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 MS/21-8007	**Issue**	2
Issue Date	11 November 2024	**Expiry Date**	11 November 2027
**** Based on Certificate No**	IECEx SIR 16.0096	**Issue / Variations / Amendment**	7
Requested by	**MSA – The Safety Company** 1000 Cranberry Woods Township, PA 16066, United States of America		
Manufacturer	**MSA - The Safety Company** 1000 Cranberry Woods Dr, Cranberry Township, PA 16066-5296, United States of America		
Description	The MSA ALTAIR® 4XR is a handheld, battery operated, Multi-gas Detector with Bluetooth capabilities (optional) that can measure between 1 and 4 gases using a combination of the following MSA XCell® Sensors: one catalytic-bead combustible cell, one oxygen electrochemical cell and one dual toxic electrochemical cell. The enclosure is rectangular in shape, includes an LCD display window, and is manufactured from a non-metallic material with an overmold. There is an external connection that is only used for charging the battery and shall only be connected when located in a non-hazardous location. See **Base certificate for full description.		
Equipment	ALTAIR 4XR Multi Gas Detector		
MARKING: **Original marking as per certificate ** remains applicable.** **IA number must be added.**	**Type:** **Ex Marking:**	ALTAIR 4XR Multi Gas Detector <u>With XCell Ex Sensor</u> Ex da ia IIC T3 Ga IEC 60079-29-1 Ta = -40°C to +60°C Ex ia I Ma Ta = -40°C to +60°C <u>Without XCell Ex Sensor</u> Ex ia IIC T3 Ga Ta = -40°C to +60°C Ex ia I Ma Ta = -40°C to +60°C Note: IEC 60079-29-1 applies to Group II only.	
	IA Number: **Warnings:**	MASC MS/21-8007 (To be additionally marked on equipment) See Base Certificate ** (original marking must be applied)	
Quality Assurance report (QAR) / Notification (QAN):	FR/INE/QAR08.0011/14		

Compliance:

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

- SANS (IEC) 60079-0: 2019 Equipment - General requirements
- SANS (IEC) 60079-1: 2015 Equipment protection by flameproof enclosures "d"
- SANS (IEC) 60079-11: 2012 Equipment protection by intrinsic safety "i"
- SANS (IEC) 60079-26: 2014 Equipment with Equipment Protection Level (EPL) Ga
- SANS (IEC) 60079-29-1: 2020 Gas detectors – Performance requirements of detectors for flammable gasses

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 SIR 16.0096.	
Description (According to Base Certificate) **	
"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."	
Supplementary	Issue 1: Supplemented for review as per ARP 0108 & NCoP 2398. Issue 2: Supplemented for review as per ARP 0108 & NCoP 2398.
Standard compliance	See Base Certificate **
Specific conditions of use ("X")	• None.
Conditions of manufacture	• The ALTAIR 4XR incorporates previously certified sensors. It is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with this device. The manufacturer shall inform Sira of any modifications to the device that may impinge upon the explosion safety design of the ALTAIR 4XR.
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).

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 SIR 16.0096**

Issue No: 7

Certificate history:
Issue 6 (2022-01-28)
Issue 5 (2020-06-11)
Issue 4 (2019-04-26)
Issue 3 (2018-03-21)
Issue 2 (2017-05-23)
Issue 1 (2016-12-23)
Issue 0 (2016-10-25)

Status: **Current**

Date of Issue: 2023-11-21

Applicant: **MSA - The Safety Company**
1000 Cranberry Woods Dr
Cranberry Township, PA 16066-5296
United States of America

Equipment: **ALTAIR 4XR Multi Gas Detector**

Optional accessory:

Type of Protection: **Flameproof and Intrinsically Safe**

Marking: **With XCell Ex Sensor**
Ex da ia IIC T3 Ga
IEC 60079-29-1
Ta = -40°C to +60°C
Ex ia I Ma
Ta = -40°C to +60°C
Without XCell Ex Sensor
Ex ia IIC T3 Ga
Ta = -40°C to +60°C
Ex ia I Ma
Ta = -40°C to +60°C

Note: IEC 60079-29-1 applies to Group II only.

Approved for issue on behalf of the IECEx Certification Body: **Michelle Halliwell**

Position: **Director Operations, UK & Industrial Europe**

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:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom

IECEx Certificate of Conformity

Certificate No.: **IECEx SIR 16.0096**

Date of issue: 2023-11-21

Issue No: 7

Manufacturer: **MSA - The Safety Company**
1000 Cranberry Woods Dr
Cranberry Township, PA 16066-5296
United States of America

Manufacturing locations: **MSA - The Safety Company**
1000 Cranberry Woods Dr
Cranberry Township, PA 16066-5296
United States of America

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 60079-11:2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26:2014 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
IEC 60079-29-1:2020 Edition:2.1	Explosive atmospheres – Part 29-1: Gas detectors – Performance requirements of detectors for flammable gases

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:

GB/CSAE/ExTR21.0191/00
GB/SIR/ExTR16.0248/00
GB/SIR/ExTR16.0329/00
GB/SIR/ExTR17.0073/00
GB/SIR/ExTR18.0050/00
GB/SIR/ExTR19.0123/00
GB/SIR/ExTR20.0090/00
GB/SIR/ExTR23.0176/00

Quality Assessment Report:

FR/INE/QAR08.0011/13

IECEx Certificate of Conformity

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

The MSA ALTAIR® 4XR is a handheld, battery operated, Multi-gas Detector with Bluetooth capabilities (optional) that can measure between 1 and 4 gases using a combination of the following MSA XCell® Sensors: one catalytic-bead combustible cell, one oxygen electrochemical cell and one dual toxic electrochemical cell. The enclosure is rectangular in shape, includes an LCD display window, and is manufactured from a non-metallic material with an overmold. There is an external connection that is only used for charging the battery and shall only be connected when located in a non-hazardous location.

