60079-0:2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1:2014 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 60079-29-1:2020 Edition:2.1	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 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 Reports:

US/FMG/ExTR22.0014/00 US/FMG/ExTR22.0014/01 US/FMG/ExTR22.0014/02
US/FMG/ExTR22.0014/03 US/FMG/ExTR22.0014/04 US/FMG/ExTR22.0014/05

Quality Assessment Reports:

FR/INE/QAR08.0011/14 GB/CML/QAR22.0009/01 US/UL/QAR10.0004/11

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

See appendix for details

SPECIFIC CONDITIONS OF USE: YES as shown below:
See appendix for details

IECEx Certificate of Conformity

Equipment (continued):

See Appendix for details

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Updated communication board on X5000 Gas Monitor to permit local connection for Modbus. Modbus remains for information gathering only, not for safety. The table of permitted sensors under X5000 Gas Monitor is updated to provide more detail. No new sensors added. The specific conditions of use have been updated.

Annex:

IECEx FMG 21.0021X Issue 6 Annex.pdf

Annex to: **IECEx FMG 21.0021X Issue 6**

Applicant: **MSA - The Safety Company**

Apparatus: **Ultima X5000 Gas Monitor Fixed Gas Detection System (ULTIMA X5000 Transmitter, ULTIMA X5000 or JB5000 Junction Box, and ULTIMA XIR Plus Sensor)**

Marking:

ULTIMA X5000 Gas Monitor

Ex db IIC T6 Gb
Ex tb IIIC T85°C Db
Ex nA IIC T4 Gc
-40°C ≤ Ta ≤ +60°C
60079-29-1
IP66

ULTIMA X5000 Junction Boxes

Ex db IIC T6 Gb
Ex tb IIIC T85°C Db
Ex nA IIC T6 Gc
-40°C ≤ Ta ≤ +60°C
60079-29-1
IP66

ULTIMA JB5000 Junction Boxes

Ex db IIC T6 Gb
Ex tb IIIC T85°C Db
Ex nA IIC T6 Gc
-55°C ≤ Ta ≤ +75°C
60079-29-1
IP66

ULTIMA XIR Plus Sensor

Ex db IIC T6 Gb
Ex nA IIC T6 Gc
-40°C < Ta < +60°C
60079-29-1
IP66

Description of Equipment:

The ULTIMA X5000 Gas Monitor consists of an ULTIMA X5000 Transmitter and an optional ULTIMA X5000 or JB5000 Junction Box. The ULTIMA X5000 Gas Monitor supports up to two ULTIMA XIR Plus point IR Detectors, up to two General Monitors Inc. Digital Sensors (Combustible w/ catalytic bead sensor, Toxic w/ electrochemical sensor, or Oxygen w/ electrochemical sensor), or one ULTIMA XIR Plus point IR detector and one Digital Sensor simultaneously.

The ULTIMA X5000 Gas Monitor enclosure consists of a single 316 stainless steel or aluminium compartment enclosure measuring approximately 5.9 inches in width, 5.7 inches in height with depths of 3.8 and 4.8 inches (depending on the windowed cover installed). The transmitter provides ¾ inch NPT threaded conduit entries, or optionally M25 straight threaded entries. Unused entries are fitted with suitably certified blanking plugs. M25 to ¾ inch NPT adapters are provided for connecting of sensors.

Annex to: **IECEx FMG 21.0021X Issue 6**

Applicant: **MSA - The Safety Company**

Apparatus: **Ultima X5000 Gas Monitor Fixed Gas Detection System (ULTIMA X5000 Transmitter, ULTIMA X5000 or JB5000 Junction Box, and ULTIMA XIR Plus Sensor)**

The ULTIMA X5000 Junction Boxes and JB5000 Junction Boxes are the remote mounting units of ULTIMA X5000 Gas Monitor fixed gas detection system. The X5000 and JB5000 enclosures are provided with either ¾" NPT or M25 threaded entries and a certified adapter can be supplied for M25 entries which can be fitted with sensors approved for use with the X5000 Gas Monitor, 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 ULTIMA XIR Plus Combustible Gas Sensor consists of a two-piece stainless steel enclosure with lens assembly and includes a ¾" NPT thread or M25 thread for connection to the X5000 Transmitter. Remote connection requires the X5000 Junction Box or JB5000 Junction Box.

