



# 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](http://www.iecex.com)

Certificate No.: IECEx SIR 17.0017X Issue No: 0 Certificate history:  
Issue No. 0 (2017-10-02)

Status: **Current**

Page 1 of 3

Date of Issue: **2017-10-02**

Applicant: **MSA - The Safety Company**  
1000 Cranberry Woods Drive  
Cranberry Township, PA 16066  
**United States of America**

Equipment: **ULTIMA® X5000 Gas Monitor fixed gas detection system and ULTIMA® XIR Plus sensor**

Optional accessory:

Type of Protection: **Flameproof and Dust Protection by Enclosure**

Marking: **ULTIMA® X5000 transmitter:** **ULTIMA® X5000 Junction Box:** **ULTIMA® XIR Plus sensor:**  
Ex db IIC T5 Gb Ex db IIC T6 Gb Ex db IIC T5 Gb  
Ex tb IIIC T85°C Db\* Ex tb IIIC T85°C Db\* Ex db IIC T5 Gb  
-40°C ≤ Ta ≤ +60°C Ex nA IIC T6 Gc -40°C ≤ Ta ≤ +60°C

\*NOTE Combustible gas detection performance compliance to IEC 60079-29-1 does not cover environments with dust and fibers in suspension in air.

Approved for issue on behalf of the IECEx  
Certification Body:


N Jones

Position:

Certification Manager

Signature:  
(for printed version)

Date:

  
\_\_\_\_\_  
2017-10-02

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 17.0017X Issue No: 0  
Date of Issue: 2017-10-02 Page 2 of 3  
Manufacturer: **MSA - The Safety Company**  
1000 Cranberry Woods Drive  
Cranberry Township, PA 16066  
**United States of America**

Additional Manufacturing location(s):

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 electrical 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:

<b>IEC 60079-0 : 2011</b> Edition:6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-1 : 2014-06</b> Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-15 : 2010</b> Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
<b>IEC 60079-29-1 : 2007</b> Edition:1	Explosive Atmospheres - Part 29-1: Gas Detectors - Performance requirements of detectors for flammable gases
<b>IEC 60079-31 : 2013</b> 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/ExTR17.0192/00](#)

Quality Assessment Report:

[FR/INE/QAR08.0011/07](#)



# IECEX Certificate of Conformity

Certificate No: IECEx SIR 17.0017X

Issue No: 0

Date of Issue: 2017-10-02

Page 3 of 3

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

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 Junction Box fitted with an arrangement of up to a pair of two factory-configured combustible or toxic 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.

Refer to the Annexe for additional information.

### SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to the Annexe.

### Annex:

[IECEX SIR 17.0017X issue 0 Annexe.pdf](#)

**Annexe to:** IEC Ex SIR 15.0005X Issue 0

**Applicant:** MSA – The Safety Company

**Apparatus:** ULTIMA® X5000 Gas Monitor fixed gas detection system and ULTIMA® XIR Plus sensor



## Equipment:

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 Junction Box fitted with an arrangement of up to a pair of two factory-configured combustible or toxic 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 ¾" NPT or M25 threaded entries which can be fitted with the sensors described below or suitably certified cable entry devices or blanking plugs.

The ULTIMA® X5000 Junction Box is the remote mounting unit of ULTIMA® X5000 transmitter and the enclosure of the Junction Box is designed for Flameproof (Ex db) and Dust protection by enclosure (Ex tb) with Non-Sparking (Ex nA) protection. The Zone 2, Non-sparking approval is applicable only to the Junction Box. The enclosure is provided with ¾" NPT or M25 threaded entries which can be fitted with the sensors described below or suitably certified cable entry devices or blanking plugs.

The ULTIMA® XIR Plus sensor is the infra-red sensor unit of the ULTIMA® X5000 Gas Monitor fixed gas detection system and the enclosure of the sensor is only designed for Flameproof (Ex db) protection.

The ULTIMA® X5000 system makes use of two sensor types including a digital catalytic bead sensor and an IR (infra-red) sensor for combustible gas detection or toxic gas detection or oxygen detection, all mounted via conduit entries. The permitted sensor configurations follow:

- Two-ULTIMA® XIR Plus sensors installed either integral to the ULTIMA® X5000 transmitter or one integral and one remote via the ULTIMA® X5000 Junction Box
- One-ULTIMA® XIR Plus sensor and one Digital Sensor (combustible or toxic) installed either integral to the ULTIMA® X5000 transmitter or remotely via the ULTIMA® X5000 Junction Box
- Two-Digital Sensors (combustible or toxic) installed either integral to the ULTIMA® X5000 transmitter or one integral and one remote via the ULTIMA® X5000 Junction Box

The product model code options of the ULTIMA® X5000 gas detection systems (Combustible or Toxic) featuring the ULTIMA® X5000 transmitter, ULTIMA® X5000 Junction Box, ULTIMA® XIR Plus sensor and the Digital Sensor component are shown below. The applicable configuration limitations resulting from the hazardous area classifications can be derived in the model codes.

