1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 17ATEX1049X** Issue: **7**

4 Equipment: **ULTIMA® X5000 Gas Monitor fixed gas detection system (ULTIMA® X5000 transmitter & ULTIMA® X5000 or JB5000 Junction Box) and ULTIMA® XIR Plus sensor**

5 Applicant: **MSA - The Safety Company** **General Monitors (Ireland) Limited**

6 Address: 1000 Cranberry Woods Drive, Cranberry Township, PA 16066, USA — Ballybrit Business Park, Galway, Republic of Ireland

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014 *EN 60079-29-1:2016 EN 50271:2010

*Applies only to the ULTIMA® X5000 Gas Monitor fixed Combustible Gas Detection System.

*EN 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.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

ULTIMA® X5000 transmitter:

II 2GD
Ex db IIC T6 Gb
Ex tb IIIC T85°C Db
-40°C ≤ Ta ≤ +60°C
EN 60079-29-1

IP66

ULTIMA® X5000 Junction Boxes:

II 2GD
Ex db IIC T6 Gb
Ex tb IIIC T85°C Db
-40°C ≤ Ta ≤ +60°C

IP66

ULTIMA® XIR Plus sensor:

II 2G
Ex db IIC T6 Gb
-40°C ≤ Ta ≤ +60°C

IP66

For the **ULTIMA® JB5000 Junction Boxes** Marking refer to the DESCRIPTION (Section 13)

Project Number 80033112

Signed: J A May

Title: Director of Operations

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 17ATEX1049X**
Issue 7

13 **DESCRIPTION OF EQUIPMENT**

ULTIMA® JB5000 Junction Boxes:

II 2GD
Ex db IIC T6 Gb
Ex tb IIIC T85°C Db
-55°C ≤ Ta ≤ +75°C
IP66

The ULTIMA® X5000 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 ULTIMA® X5000 transmitter base unit and an optional ULTIMA® X5000 or JB5000 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 Organic LED (OLED) display visible through the viewing window of the enclosure.

The ULTIMA® X5000 Transmitter is the control unit of the ULTIMA® X5000 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). The enclosure is provided with either ¾" NPT or M25 threaded entries and a certified adapter can be 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 ULTIMA® X5000 and JB5000 Junction Boxes are the remote mounting units of ULTIMA® X5000 Gas Monitor fixed gas detection system and the Junction Box enclosures are designed for Flameproof (Ex db) and Dust protection by enclosure (Ex tb). The X5000 and the 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 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 ULTIMA® XIR Plus Sensor assembly is the infra-red sensor unit of the ULTIMA® X5000 Gas Monitor fixed combustible and toxic gas detection configurations. The ULTIMA® XIR Plus Sensor is designed for Flameproof (Ex db). The equipment enclosure has been separately tested against the requirements of IEC 60529 and meets IP66.

The ULTIMA® X5000 system makes use of two sensor types including a Digital Sensor for combustible, toxic or oxygen 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 ULTIMA® X5000 transmitter or one integral and one remote via the ULTIMA® X5000 or JB5000 Junction Box or two remote via two separate ULTIMA® X5000 or JB5000 Junction Boxes.
- One ULTIMA® XIR Plus Sensor and one Digital Sensor (combustible, toxic or oxygen) installed either integral to the ULTIMA® X5000 transmitter, one integral and one remote or remotely via an ULTIMA® X5000 or JB5000 Junction Box or two remote via two separate ULTIMA® X5000 or JB5000 Junction Boxes.

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

- Two-ULTIMA® XIR Plus Sensors installed either integral to the ULTIMA® X5000 transmitter or one integral and one remote via the ULTIMA® X5000 or JB5000 Junction Box or two remote via two separate ULTIMA® X5000 or JB5000 Junction Boxes.

The product model code options of the ULTIMA® X5000 gas detection systems (Combustible, toxic or oxygen) featuring the ULTIMA® X5000 transmitter, ULTIMA® X5000 Junction Boxes, JB5000 Junction Boxes, ULTIMA® X5000 XIR Plus Sensor and the Digital Sensors 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:

ULTIMA® X5000 Gas Monitor fixed gas detection system:

ULTIMA® X5000 Transmitter:
Model coding appearing on the transmitter enclosure are shown below:

ULTIMA® X5000 transmitter (equipment)		
Model reference	Description	Coding/System Limitations
A-X5000-***abcdeffggh***	Transmitter control unit of the Fixed Gas Detection System for use in explosive gas atmospheres; where up to two sensors 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 senor per Junction Box permitted; two Digital Sensors or/ one ULTIMA® XIR Plus sensor and one Digital Sensor or/ two ULTIMA® XIR Plus sensors are permitted for installation (the main transmitter enclosure and the Junction Box enclosure) ***a*** is for Enclosure Material: 0 = Stainless Steel – ¾" NPT 1 = Aluminum – ¾" NPT 2 = Stainless Steel – M25 ***b*** is A = IECEx (ATEX) ***c*** is for Bluetooth: 0 = Yes 1 = No ***d*** is for Output Communication: 0 = Analog/HART 1 = Analog/HART/Relays (Ex db, Ex tb only) ***e*** is 0 = Default place holder, not relevant to certification ***ff*** is for Sensor 1 selection: ***gg*** is for Sensor 2 selection: **Sensors:** for Sensor Selection ***ff*** or ***gg*:** (Independently certified Ex Equipment Sensors or Ex Component Sensors forming the Combustible Gas Detection System, per 60079-29-1, are denoted by [^]) -ULTIMA® XIR Plus sensor selections include	*transmitter only, without sensors, without Relay board* Ex db IIC T6 Gb Ex tb IIIC T85°C Db Tamb: -40°C ≤ Ta ≤ +60°C *with Relay board** Ex db IIC T6 Gb Ex tb IIIC T85°C Db Tamb: -40°C ≤ Ta ≤ +60°C *Zone 1 Combustible Gas Detection Systems: main transmitter + one or two Combustible Digital Sensors (With FRIT) units (one sensor maybe connected to one Junction Box)* Ex db IIC T5 Gb Ex tb IIIC T85°C Db Tamb: -40°C < Ta < +60°C *Zone 1 Combustible Gas Detection System: main transmitter + one or two Combustible ULTIMA® XIR Plus sensors (one sensor maybe connected to one Junction Box)* Ex db IIC T6 Gb Tamb: -40°C < Ta < +60°C

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

	00 = No Sensor AA = IR Combustible 0 – 100% LEL – 5% Methane [^] AB = IR Combustible 0 – 100% LEL – 2.1 % Propane [^] AC = IR Combustible 0-100% LEL – 4.4 % Methane [^] AD = IR Combustible 0-100% LEL – 1.7% Propane [^] AK = IR Combustible 0 – 100% LEL – 2.5% Acetone [^] AS = IR Combustible 0 – 100% LEL – 1.2% Benzene [^] BY = IR Combustible 0 – 100% LEL – 3.3% Ethanol [^] CD = IR Combustible 0 – 100% LEL – 2.7% Ethylene [^] CF = IR Combustible 0 – 100% LEL – 3% Ethylene Oxide [^] CJ = IR Combustible 0 – 100% LEL – 1.1% Hexane [^] CP = IR Combustible 0 – 100% LEL – 2% Isopropanol [^] DJ = IR Combustible 0 – 100% LEL – 1.7% Methyl Methacrylate [^] FJ = IR Combustible 0 - 100% LEL – 3.1% Ethanol [^] FL = IR Combustible 0 - 100% LEL – 2.3% Ethylene [^] FM = IR Combustible 0 - 100% LEL – 2.6% Ethylene Oxide [^] FP = IR Combustible 0 - 100% LEL – 1% Hexane [^] xx = Any two digit letter representing Gas Type ULTIMA® XIR Plus infrared Combustible sensor, not verified by CSA/SIRA for the specific flammable gas for performance, excludes sensor codes AA, AB, AC, AD, AK, AS, BY, CD, CF, CJ, CP, DJ, FJ, FL, FM, FP. The sensor shall not be marked with “EN 60079-29-1”. xx = Any two digit letter representing Toxic Type ULTIMA® XIR Plus infrared Toxic sensor -Digital Sensor selections include, 00 = No Sensor or Sensor Body (transmitter only) 01 = No Sensor fine thread w/blank element) 02 = No Sensor (sensor body coarse thread w/blank element) 60 = Combustible, 0-100% LEL – 5% Methane [^] 61 = Combustible, 0-100% LEL – 2.1%Propane [^] 62 = Combustible, 0-100% LEL – 1.05% Heptane [^] 63 = Combustible, 0-100% LEL – 0.8% Nonane [^] 64 = Combustible, 0-100% LEL – 4.0% Hydrogen [^] 65 = Combustible, 0-100% LEL – 4.4 % Methane [^] 66 = Combustible, 0-100% LEL – 1.7% Propane [^] 67 = Combustible, 0-100% LEL – 0.85% Heptane [^] 68 = Combustible, 0-100% LEL – 0.7% Nonane [^] xx = Any two digit number representing Gas Type Digital Sensor (With FRIT), not verified by CSA/SIRA for the specific flammable gas for performance, excludes sensor codes 60, 61, 62, 63, 64, 65, 66, 67, 68. The sensor shall not be marked with “IEC 60079-29-1”. xx = Any two digit number representing Toxic Type Digital Sensor (With FRIT). xx = Any two digit number representing Toxic Type Digital Sensor (No FRIT). ***h*** is for Tag: 0 = None T# = (# = 1, 2, or 3) Stainless Steel affixed tags	*<u>Zone 1</u> Combustible Gas Detection Systems: main transmitter + one Combustible ULTIMA® XIR Plus + one Combustible Digital Sensor (With FRIT) (one sensor maybe connected to one Junction Box)* Ex db IIC T6 Gb (Enclosure w/ XIR Plus) Ex db IIC T5 Gb (Enclosure w/ Digital Sensor) Tamb: -40°C $\leq$ Ta $\leq$ +60°C *The coding of any attached sensor limits the coding of the transmitter/ system.*

