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/21-8054X	**Issue**	2
Issue Date	11 November 2024	**Expiry Date**	11 November 2027
**** Based on Certificate No**	IECEx BVS 10.0043X	**Issue / Variations / Amendment**	7
Requested by	**MSA – The Safety Company** 1000 Cranberry Woods Township, PA 16066, United States of America		
Manufacturer	**MSA EUROPE GmbH** Schlüsselstraße 12, 8645 Rapperswil-Jona, Switzerland		
Description	**Gas detector type PrimaX I** The device type PrimaX I is a stationary gas detector for the measurement of oxygen or toxic gases in ambient air under atmospheric conditions. The gas detector contains one electrochemical sensor for gas measurement (PrimaX Ox-Tox Sensor). The gas detector type PrimaX I is designed with an antistatic plastic housing. The surface resistance of the housing is ≤ 109 W. The housing is mounted to a plastic mounting bracket which can be pre mounted before the PrimaX I will be connected to the mounting bracket. **Gas detector type PrimaX P** The device type PrimaX P is a stationary gas detector for the measurement of combustible, oxygen or toxic gases in ambient air under atmospheric conditions. The gas detector contains, depending on construction, one changeable intrinsically safe electrochemical sensor (PrimaX Ox-Tox Sensor) or one sensor in type of protection Flameproof Enclosure (PrimaX Ex Sensor) for gas measurement. See **Base certificate for full descriptions.		
Equipment	Gas detector	**Type**	PrimaX I and PrimaX P
MARKING: **Original marking as per certificate ** remains applicable.** **IA number must be added.**	**Type:** **Ex Marking:** **IA Number:** **Warnings:**	Gas detector type PrimaX I and PrimaX P Ex ia IIC T4 Ga for PrimaX I Ex db ia [ia] IIC T4/T6 Gb Ex tb ia [ia] IIIC T130°C/T85°C Db for PrimaX P MASC S/21-8054X (To be additionally marked on equipment) See Base Certificate ** (original marking must be applied)	
Quality Assurance report (QAR) / Notification (QAN):		DE/BVS/QAR10.0012/12	

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: 2015 Equipment protection by flameproof enclosures "d"
- SANS (IEC) 60079-11: 2012 Equipment protection by intrinsic safety "i"
- SANS (IEC) 60079-31: 2023 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.

Special conditions of safe 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).

This certificate may only be reproduced in full
The certificate is not transferable and remains the property of the issuing body.

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 BVS 10.0043X.	
Description (According to Base Certificate) **	
"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."	
Standard compliance	See Base Certificate ******
Issue	Issue 1: Supplemented for QAR review as per ARP 0108. IECEx BVS 10.0101X was removed completely. IECEx LCI 10.0038X was removed and given its own MASC IA certificate MASC S/23-8582X. Issue 2: Supplemented for review as per NCoP 2398.
Special conditions of safe use ("X")	**For Gas Detector PrimaX I and PrimaX P valid:** • The measuring function for explosion protection is not subject of this Certificate. • Avoid electrostatic charge on the temporary used calibration cap when used for calibration. **For Gas Detector PrimaX I valid:** • It is not allowed to open the keypad cover during usage in areas where EPL Ga, Group IIC is required. **For Gas Detector PrimaX P valid:** • The joint widths of the flameproof joint of this apparatus are in parts longer, and its gaps are in parts shorter than the values of Table 3 of IEC 60079-1:2014. For maintenance or repair contact the manufacturer. • Intensive electrostatic charging processes to the instrument label have to be prevented. • In case of using the PrimaX Ex-Sensor, the complete device type PrimaX P is in accordance to temperature class T6/T85 °C, ambient temperature range -40 °C ≤ Ta ≤ +40 °C or to temperature class T4/T130 °C, ambient temperature range -40 °C ≤ Ta ≤ +70 °C. • In case of using the PrimaX Ox-Tox-Sensor, the complete device type PrimaX P is in accordance to temperature class T4/T130 °C, ambient temperature range -40 °C ≤ Ta ≤ +70 °C.
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).

This document is issued based on Mining And Surface Certification's Standard Contract terms and conditions available on request.

While every endeavour is made to ensure that a test / assessment / inspection is representative and accurately performed, and that a report / certificate is accurate in the quoted results and conclusions drawn from the test / assessment / inspection, MASC or its directors/employees shall in no way be liable for any error made in carrying out the test / assessment or for any erroneous statement, whether in fact or in opinion, contained in a report / certificate issued pursuant to a test / assessment / inspection.