**Date:** 02 October 2017

Page 1 of 5

**Form 9530 Issue 1**

## Sira Certification Service

Unit 6 Hawarden Industrial Park,  
Hawarden, CH5 3US, United Kingdom

Tel: +44 (0) 1244 670900  
Fax: +44 (0) 1244 681330  
Email: [ukinfo@csagroup.org](mailto:ukinfo@csagroup.org)  
Web: [www.csagroupuk.org](http://www.csagroupuk.org)

**Annexe to:** IEC Ex SIR 15.0005X Issue 0

**Applicant:** MSA – The Safety Company

**Apparatus:** ULTIMA® X5000 Gas Monitor fixed gas detection system and ULTIMA® XIR Plus sensor



## **Specific Conditions Of Use:**

### **ULTIMA® X5000 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 not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, 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 ULTIMA® XIR Plus infrared (IR) sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.
3. When ¾" NPT entries are provided, the connected sensor(s) shall be installed with five fully engaged threads, tightened to a minimum torque of 90 Nm (800 in-lbs).
4. The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.
5. The flameproof joints shall not be repaired.

### **ULTIMA® X5000 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 not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
2. When ¾" NPT entries are provided, the connected sensor(s) shall be installed with five fully engaged threads, tightened to a minimum torque of 90 Nm (800 in-lbs).
3. The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.
4. The flameproof joints shall not be repaired.

### **ULTIMA® XIR Plus gas sensor:**

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 not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
2. When ¾" NPT entries are provided, the installation to an enclosure shall be with five fully engaged threads, tightened to a minimum torque of 90 Nm (800 in-lbs).
3. The flameproof joints shall not be repaired.

**Date:** 02 October 2017

Page 2 of 5

**Form 9530 Issue 1**

## **Sira Certification Service**

Unit 6 Hawarden Industrial Park,  
Hawarden, CH5 3US, United Kingdom

Tel: +44 (0) 1244 670900  
Fax: +44 (0) 1244 681330  
Email: [ukinfo@csagroup.org](mailto:ukinfo@csagroup.org)  
Web: [www.csagroupuk.org](http://www.csagroupuk.org)

**Annexe to:** IEC Ex SIR 15.0005X Issue 0

**Applicant:** MSA – The Safety Company

**Apparatus:** ULTIMA® X5000 Gas Monitor fixed gas detection system and ULTIMA® XIR Plus sensor



**Model Code Options:**

**The ULTIMA® X5000 Gas Monitor fixed gas detection system:**

Model coding appearing on the transmitter enclosure are shown below:

ULTIMA® X5000 transmitter (equipment)		
Model reference	Description	Coding
A-X5000- <b>abcdeffggh</b>	<p>Transmitter control unit of the Fixed Gas Detection System for use in explosive gas atmospheres;</p> <p>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 Combustible ULTIMA® XIR Plus sensor and one Toxic ULTIMA® XIR Plus sensor per enclosure is permitted for installation (the main transmitter enclosure and the junction box enclosure) –</p> <p><b>a</b> is for Enclosure Material:            0 = Stainless Steel – ¾" NPT            1 = Aluminum – ¾" NPT            2 = Stainless Steel – M25</p> <p><b>b</b> is A = IECEx (ATEX)</p> <p><b>c</b> is for Bluetooth:            0 = Yes            1 = No</p> <p><b>d</b> is for Output Communication:            0 = Analog/HART            1 = Analog/HART/Relays</p> <p><b>e</b> is 0 = Default place holder, not relevant to certification</p> <p><b>ff</b> is for Sensor 1 selection:  <b>gg</b> is for Sensor 2 selection:</p> <p>-ULTIMA® XIR Plus sensor selections include,            00 = No Sensor            AC = IR combustible 0-100% LEL – Methane            AD = IR combustible 0-100% LEL – Propane            AE = IR Carbon Dioxide – 0-5000 ppm            AF = IR Carbon Dioxide – 0-2%            AG = IR Carbon Dioxide – 0-5%</p> <p>-Digital Sensor selections include,            00 = No Sensor or Sensor Body (transmitter only)            01 = No Sensor (sensor body 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%            20 = Hydrogen Sulfide, 0-10 ppm            21 = Hydrogen Sulfide, 0-50 ppm            22 = Hydrogen Sulfide, 0-100 ppm            65 = Combustible, 0-100% LEL – Methane            66 = Combustible, 0-100% LEL – Propane</p> <p><b>h</b> is for Tag:            0 = None            T = Stainless Steel affixed tag</p>	<p><i>transmitter only, without sensors</i></p> <p>Ex db IIC T6 Gb            Ex tb IIIC T85°C Db</p> <p><i>Gas Detection System: main transmitter + a Digital Sensor + with or without the Junction Box</i></p> <p>Ex db IIC T5 Gb            Ex tb IIIC T100°C Db</p> <p><i>Gas Detection System: main transmitter + an ULTIMA® XIR Plus + with or without the Junction Box</i></p> <p>Ex db IIC T5 Gb</p> <p>The coding of any attached sensor limits the coding of the transmitter/ system.</p>