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

ULTIMA® X5000 Junction Boxes:
Model coding appearing on the Junction Box enclosures are shown below:

ULTIMA® X5000 Junction Boxes (equipment)		
Model reference	Description	Coding/System Limitations
10179509	ULTIMA® X5000 Junction Box; Stainless Steel, ¾" NPT	*Junction Box only, without sensor* Ex db IIC T6 Gb Ex tb IIIC T85°C Db Tamb: -40°C ≤ Ta ≤ +60°C *Zone 1 configurations:* *With one Digital Sensor (With FRIT) model connected* Ex db IIC T6 Gb Ex tb IIIC T85°C Db Tamb: -40°C ≤ Ta ≤ +60°C *With one ULTIMA® XIR Plus connected* Ex db IIC T6 Gb Tamb: -40°C ≤ Ta ≤ +60°C The coding of any attached sensor limits the coding of the junction box.
10179511	ULTIMA® X5000 Junction Box; Stainless Steel, M25	
10179513	ULTIMA® X5000 Junction Box; Aluminum, ¾" NPT	

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

ULTIMA® XIR Plus sensor:
Model coding appearing on ULTIMA® XIR Plus sensor are shown below:

ULTIMA® XIR Plus gas sensor (equipment)		
Model reference	Description	Coding
A-5K-SENS-***aa***-***b***-c-***d***-**e**	ULTIMA® XIR Plus infrared Combustible sensor; Gas Type verified for Performance per "EN 60079-29-1" where the following applies: ***aa*** is for Gas Type (verified for Performance): AA = IR Combustible 0 – 100% LEL – 5% Methane AB = IR Combustible 0 – 100% LEL – 2.1 % Propane AC = IR combustible 0-100% LEL – 4.4% Methane AD = IR combustible 0-100% LEL – 1.7% Propane AK = IR Combustible 0 – 100% LEL – 2.5% Acetone AS = IR Combustible 0 – 100% LEL – 1.2% Benzene BY = IR Combustible 0 – 100% LEL – 3.3% Ethanol CD = IR Combustible 0 – 100% LEL – 2.7% Ethylene CF = IR Combustible 0 – 100% LEL – 3% Ethylene Oxide CJ = IR Combustible 0 – 100% LEL – 1.1% Hexane CP = IR Combustible 0 – 100% LEL – 2% Isopropanol DJ = IR Combustible 0 – 100% LEL – 1.7% Methyl Methacrylate FJ = IR Combustible 0 - 100% LEL – 3.1% Ethanol FL = IR Combustible 0 - 100% LEL – 2.3% Ethylene FM = IR Combustible 0 - 100% LEL – 2.6% Ethylene Oxide FP = IR Combustible 0 - 100% LEL – 1% Hexane ***b*** is 0 = Stainless Steel ***c*** is A = IECEx (ATEX) ***d*** is for Sensor Body: 1 = ¾" NPT 2 = M25 ***e*** is 0 = Not relevant to certification ULTIMA® XIR Plus infrared Combustible sensor; Gas Type not verified for Performance per "EN 60079-29-1" where the following applies ***aa*** is for Gas Type (not verified for Performance): xx = Any two digit letter representing Gas Type ULTIMA® XIR Plus infrared Combustible sensor, not verified by CSA/SIRA for the specific flammable gas for performance, excludes sensor codes AA, AB, AC, AD, AK, AS, BY, CD, CF, CJ, CP, DJ, FJ, FL, FM, FP. The sensor shall not be marked with "EN 60079-29-1". ***b*** is 0 = Stainless Steel ***c*** is A = IEC Ex (ATEX) ***d*** is for Sensor Body: 1 = ¾" NPT 2 = M25 ***e*** is 0 = Not relevant to certification	Ex db IIC T6 Gb Tamb: -40°C ≤ Ta ≤ +60°C
	ULTIMA® XIR Plus infrared Toxic sensor; where the following applies:	