MASC takes no responsibility for any non-conformances, exclusions, or any results / assessments / inspections not in compliance with the standards. By marking the equipment in accordance with the documentation / standard, the manufacturer / applicant attests on his own responsibility that the equipment / installation has been designed and constructed in accordance with the applicable requirements of the relevant standards and documentation, that the routine verifications / routine tests have been correctly completed and the equipment / installation complies with the documentation and standard(s).

This document is only for use and application in South Africa. It is issued based on National interpretations and accepted practices.

This document may only be reproduced in full.
This certificate is not transferable and remains the property of the issuing body.
This document will not be supported by MASC for certification purposes outside the borders of South Africa.

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 BVS 10.0043X**

Page 1 of 4

Certificate history:

Issue 6 (2024-05-21)
Issue 5 (2021-03-10)
Issue 4 (2016-07-04)
Issue 3 (2013-06-19)
Issue 2 (2012-05-02)
Issue 1 (2011-03-25)
Issue 0 (2010-05-18)

Status: **Current**

Issue No: 7

Date of Issue: 2024-07-31

Applicant: **MSA EUROPE GmbH**
Schlüsselstraße 12
8645 Rapperswil-Jona
Switzerland

Equipment: **Gas Detector type PrimaX I and PrimaX P**

Optional accessory:

Type of Protection: **Equipment protection by flameproof enclosures "d", Equipment protection by intrinsic safety "i", Equipment dust ignition protection by enclosure "t"**

Marking: Ex ia IIC T4 Ga for PrimaX I

Ex db ia [ia] IIC T4/T6 Gb
Ex tb ia [ia] III C T130°C/T85°C Db for PrimaX P

Approved for issue on behalf of the IECEx Certification Body: **Dr Franz Eickhoff**

Position: **Senior Lead Auditor, Certification Manager and officially recognised expert**

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:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 10.0043X**

Date of issue: 2024-07-31

Manufacturer: **MSA (China) Safety Equipment Co., Ltd.**
No. 8 Rui En Lane, Xingpu Road
Suzhou Industrial Park, Jiangsu
China

Manufacturing locations:

MSA (China) Safety Equipment Co., Ltd.
No. 8 Rui En Lane, Xingpu Road
Suzhou Industrial Park, Jiangsu
China

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 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-31:2022 Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
Edition:3.0

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 Report:

DE/BVS/ExTR10.0063/06

Quality Assessment Reports:

DE/BVS/QAR10.0012/10 GB/CML/QAR22.0009/01

IECEx Certificate of Conformity

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

Gas detector type PrimaX I:

The device type PrimaX I is a stationary gas detector for the measurement of oxygen or toxic gases in ambient air under atmospheric conditions. The gas detector contains one electrochemical sensor for gas measurement (PrimaX Ox-Tox Sensor).

The gas detector type PrimaX I is designed with an antistatic plastic housing. The surface resistance of the housing is ≤ 10^9 W.

The housing is mounted to a plastic mounting bracket which can be pre mounted before the PrimaX I will be connected to the mounting bracket. The surface resistance of the mounting bracket is ≤ 10^9 W, too.

The 2-wire connection to the gas detector type PrimaX I is done via a M25 cable gland.

As an option, the gas detector type PrimaX I contains a HART - module. The connection to an external HART - Handheld Controller can be done by a special HART - plug-in connector.

Gas detector type PrimaX P:

The device type PrimaX P is a stationary gas detector for the measurement of combustible, oxygen or toxic gases in ambient air under atmospheric conditions.

The gas detector contains, depending on construction, one changeable intrinsically safe electrochemical sensor (PrimaX Ox-Tox Sensor) or one sensor in type of protection Flameproof Enclosure (PrimaX Ex Sensor) for gas measurement.

The connection to the non-intrinsically safe power supply-/signal circuit is done via a cable gland (d).

As an option, the gas detector type PrimaX P contains a HART - modul. The connection to an external intrinsically safe HART - Handheld Controller can be done by a special HART - plug-in connector.

Ratings
See Annex

Marking
See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:
For Gas Detector PrimaX I and PrimaX P:

The measuring function for explosion protection is not subject of this Certificate.

Avoid electrostatic charge on the temporary used calibration cap when used for calibration.

For Gas Detector PrimaX I:

It is not allowed to open the key pad cover during usage in areas where EPL Ga, Group IIC is required.

For Gas Detector PrimaX P:

The joint widths of the flameproof joint of this apparatus are in parts longer, and its gaps are in parts shorter than the values of Table 3 of IEC 60079-1:2014. For maintenance or repair contact the manufacturer.

Intensive electrostatic charging processes to the instrument label have to be prevented.