Powered by a rechargeable Lithium Ion Polymer Battery Cell, Sony model US503759A8H, rated 3.8 V (nominal), 1400 mAh (nominal). MSA assembly number 10083913**,** or rechargeable Lithium Ion Polymer Battery Cell, Inventus Model IP583548, rated 3.8 V (nominal), 1435mAh (nominal), MSA assembly number 10242458.

Performance tested for 0-100% LFL methane, 0-100% LFL propane and other gas(es): 0-100% LFL n- Pentane. Altair 4XR firmware version 2.30 (English) or version 4.23 (French) and XCell Ex sensor firmware version 2.0. Performance temperature range: -20°C to +60°C as specified in Altair 4XR Addendum A manual 10175895.

Conditions of manufacture
The Manufacturer shall comply with the following:

1. The ALTAIR 4XR incorporates previously certified sensors. It is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with this device. The manufacturer shall inform Sira of any modifications to the device that may impinge upon the explosion safety design of the ALTAIR 4XR.

SPECIFIC CONDITIONS OF USE: NO

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
This issue, Issue 7, recognises the following changes; refer to the certificate annex to view a comprehensive history:

1. Incorporate FS evaluation of firmware updates per CSA projects 80142606 and 80171531.
2. Assess alternate construction of Altair 4XR to include:
    1. New Li-Ion battery pack.
    2. Minor change to PCB to accommodate selecting a different charging voltage.
3. Update markings to reflect a new Temperature Code.
4. Updated schedule drawing and instructions with updated information.
5. Document Gas Performance Testing necessary for the above alterations.
6. Update approval standard from IEC 60079-29-1:2007 to IEC 60079-29-1:2016

Annex:

IECEx SIR 16.0096 Iss 7 Annexe.pdf

Annexe to: **IECEx SIR 16.0096 Issue 7**

Applicant: **MSA - THE SAFETY COMPANY**

Apparatus: **ALTAIR 4XR multi gas detector**

Full certificate change history

Issue 1 – this Issue introduced the following change:

1. Update the method of protection marking to reflect the change from "d" to "da" on the latest XCell Ex sensor certificates.

Issue 2 – this Issue introduced the following change:

1. It was recognised that these gas detectors have been subjected to the performance test requirements of IEC 60079-29-1:2007 Edition 1.

Issue 3 – this Issue introduced the following change:

1. The detector was allowed to be used for mining applications; as a consequence, the following marking was recognised:

With XCell Ex Sensor	**Without XCell Ex Sensor**
Ex ia I Ma	Ex ia I Ma
Ta = -40°C to +60°C	Ta = -40°C to +60°C

Issue 4 – this Issue introduced the following change:

1. Introduction of IEC 60079-26:2014 Edition 3, following the appropriate assessment to demonstrate compliance with the latest technical knowledge; IEC 60079-26:2014 Edition 3 was added to the list of standards.

2. Recognises a correction to the marking; to remove "da" from Without XCell Ex Sensor.

Issue 5 – this Issue introduced the following change:

1. Recognise an update to the firmware (R 2.27) within the Altair 4XR; the firmware change confirmed as having no effect on the gas measuring functions or safety aspects of the instrument.

2. Introduction of a new resin material for the calibration cap, RTP 2599 X 133889, to replace the obsolete resin material RTP 2599 X 97420D.

3. Introduction of an alternate sensor filter material, Cobetter PFOY-T1DT, to replace the obsolete filter material Versapor 1200R Hydrophobic.

4. Recognise an update to the firmware (R 2.28) within the Altair 4XR; the firmware change confirmed as having no effect on the gas measuring functions or safety aspects of the instrument.

5. Recognise a correction to the markings in Issue 4 of the Certificate due to a typographical error.

6. Equipment Description revised to recognizes: "Performance temperature range: -20°C to +60°C as specified in Altair 4XR Addendum A manual 10175895."

Issue 6 – this Issue introduced the following change:

1. Following appropriate assessment for the existing product, standard IEC 60079-0:2011 (Edition 6) was replaced by IEC 60079-0:2017 (Edition 7).

2. Introduction of a new non-Bluetooth option (both non-safety critical components U16 and U18 would not be populated on the PCB).

3. Introduction of creating an option to populate the PCB with either the VQFN package or the UQFN package for the non-safety critical components U17 and U19 (U17 and U19 are the same part made by the same manufacturer).

4. Introduction of a new alternate PCB (P/N 10225260) to support the new alternate UQFN package for components U17 and U19 (as described above).

5. The Product Description was revised to call out the Bluetooth as optional; as per the introduced Non-Bluetooth option.

6. Scheduled drawing was revised to include the introduction of making non-Bluetooth an option and the introduction of an alternate PCB with UQFN package: Altair 4XR CSA schedule drawing.

7. Update of Addendum A to Altair 4X Operating Manual to include updated standard IEC 60079-0:2017

Issue 7 – this Issue introduced the following change:

1. Incorporate FS evaluation of firmware updates per CSA projects 80142606 and 80171531.

2. Assess alternate construction of Altair 4XR to include:

a. New Li-Ion battery pack.

b. Minor change to PCB to accommodate selecting a different charging voltage.

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Unit 6 Hawarden Industrial Park,
Hawarden Deeside CH5 3US, UK.

3. Update markings to reflect a new Temperature Code.
4. Updated schedule drawing and instructions with updated information.
5. Document Gas Performance Testing necessary for the above alterations.
6. Update approval standard from IEC 60079-29-1:2007 to IEC 60079-29-1:2016

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