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

ULTIMA® XIR Plus gas sensor (equipment)		
Model reference	Description	Coding
	aa is for Gas Type Toxic Type: xx = Any two digit letter representing Toxic Type ULTIMA® XIR Plus infrared Toxic sensor: ***b*** is 0 = Stainless Steel ***c*** is A = IECEx (ATEX) ***d*** is for Sensor Body: 1 = ¾" NPT 2 = M25 ***e*** is 0 = Not relevant to certification	

JB5000 Junction Boxes:
Model coding appearing on the Junction Box enclosure are shown below:

JB5000 Junction Boxes (equipment)		
Model reference	Description	Coding/System Limitations
10213879	JB5000 Junction Box; Stainless Steel, ½" NPT	*Junction Box only, without a sensor* Ex db IIC T6 Gb Ex tb IIIC T85°C Db Tamb: -55°C ≤ Ta ≤ +75°C *Zone 1 configurations:* *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 *With one ULTIMA® XIR Plus connected* Ex db IIC T6 Gb Tamb: -40°C ≤ Ta ≤ +60°C The coding of any attached sensor limits the coding of the junction box.
10213893	JB5000 Junction Box; Stainless Steel, M25	

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

Digital Sensor:
Model coding appearing on the Digital Sensor are shown below:

Digital Sensor, gas sensor (equipment)		
Model reference	Description	Coding
A-5K-SENS-***aa***-***b***-c-***d***-**e**	Digital Sensor (With FRIT) model (combustible)) Gas Type verified for Performance per "EN 60079-29-1"; where the following applies Note: Digital Sensors "With FRIT" utilize Fine Threads for Flamepaths appropriate for Ex db applications. ***aa*** is for Gas Type (verified for Performance): 01 = No Sensor fine thread w/blank element) 60 = Combustible, 0-100% LEL – 5% Methane 61 = Combustible, 0-100% LEL – 2.1% Propane 62 = Combustible, 0-100% LEL – 1.05% Heptane 63 = Combustible, 0-100% LEL – 0.8% Nonane 64 = Combustible, 0-100% LEL – 4.0% Hydrogen 65 = Combustible, 0-100% LEL – 4.4% Methane 66 = Combustible, 0-100% LEL – 1.7% Propane 67 = Combustible, 0-100% LEL – 0.85% Heptane 68 = Combustible, 0-100% LEL – 0.7% Nonane ***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 = ¾" NPT 2 = M25 ***e*** is 0 = Not relevant to certification Digital Sensor (With FRIT) model (combustible) Gas Type not verified for Performance per "EN 60079-29-1"; where the following applies Note: Digital Sensors "With FRIT" utilize Fine Threads for Flamepaths appropriate for Ex db applications. ***aa*** is for Gas Type (not verified for Performance): 01 = No Sensor fine thread w/blank element) xx = Any two digit number representing Gas Type Digital Sensor (With FRIT), not verified by CSA/SIRA for the specific flammable gas for performance, excludes sensor codes 60, 61, 62, 63, 64, 65, 66, 67, 68. The sensor shall not be marked with "EN 60079-29-1". ***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 = ¾" NPT 2 = M25 ***e*** is 0 = Not relevant to certification	Ex db IIC T5 Gb Ex tb IIIC T85°C Db Tamb: -55°C ≤ Ta ≤ +60°C

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

Digital Sensor, gas sensor (equipment)		
Model reference	Description	Coding
	Digital Sensor (With FRIT) model (toxic); where the following applies Note: Digital Sensors "With FRIT" utilize Fine Threads for Flamepaths appropriate for Ex db applications. ***aa*** is for Toxic Type: 01 = No Sensor fine thread w/blank element xx = Any two digit number representing Toxic Type Digital Sensor (With FRIT) ***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 = ¾" NPT 2 = M25 ***e*** is 0 = Not relevant to certification	

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 17ATEX1049X
Issue 7

Variation 1 – This variation introduced the following changes:

i. Introduction of Certified Digital Sensor: Previously the Digital Sensor was evaluated as suitable to use with the ULTIMA® X5000 Gas Monitor fixed gas detection system requiring a special Digital Sensor nameplate referencing its suitability for use. The Digital Sensor Certification was confirmed and the requirement for the special Digital Sensor nameplate was removed.
ii. Introduction of two remote sensor configurations: two Dual Sensors, two ULTIMA® XIR Plus sensors and One Dual Sensor/One ULTIMA® XIR Plus sensor. The Product Description and The ULTIMA® X5000 Transmitter model code table was amended to reference the two remote sensor configurations.
iii. The Product Description and Model Code Tables were amended to correct typographical errors missed in the Prime report. Errors including, but not limited to: in Description section: Referencing Transmitter instead of Gas Detection System, calling out certified sensor along with cable entry devices & plugs, confirmation of gas types included in gas detection systems & Digital/XIR Plus Sensor and in Model Code Tables: Transmitter called out in title of each table, missing ambient temperature range and correction to Coding column title where appropriate.
iv. Introduction of an additional note to Standard EN 60079-29-1.
v. Transmitters, Junction Boxes and XIR Plus gas sensor Specific Condition of Use referencing "tightened to a minimum torque of 90 Nm (800 in-lbs.)" was removed.
vi. Transmitters and Junction Boxes Specific Condition of Use referencing "IEC 60664-1" was removed.
vii. Transmitters, Junction Boxes and XIR Plus gas sensor Specific Condition of Use referencing "non-metallic parts" was revised.
viii. Specific Condition of Use was introduced to the Junction Box referencing "field mounting in the vertical orientation" inadvertently omitted from the prime Certificates, same as the present Transmitters Specific Condition of Use.
ix. Three Specific Conditions of Use were introduced to the XIR Plus gas sensor referencing: "sensor is provided with a ¾" NPT thread", "sensor shall only be fitted to enclosures having a maximum pressure" and "sensor shall be connected directly to a suitably certified junction box"; inadvertently omitted from the prime Certificates.
x. Introduction of a Condition of Manufacture referencing EN 60079-0, clause 30, requiring the manufacture responsible to provide relevant information not presently included in the Instruction Manual.

Variation 2 – This variation introduced the following changes:

i. Following appropriate assessment to demonstrate compliance, EN 50271:2010 was added to the list of standards and the description was amended to recognise the application of the product in a safety related loop. Specific Conditions of Use and Conditions of Manufacture were introduced as a result of this change.

Variation 3 – This variation introduced the following changes:

i. Specific Condition of Use referencing "EN 50271 (clause 4.8, safety integrity assessment excluded from the assessment)" was removed; due to the introduction of EN 50271:2010 to the list of Standards.
ii. lusion of the IP rating for each equipment enclosure as part of both the marking.
iii. Added alternate General Monitors (Ireland) Limited factory to the Manufacturer's name and address section.
iv. Introduction of Digital Sensor (with FRIT) separately certified per Sira 17ATEX1048X.

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

Variation 4 – This variation introduced the following changes:

i. Introduction of the revised nameplate drawing number SK3098-1445.
ii. Introduction of the revised product instruction manual number 10177361.
iii. Introduction of the revised addendum of the product instruction manual, document number 10182779.

Variation 5 – This variation introduced the following changes:

i. The firmware of the ULTIMA® X5000 Transmitter was revised to 1.03.2996 and the firmware of the ULTIMA® XIR Plus Sensor was revised to 3.0.
ii. Standard EN 50271:2010 was removed from the list of standards.
iii. The Description was modified by deleting the entire section "Description relating to EN 50271:2010 Application", deleting all related Tables of the FMEA results and deleting the entire section of 15.4 "Conditions relating to EN 50271:2010".
iv. Introduction of ULTIMA® X5000 Transmitter Condition of Use: "The ULTIMA ® X5000 Gas Monitor fixed gas detection system complies with EN 50271 (Clause 4.8, safety integrity assessment excluded from the assessment). For the ULTIMA® X5000 transmitter the new software version 1.03.2996 and the checksum is 0xEC25 with hardware part number 10163333".
v. Introduction of ULTIMA® XIR Plus Sensor Condition of Use: "The ULTIMA ® X5000 Gas Monitor fixed gas detection system complies with EN 50271 (Clause 4.8, safety integrity assessment excluded from the assessment). For the ULTIMA® XIR Plus sensor the new software version 3.0 and the checksum is 0xF33C with hardware part number 10172003".
vi. Following appropriate assessment for the existing product, standard EN 60079-29-1:2007 was replaced by EN 60079-29-1:2016.
vii. Introduction of additional other gases added to the combustible gas Digital Sensor (With FRIT). Gases: hydrogen, heptane and nonane. Range: 0-100% LFL.
viii. Introduction of combustible gas Digital Sensor (With FRIT) not verified for Performance versions.
ix. Introduction of additional other gases added to the ULTIMA® XIR Plus Sensor. Gases: hexane, acetone, methyl methacrylate, ethanol, ethylene, benzene, ethylene oxide, isopropanol. Range: 0-100% LFL.
x. Introduction of combustible gas ULTIMA® XIR Plus Sensor not verified for Performance versions.
xi. ULTIMA® X5000 Gas Monitor fixed gas detection system was revised from specific gases "Methane and Propane" to generalized description "Combustible".
xii. ULTIMA® XIR Plus Sensor Product Description was revised to clarify suitable for both combustible and toxic applications.
xiii. Revision to Model Code Options with additional combustible gas performance codes for the Digital Sensor (With FRIT), new combustible gas Digital Sensor (With FRIT) not verified for Performance versions, clarification of combustible gas Digital Sensor (With FRIT) verified for Performance versions, the removal of specific gas Model Code Options for the toxic Digital Sensor, additional combustible gas performance codes for the ULTIMA® XIR Plus Sensor, new combustible gas ULTIMA® XIR Plus Sensor not verified for Performance versions, clarification of combustible gas ULTIMA® XIR Plus Sensor verified for Performance versions and the removal of specific gas Model Code Options for the toxic ULTIMA® XIR Plus Sensor.