In case of using the **PrimaX Ex-Sensor**, the complete device type **PrimaX P** is in accordance
to temperature class T6/T85 °C, ambient temperature range -40 °C ≤ T_a ≤ +40 °C or
to temperature class T4/T130 °C, ambient temperature range -40 °C ≤ T_a ≤ +70 °C.

In case of using the **PrimaX Ox-Tox-Sensor**, the complete device type **PrimaX P** is in accordance
to temperature class T4/T130 °C, ambient temperature range -40 °C ≤ T_a ≤ +70 °C.

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Update to the current status of standards.

Dust approval for PrimaX I has been withdrawn.

Electronic circuit slightly modified.

Minor changes to the enclosure.

Option: Sensor MSA XCell XXX (IECEx FTZU 09.0024U) removed.

Annex:

BVS_10_0043X_MSA Europe_Annex_issue7.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 10.0043X issue No: 7**
Annex

Ratings for Gas detector type PrimaX I:

Intrinsically safe power supply-/signal circuit, connection via a M25 cable gland and 2 internal plug-in terminals:

Maximum input voltage	U_i	DC	28	V
Maximum input current	I_i		100	mA
Maximum input power	P_i		700	mW
Maximum internal capacity	C_i		negligible	
Maximum internal inductivity	L_i		negligible	

Optional intrinsically safe HART - connector, connection via plug-in connector. Only for a temporary connection of an intrinsically safe HART - Handheld Controller.

Maximum output voltage	U_o	DC	28	V	
Maximum output current		I_o		100	mA
Maximum output power	P_o		700	mW	
Maximum external capacity	C_o		1	nF	
Maximum external inductivity	L_o		10	µH	
Maximum input voltage	U_i	DC	5	V	
Maximum input current	I_i		1	mA	
Maximum input power	P_i		5	mW	
Maximum internal capacity	C_i		negligible		
Maximum internal inductivity	L_i		negligible		

Ambient temperature range (**Ex ia IIC T4 Ga**): $-40\ °C \leq T_a \leq +70\ °C$

Ratings for Gas detector type PrimaX P:

Non intrinsically safe power supply-/signal circuit, connection via a cable gland (d) and internal 4-Pin plug-in-terminal.

Nominal voltage	U_{max}		30	V
Maximum input voltage	U_m	DC	60	V

Optional non intrinsically safe relays contact circuit, connection via a cable gland (d) and 2 internal 3-Pin-plug-in-terminals (changeover-relays contacts).

Maximum switching voltage	DC	30	V
Maximum switching current		2	A

Optional intrinsically safe HART - circuit, connection via plug-in connector. Only for a temporary connection of an intrinsically safe HART - Handheld Controller.

Maximum output voltage	U_o		2.7	V	
Maximum output current		I_o		137	mA
Maximum output power	P_o		185	mW	
Maximum external capacity	C_o		1	nF	
Maximum external inductivity	L_o		10	µH	
Maximum input voltage	U_i		5	V	
Maximum input current	I_i		1	mA	
Maximum input power	P_i		5	mW	
Maximum internal capacity	C_i		negligible		
Maximum internal inductivity	L_i		negligible		

Ambient temperature range

T4/T130 °C:	-40 °C up to +70 °C
T6/T85 °C:	-40 °C up to +40 °C

See additional “Conditions of Use” for Ex Equipment.

Certificate No.: **IECEx BVS 10.0043X issue No: 7**
Annex

Marking PrimaX I:
Name and address of the manufacturer
Type PrimaX I
Ex ia IIC T4 Ga
-40 °C ≤ T_a ≤ +70 °C
Serial number
Certification number

Marking PrimaX P Main housing:
Name and address of the manufacturer
Type PrimaX P
Ex db ia [ia] IIC T4/T6 Gb
Ex tb ia [ia] IIIC T130°C/T85°C Db
T4/T130 °C -40 °C ≤ T_a ≤ +70 °C
T6/T85 °C -40 °C ≤ T_a ≤ +40 °C
Serial number
Certification number

Marking PrimaX Ex-Sensor:
Name and address of the manufacturer
Type PrimaX Ex Sensor
Ex db IIC T4/T6 Gb
Ex tb IIIC T130°C/T85°C Db
T4/T130 °C -40 °C ≤ T_a ≤ +70 °C
T6/T85 °C -40 °C ≤ T_a ≤ +40 °C
Serial number

Marking PrimaX Ox-Tox-Sensor:
Name and address of the manufacturer
Type PrimaX Ox-Tox Sensor
Ex ia IIC T4 Ga
Ex ia IIIC T135°C Db
-40 °C ≤ T_a ≤ +70 °C
Serial number