Model Code Options:

ULTIMA X5000 Gas Monitor

A-X5000-abcdeffggh, Gas Monitor Model ULTIMA X5000

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

b is for listed Approval:
- A = IECEx / ATEX / UKCA

c is for Bluetooth:
- 0 = Yes
- 1 = No

d is for Output Communication:
- 0 = Analog/HART
- 1 = Analog/HART/Relays
- 3 = Analog/HART/Relays/Isolate Modbus

e is for Advanced Option
- 0 = Default place holder, not relevant to certification

ff is for Sensor 1 selection:
- See Model Code column of the Sensor Table

gg is for Sensor 2 selection:
- See Model Code column of the Sensor Table

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

Specifications:

Sensor Type:	See Sensor Table for sensor type
Gases:	See Sensor Table for approved gases
Range:	See Sensor Table for ranges
Installation:	Fixed

Annex to: **IECEx FMG 21.0021X Issue 6**

Applicant: **MSA - The Safety Company**

Apparatus: **Ultima X5000 Gas Monitor Fixed Gas Detection System (ULTIMA X5000 Transmitter, ULTIMA X5000 or JB5000 Junction Box, and ULTIMA XIR Plus Sensor)**

Sampling Type:	See Sensor Table for sampling type
Accuracy:	See Sensor Table for sensor accuracy
Response Time:	See the Sensors Table for response time
Supply Parameters:	11-30Vdc, 15W max
Operating Temperature:	-40°C to +60°C
Storage Temperature:	-40°C to +60°C
Relative Humidity:	5 to 95% RH non-condensing
Measurement Signal:	Two 4-20mA, LED Display
Alarms:	LED Display, Relay (5A 30Vdc / 250Vac)
Firmware:	NXP Microprocessor: 2.00.0065 ST Microprocessor: 4.02.0018

Approved Sensors - The following sensors have been performance tested for use with the ULTIMA X5000 Gas Monitor, X5000 Junction Box, and JB5000 Junction Box:

Product / Listing Title	Model Code	Gas/Description	Range	Certificate Number
ULTIMA XIR Plus Gas Sensors	See Sensor Table in the associated product listing of the referenced certificate			IECEx FMG 21.0021X
Digital Sensor with Sintered Flame Arrestor	15	Oxygen - O_2	0-25% O2	IECEx FMG 21.0019X
	60	Methane - CH_4	0-100% LFL – 5.0% vol	
	61	Propane - C_3H_8	0-100% LFL – 2.1% vol	
	62	Heptane - C_7H_{16}	0-100% LFL – 1.05% vol	
	63	Nonane - C_9H_{20}	0-100% LFL – 0.8% vol	
	64	Hydrogen - H_2	0-100% LFL – 4.0% vol	
	65	Methane - CH_4	0-100% LFL – 4.4% vol	
	66	Propane - C_3H_8	0-100% LFL – 1.7% vol	
	67	Heptane - C_7H_{16}	0-100% LFL – 0.85% vol	
	68	Nonane - C_9H_{20}	0-100% LFL – 0.7% vol	
	XX	Any other two digit letter representing: - Combustible Type gas sensor with sintered flame arrestor, not verified by FM Approvals for the		

Product / Listing Title	Model Code	Gas/Description	Range	Certificate Number
		specific flammable gas for performance to IEC 60079-29-1, or - Oxygen sensor with sintered flame arrestor, not verified by FM Approvals for performance, or - Toxic Type gas sensor with sintered flame arrestor, not verified by FM Approvals for performance.		
Digital Sensor without Sintered Flame Arrestor	XX	Any other two digit letter representing a gas sensor without a sintered flame arrestor, not verified for performance.		IECEx FMG 21.0019X

Accessories – The following accessories are included in the Approval:

CALKIT1	Calibration Kit for Digital Gas Sensors & Ultima XIR Plus Sensors

ULTIMA X5000 Junction Boxes

Model Reference	Description
10179509	ULTIMA X5000 Junction Box; Stainless Steel, ¾" NPT
10179511	ULTIMA X5000 Junction Box; Stainless Steel, M25
10179513	ULTIMA X5000 Junction Box; Aluminium, ¾" NPT

ULTIMA JB5000 Junction Boxes

Model Reference	Description
10213892	JB5000 Junction Box; Stainless Steel, ¾" NPT
10213896	JB5000 Junction Box; Stainless Steel, M25

ULTIMA XIR Plus Sensor

A-5K-SENS-a-b-c-d-e ULTIMA XIR Plus Infrared Combustible Sensor

a is for Gas Type:
See Model Code column of Sensor Table

b is for Material Type:
0 = Stainless Steel

c is for listed Approval:
A = IECEx / ATEX / UKCA

d is for Sensor Body Thread Type:

1 = ¾“ NPT

2 = M25

e is for Advanced Option:

0 = none

Sensor Table:

Model Code	Gas	Range
AA	Methane - CH_4	0-100% LFL – 5% vol
AB	Propane - C_3H_8	0-100% LFL – 2.1% vol
AC	Methane - CH_4	0-100% LFL –4.4% vol
AD	Propane - C_3H_8	0-100% LFL – 1.7% vol
AK	Acetone - C_3H_6O	0-100% LFL – 2.5% vol
AS	Benzene - C_6H_6	0-100% LFL – 1.2% vol
BY	Ethanol - C_2H_6O	0-100% LFL – 3.3% vol
CD	Ethylene - C_2H_4	0-100% LFL – 2.7% vol
CF	Ethylene Oxide - C_2H_4O	0-100% LFL – 3.0% vol
CJ	Hexane - C_6H_{14}	0-100% LFL – 1.1% vol
CP	Isopropanol - C_3H_8O	0-100% LFL – 2.0% vol
DJ	Methyl Methacrylate - $C_5H_8O_2$	0-100% LFL – 1.7% vol
FJ	Ethanol - C_2H_6O	0-100% LFL – 3.1% vol
FL	Ethylene - C_2H_4	0-100% LFL – 2.3% vol
FM	Ethylene Oxide - C_2H_4O	0-100% LFL – 2.6% vol
FP	Hexane - C_6H_{14}	0-100% LFL – 1.0% vol
XX	Any other two digit letter representing: - Gas Type ULTIMA XIR Plus infrared Combustible sensor, not verified by FM Approvals for the specific flammable gas for performance to IEC 60079-29-1 or - Toxic Type ULTIMA XIR Plus infrared Toxic sensor	N/A

Specifications:

Sensor Type:	IR
Sampling Type:	Diffusion

Accuracy:	±5% F.S.
Response Time:	t(90) ≤ 60 s
Operating Temperature:	-40°C to +60°C
Storage Temperature:	-40°C to +60°C
Relative Humidity:	5 to 95% RH, non-condensing
Firmware:	NXP Microprocessor: 3.52 ST Microprocessor: 4.0.8

Specific Conditions of Use:

ULTIMA X5000 Gas Monitor:

1. For any sensors not specifically identified as having performance testing, the sensors shall require additional evaluation if used within a safety related system.
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. To minimize the risk of electrostatic charge, provisions shall be made for adequate grounding and equipment shall be installed in such a manner so that accidental discharge shall not occur. Therefore, the equipment shall only be cleaned with a damp cloth.
3. This fixed equipment is designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connection of both the Digital Sensor and ULTIMA XIR Plus infrared (IR) sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.
4. The flameproof joints shall not be repaired.
5. The High Alarm relay can be programmed for a latching or non-latching operation with a deliberate manual action to reset. When the High Alarm relay is set to non-latching the output must be connected to an integrated or auxiliary system with the means of latching and resetting incorporated into these systems.
6. Guidance for Installation of fixed gas detection systems are set out in IEC 60079-29-2 which has not been covered in the scope of this assessment.
7. Guidance for functional safety of fixed gas detection systems are set out in IEC 60079-29-3 which has not been covered in the scope of this assessment.