xiv. Introduction of the revised product instruction manual.
xv. Per the addition of EN 60079-29-1:2016 a Condition of Use was introduced to both the ULTIMA® X5000 Transmitter and ULTIMA® XIR Plus Sensor: Guidance for Installation of fixed gas detection systems are set out in EN 60079-29-2 which has not been covered in the scope of this assessment.
xvi. Per the addition of EN 60079-29-1:2016 a Condition of Use was introduced to both the ULTIMA® X5000 Transmitter and ULTIMA® XIR Plus Sensor: Guidance for functional safety of fixed gas detection systems are set out in EN 60079-29-3 which has not been covered in the scope of this assessment.

Variation 6 – This variation introduced the following changes:

i. Following appropriate assessment to demonstrate compliance to the latest standards, the listed standard EN 60079-0:2012/A11:2013 was updated to EN IEC 60079-0:2018 with the standard coding being unchanged.
ii. Addition of JB5000 Junction Box.
iii. Revisions to X5000 Transmitter and XIR Plus Sensor temperature codes.
iv. Special Condition of Use added to the XIR Plus Sensor per exemptions within the IEC 60079-28 Scope.
v. Change of notified body number from “nnnn” to “2813”.
vi. Correction to the standard edition of EN 60079-29-1 from the 2007 edition to the 2016 edition as demonstrated in the standards upgrade performed in variation 5 item vi of the certificate.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	02 October 2017	R70116274A	The release of the prime certificate.
1	20 March 2018	R70164032A	The introduction of Variation 1
2	03 May 2018	R70164637D	The introduction of Variation 2
3	06 November 2018	R70171766A	The introduction of Variation 3
4	12 March 2019	R70209711A	The introduction of Variation 4
5	19 August 2019	R70199267A	The introduction of Variation 5
6	31 October 2019	0502	Transfer of certificate Sira 17ATEX1049 from Sira Certification Service to CSA Group Netherlands B.V.
7	18 September 2020	R80033112A	The introduction of Variation 6.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 ULTIMA® X5000 transmitter:

15.1.1 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.

15.1.2 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 ULTIMA® XIR Plus infrared (IR) sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.

15.1.3 The flameproof joints shall not be repaired.

15.1.4 Guidance for Installation of fixed gas detection systems are set out in EN 60079-29-2 which has not been covered in the scope of this assessment.

15.1.5 Guidance for functional safety of fixed gas detection systems are set out in EN 60079-29-3 which has not been covered in the scope of this assessment.

15.1.6 The ULTIMA ® X5000 Gas Monitor fixed gas detection system complies with EN 50271 (Clause 4.8, safety integrity assessment excluded from the assessment). For the ULTIMA® X5000 transmitter the new software 1.03.2996 and the checksum is 0xEC25 with hardware part number 10163333.

15.2 **ULTIMA® X5000 Junction Box:**

15.2.1 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.

15.2.2 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.

15.2.3 The flameproof joints shall not be repaired.

15.3 **ULTIMA® XIR Plus Sensor**:

15.3.1 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.

15.3.2 The flameproof joints shall not be repaired.

15.3.3 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.

15.3.4 The ULTIMA® XIR Plus infrared (IR) sensor shall only be fitted to enclosures having a maximum reference pressure of 13.5 bars.

15.3.5 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.

15.3.6 The Ingress Protection rating is exclusively based upon the installation instruction for orientation specified in the operating manual.

15.3.7 Guidance for Installation of fixed gas detection systems are set out in EN 60079-29-2 which has not been covered in the scope of this assessment.

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

15.3.8 Guidance for functional safety of fixed gas detection systems are set out in EN 60079-29-3 which has not been covered in the scope of this assessment.

15.3.9 The ULTIMA ® X5000 Gas Monitor fixed gas detection system complies with EN 50271 (Clause 4.8, safety integrity assessment excluded from the assessment). For the ULTIMA® XIR Plus sensor the new software version 3.0 and the checksum is 0xF33C with hardware part number 10172003.