**Annexe to:** IEC Ex SIR 15.0005X Issue 0

**Applicant:** MSA – The Safety Company

**Apparatus:** ULTIMA® X5000 Gas Monitor fixed gas detection system and ULTIMA® XIR Plus sensor



**The ULTIMA® X5000 Junction Box:**

Model coding appearing on the transmitter enclosure are shown below:

ULTIMA® X5000 Junction Box (equipment)		
Model reference	Description	Coding
10179509	ULTIMA® X5000 Junction Box; Stainless Steel, ¾" NPT	<i>Junction Box only, without sensors</i>
10179511	ULTIMA® X5000 Junction Box; Stainless Steel, M25	Ex db IIC T6 Gb Ex tb IIIC T85°C Db Ex nA IIC T6 Gc  <i>With a Digital Sensor connected</i>  Ex db IIC T5 Gb Ex tb IIIC T100°C Db  <i>With an ULTIMA® XIR Plus connected</i>  Ex db IIC T5 Gb  The coding of any attached sensor limits the coding of the junction box.
10179513	ULTIMA® X5000 Junction Box; Aluminum, ¾" NPT	

**The ULTIMA® XIR Plus sensor:**

Model coding appearing on the transmitter enclosure are shown below:

ULTIMA® XIR Plus gas sensor (equipment)		
Model reference	Description	Coding
A-5K-SENS- <b>aa-b-c-d-e</b>	<p>ULTIMA® XIR Plus infrared Combustible sensor;</p> <p>where the following applies –</p> <p><b>aa</b> is for Gas Type: AC = IR combustible 0-100% LEL – Methane AD = IR combustible 0-100% LEL – Propane</p> <p><b>b</b> is 0 = Stainless Steel</p> <p><b>c</b> is A = IECEX (ATEX)</p> <p><b>d</b> is for Sensor Body: 1 = ¾" NPT 2 = M25</p> <p><b>e</b> is 0 = Not relevant to certification</p> <hr/> <p>ULTIMA® XIR Plus infrared Toxic sensor;</p> <p>where the following applies –</p> <p><b>aa</b> is for Gas Type: AE = IR Carbon Dioxide – 0-5000 ppm AF = IR Carbon Dioxide – 0-2% AG = IR Carbon Dioxide – 0-5%</p> <p><b>b</b> is 0 = Stainless Steel</p> <p><b>c</b> is A = IECEX (ATEX)</p> <p><b>d</b> is for Sensor Body: 1 = ¾" NPT 2 = M25</p> <p><b>e</b> is 0 = Not relevant to certification</p>	Ex db IIC T5 Gb

**Annexe to:** IEC Ex SIR 15.0005X Issue 0

**Applicant:** MSA – The Safety Company

**Apparatus:** ULTIMA® X5000 Gas Monitor fixed gas detection system and ULTIMA® XIR Plus sensor



**The Digital Sensor:**

Model coding appearing on the transmitter enclosure are shown below:

Digital Sensor (component)					
Description	Manufacturer	Part Number	Approval Details	Certificate(s)	Comments
Digital Sensor (Combustible)	General Monitors (an MSA Company)	A-5K-SENS-65-S-A-0-0 A-5K-SENS-65-S-A-1-0 A-5K-SENS-65-S-A-2-0 A-5K-SENS-66-S-A-0-0 A-5K-SENS-66-S-A-1-0 A-5K-SENS-66-S-A-2-0	Suitable when used with the ULTIMA® X5000 Gas Monitor fixed gas detection system, see ExTR R70141952B.	Suitable when used with the ULTIMA® X5000 Gas Monitor fixed gas detection system, see ExTR R70141952B.	-55 °C to +60 °C  24 VDC, 250 mA max
Digital Sensor (Toxic)	General Monitors (an MSA Company)	A-5K-SENS-aa-S-A-d-0 A-5K-SENS-aa-S-A-d-0, where – aa = 01, 10, 11, 12, 13, 16, 20, 21, 22 d = 1 or 2	Suitable when used with the ULTIMA® X5000 Gas Monitor fixed gas detection system, see ExTR R70141952B.	Suitable when used with the ULTIMA® X5000 Gas Monitor fixed gas detection system, see ExTR R70141952B.	-55 °C to +60 °C  24 VDC, 250 mA max

**Date:** 02 October 2017

Page 5 of 5

**Form 9530 Issue 1**

**Sira Certification Service**

Unit 6 Hawarden Industrial Park,  
Hawarden, CH5 3US, United Kingdom

Tel: +44 (0) 1244 670900  
Fax: +44 (0) 1244 681330  
Email: [ukinfo@csagroup.org](mailto:ukinfo@csagroup.org)  
Web: [www.csagroupuk.org](http://www.csagroupuk.org)