ULTIMA X5000 Junction Box & JB5000 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. This fixed equipment is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connection of the Digital Sensor and the ULTIMA XIR Plus infrared (IR) sensor. The equipment is subject to the installation and orientation requirements defined in the product manual.
3. The flameproof joints shall not be repaired.

ULTIMA XIR Plus Sensor:

1. For any sensors not specifically identified as having performance testing, the sensors shall require additional evaluation if used within a safety related system.
2. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipmentmay generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleanedwith a damp cloth.
3. The flameproof joints shall not be repaired.
4. The ULTIMA XIR Plus infrared (IR) sensor is provided with a ¾" 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 ULTIMA XIR Plus 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.
6. The ULTIMA XIR Plus infrared (IR) sensor shall only be fitted to enclosures having a maximum reference pressure of 13.5 bars.
7. In combustible gas detection performance applications, the appropriate ULTIMA XIR Plus model number shall only be used to construct the ULTIMA X5000 Gas Monitor fixed gas detection system; mounted onto either the ULTIMA X5000 transmitter or ULTIMA X5000 Junction Box enclosures and receive power and control from the transmitter.
8. The Ingress Protection rating is exclusively based upon the installation instruction for orientation specified in the operating manual.
9. Guidance for Installation of fixed gas detection systems are set out in IEC 60079-29-2 which has not beencovered in the scope of this assessment.
10. Guidance for functional safety of fixed gas detection systems are set out in IEC 60079-29-3 which has not been covered in the scope of this assessment.
11. When the manufacturer of the equipment has not identified the type of protection on the label, the user shall, on installation, mark the label adjacent to the type of protection used. Once the type of protection has been marked it shall not be changed.
12. The XIR Plus Sensor enclosure with Sensor Guard (opaque cover) or enclosure must fully contain the optical radiation and comply with a suitable type of protection as required by the involved EPL, complying with one of the following conditions:
    - An enclosure for which protection regarding ingress of an explosive dust atmosphere is provided, such as dust protection "t" enclosures" (IEC 60079-31), or
    - An enclosure that provides a minimum ingress protection of IP 6X and where no internal absorbers are to be expected and complying with “Tests of enclosures” in IEC 60079-0.

Annex to: **IECEx FMG 21.0021X Issue 6**

Applicant: **MSA - The Safety Company**

Apparatus: **Ultima X5000 Gas Monitor Fixed Gas Detection System (ULTIMA X5000 Transmitter, ULTIMA X5000 or JB5000 Junction Box, and ULTIMA XIR Plus Sensor)**

Full Certificate Change History

Issue 0

Issue 1 – Updated to replace obsolete components. No firmware change. Update model code to include missing variables for X5000.

Issue 2 – Updated General Monitors Ireland QAR.

Issue 3 – The equipment was updated to replace microprocessors for the X5000 Gas Monitor, the Toxic Digital Sensor (for General Monitors), and the XIR Plus Sensor. In addition, firmware was updated to the equipment. Performance testing was required to verify the hardware and firmware changes conform to the applicable standards.

Issue 4 – 1) Qualification of alternate component for the IR touch proximity sensor (related to the user interface through the display).2) Firmware update for the Ultima X5000 Gas Monitor from 4.01.0016 to 4.02.0018 due to the qualification of the alternate IR touch proximity sensor. The changes do not affect the firmware of the Ultima XIR sensor, performance characteristics of the equipment, Flameproof, Dust-Ignitionproof, or Protection by Enclosure methods of protection.

Issue 5 – The humidity range for the ULTIMA XIR Plus Sensor has been extended to 5%RH to 95%RH, non-condensing. There are no firmware or hardware changes as a result of this revision.

Issue 6 – Updated communication board on X5000 Gas Monitor to permit local connection for Modbus. Modbus remains for information gathering only, not for safety. The table of permitted sensors under X5000 Gas Monitor is updated to provide more detail. No new sensors added. The specific conditions of use have been updated.