15.3.10 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.

15.4 **JB5000 Junction Box**

15.4.1 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.

15.4.2 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.

15.4.3 The flameproof joints shall not be repaired.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

Certificate Annexe

Certificate Number: **Sira 17ATEX1049X**

Equipment: **ULTIMA® X5000 Gas Monitor fixed gas detection system (ULTIMA® X5000 transmitter & ULTIMA® X5000 Junction Box) and ULTIMA® XIR Plus sensor**

Applicant: **MSA - The Safety Company**

Issue 0:

Drawing no.	Sheets	Rev.	Date(Sira stamp)	Description
10162584	1 to 3	0	22 Sep 17	X5000 Option Board PCB Fabrication
10162585	1 to 2	0	22 Sep 17	X5000 Option Board Artwork
10163332	1 to 3	1	22 Sep 17	X5000 Main Board PCB Fabrication
10163333	1 to 2	0	22 Sep 17	X5000 Main Board PCB Assembly
10164799	1 of 2	0	22 Sep 17	X5000 User Interface Board PCB Fabrication
SK3098-1397	1 to 7	0	22 Sep 17	-X5000 transmitter and Junction Box Flame-Proof Enclosure Design (pages 1, 2 & 5) -XIR Plus sensor Flame-Proof Enclosure Design (page 4) -Label placement detail (page 6) -Cementing procedures (page 7)
SK3073-1134	1 of 1	0	22 Sep 17	Wiring Schematic, P.C. Board Assembly, Ultima X5000 Option
SK3073-1145	1 of 1	0	22 Sep 17	Wiring Schematic, P.C. Board Assembly, Ultima X5000, User Interface
SK3073-1146	1 to 2	1	22 Sep 17	Wiring Schematic, P.C. Board Assembly, Ultima X5000, Main
SK3073-1149	1 of 1	0	22 Sep 17	Wiring Schematic, PCBA, Ultima X5000, Remote Interface (Junction Box)
7-7206-1	1 of 1	1	22 Sep 17	X5000 Smart transmitter and Junction Box electronics assembly
10177361	1 to 67	1	22 Sep 17	Operating Manual, ULTIMA® X5000 Gas Monitor
10182779	1 to 4	1	22 Sep 17	ULTIMA® X5000 Gas Monitor Operating Manual Addendum
7-7207-1	1 of 1	0	22 Sep 17	XIR Plus assembly
SK3073-1144	1 of 1	0	22 Sep 17	Wiring Schematic, XIR Plus Board
10164157	1 to 1	0	22 Sep 17	XIR Plus Board Artwork
10177161	1 of 1	0	22 Sep 17	SMTA XIR Plus Board Artwork (BOM included in drawing)
10176109	1 of 1	0	22 Sep 17	X5000 Remote Interface (Junction Board) PCB Fabrication
10179429	1 of 1	0	22 Sep 17	ULTIMA® X5000 transmitter label
10179526	1 of 1	1	22 Sep 17	ULTIMA® XIR Plus sensor label
10182719	1 of 1	1	22 Sep 17	ULTIMA® X5000 Junction Box label

Issue 1: - No new drawings were introduced.

Issue 2: - The following new drawings were introduced to support the EN 50271 certification.

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
SK3073-1122	1 of 1	4	29 Nov 17	Toxic & Oxygen ASIC Schematic
SK3073-1143	1 of 1	0	29 Nov 17	Wiring schematic, P.C. Board Assembly, ULTIMA XIR Plus, Main
324170	1 of 1	0	29 Nov 17	GM Catalytic Cell Pre-Amp
324180	1 of 1	0	29 Nov 17	Schematic Diagram, XCELL_PUCK
324230	1 of 1	2	29 Nov 17	XCELL Life & Health Puck Board

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

Certificate Annexe

Certificate Number: **Sira 17ATEX1049X**

Equipment: **ULTIMA® X5000 Gas Monitor fixed gas detection system (ULTIMA® X5000 transmitter & ULTIMA® X5000 Junction Box) and ULTIMA® XIR Plus sensor**

Applicant: **MSA - The Safety Company**

Issue 3:

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
10162584	1 to 3	0	22 Sep 17	ULTIMA X5000 Option (Relay) Board PCB Fabrication
10162585	1 to 2	0	22 Sep 17	ULTIMA X5000 Option (Relay) Board PCB Assembly - Through-hole Parts
10163332	1 to 3	1	22 Sep 17	X5000 Main Board PCB Fabrication
10163333	1 to 2	1	24 Oct 18	X5000 Main Board PCB Assembly
10164799	1 to 2	0	22 Sep 17	X5000 User Interface Board PCB Fabrication
SK3098-1397	1 to 7	1	24 Oct 18	ULTIMA X5000 Series Approval Drawing – CSA (includes enclosure design specification, label placement detail and cementing procedures for the Transmitter, Junction Box and XIR Plus sensor)
SK3073-1134	1 of 1	0	22 Sep 17	Wiring Schematic, P.C. Board Assembly, ULTIMA X5000 Option (Relay) Board
SK3073-1145	1 of 1	0	22 Sep 17	Wiring Schematic, P.C. Board Assembly, Ultima X5000, User Interface
SK3073-1146	1 to 2	1	22 Sep 17	Wiring Schematic, P.C. Board Assembly, Ultima X5000, Main
SK3073-1149	1 of 1	0	22 Sep 17	Wiring Schematic, PCBA, Ultima X5000, Remote Interface (Junction Box)
7-7206-1	1 of 1	1	22 Sep 17	X5000 Smart transmitter and Junction Box electronics assembly
10177361/03	1 to 70	03	24 Oct 18	Operating Manual, ULTIMA® X5000 Gas Monitor
10182779/03	1 to 5	03	24 Oct 18	ULTIMA® X5000 Gas Monitor Operating Manual Addendum
7-7207-1	1 of 1	1	24 Oct 18	XIR Plus assembly
SK3073-1144	1 of 1	0	22 Sep 17	Wiring Schematic, XIR Plus Board
10164157	1 of 1	0	22 Sep 17	XIR Plus Board Artwork
10177161	1 of 1	1	24 Oct 18	SMTA XIR Plus Board Artwork (BOM included in drawing)
10176109	1 of 1	0	22 Sep 17	X5000 Remote Interface (Junction Board) PCB Fabrication
SK3098-1445	1 to 7	0	24 Oct 18	X5000 Product Series Markings
10177157	1 of 1	0	24 Oct 18	ULTIMA X5000 Option (Relay) Board PCB Assembly – Surface-Mount Parts
SK3073-1143	1 of 1	0	29 Nov 17	Wiring schematic, P.C. Board Assembly, ULTIMA XIR Plus, Main

Note: Drawing SK309-1445 replaces Drawings: 10179429, 10179526 and 10182719.

Issue 4:

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
10177361/04	1 to 80	04	20 Feb 19	Operating Manual, ULTIMA® X5000 Gas Monitor
10182779/04	1 to 6	04	20 Feb 19	ULTIMA® X5000 Gas Monitor Operating Manual Addendum

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

Certificate Annexe

Certificate Number: **Sira 17ATEX1049X**

Equipment: **ULTIMA® X5000 Gas Monitor fixed gas detection system (ULTIMA® X5000 transmitter & ULTIMA® X5000 Junction Box) and ULTIMA® XIR Plus sensor**

Applicant: **MSA - The Safety Company**

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
SK3098-1445	1 to 5	1	20 Feb 19	X5000 Product Series Markings

Issue 5:

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
7-7206-1	1 of 1	2	12 July 19	X5000 Smart transmitter and Junction Box electronics assembly
10177361/05	1 to 86	05	12 July 19	Operating Manual, ULTIMA® X5000 Gas Monitor
10182779/05	1 to 6	05	12 July 19	ULTIMA® X5000 Gas Monitor Operating Manual Addendum
7-7207-1	1 of 1	3	12 July 19	XIR Plus assembly
SK3073-1144	1 of 1	1	12 July 19	Wiring Schematic, XIR Plus Board
10177161	1 of 1	2	12 July 19	SMTA XIR Plus Board layout Artwork (BOM included in drawing)

Issue 6. No new drawings were introduced

Issue 7

Drawing	Sheets	Rev.	Date (Stamp)	Title
SK3073-1146	1 to 2	2	25 Jun 2020	Wiring Schematic, P.C. Board Assembly, Ultima X5000, Main
SK3073-1149	1 of 1	1	25 Jun 2020	Wiring Schematic, PCBA, Ultima X5000, Remote Interface (Junction Box)
7-7206-1	1 of 1	3	25 Jun 2020	Electronics Assembly Ultima X5000
10177361	1 to 92	6	25 Jun 2020	X5000 Manual (Addendum)
10182779	1 to 6	7	25 Jun 2020	X5000 Manual Addendum
SK3098-1445	1 to 6	2	25 Jun 2020	X5000 Product Series Markings
SK3098-1464	1 to 4	0	25 Jun 2020	JB5000 Approval Drawing, CSA
SK3098-1467	1 to 1	0	25 Jun 2020	JB5000 Approval Drawing, Electronics, CSA

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands