



# 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 BVS 10.0101X    
Status:   
Date of Issue: 2011-08-05 Page 1 of 4  
Applicant: **Mine Safety Appliance Company**  
1000 Cranberry Woods Drive  
Cranberry Township, PA 16066  
United States of America  
Electrical Apparatus: **Infrared Gas Monitor type PrimaX IR**  
*Optional accessory:*  
Type of Protection: **Equipment protection by flameproof enclosures "d"; Equipment dust ignition protection by enclosure 't'**  
Marking: **Ex d IIC T4 Gb**  
**Ex tb IIIC T130°C Db IP67**  
*Approved for issue on behalf of the IECEx Certification Body:* H.-Ch. Simanski  
*Position:* Head of Certification Body  
*Signature:*  
*(for printed version)*   
*Date:* 5/8/2011

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:

DEKRA EXAM GmbH  
Dinnendahlstrasse 9  
44809 Bochum  
Germany

 **DEKRA**  
DEKRA EXAM GmbH



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Manufacturer: **Mine Safety Appliance Company**  
1000 Cranberry Woods Drive  
Cranberry Township, PA 16066  
United States of America

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 : 2007-10</b><br>Edition: 5 | Explosive atmospheres - Part 0: Equipment - General requirements                     |
| <b>IEC 60079-1 : 2007-04</b><br>Edition: 6 | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"    |
| <b>IEC 60079-31 : 2008</b><br>Edition: 1   | 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:  
[DE/BVS/ExTR10.0132/00](#)

Quality Assessment Report:  
[FR/INE/QAR08.0011/02](#)



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## Schedule

### EQUIPMENT:

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

#### Description

The infrared gas monitor type PrimaX IR is a stationary gas detector for the measurement of hydrocarbon gases in ambient air under atmospheric conditions.

The infrared gas monitor type PrimaX IR contains an infrared sensor for gas measurement and electronic boards; it uses a cartridge type heater located near the window and mirror.

The infrared gas monitor type PrimaX IR is designed in type of protection flameproof enclosure "d" and Equipment dust ignition protection by enclosure "tb".

The connection of the gas monitor to other flameproof enclosures could be done via a M25 or a ¼ NPT thread.

### CONDITIONS OF CERTIFICATION: YES as shown below:

The connection of the gas monitor PrimaX IR with a control device, having a measurement function for explosion protection, is not subject of this type examination certificate. The gas monitor PrimaX IR is equipped with a tapered NPT thread or a metric thread for mounting to a connection enclosure of protection type increased safety „e“ or protection type flameproof enclosure „d“.

When mounting the gas monitor to an enclosure of protection type flameproof enclosure „d“ the reference pressure of the separate enclosure for the connection must not exceed 10.5 bar. The test of the mechanical strength of the separate enclosure for the connection and the test of the connecting thread with respect to explosion hazards must be ensured within the framework of the type test of the electrical apparatus, which is attached to the gas monitor PrimaX IR. The threaded hole to which the gas monitor is attached must meet the requirements of section 5.3 (Table 3/4) of EN 60079-1.

Due to the limitations on the potting used for the wire bushing on the PrimaX IR, the service temperature within the separate enclosure (the enclosure the PrimaX IR is mounted to) must not exceed 120 °C.

When mounting the gas monitor to enclosures in type of protection increased safety "e" the mechanical resistance and the IP protection (IP6X) of the mounted enclosure has to be ensured by the type test of the electrical apparatus being mounted to the gas monitor. After mounting of the gas monitor onto an enclosure in type of protection increased safety "e" the clearances and creepage distances must meet the requirements of 4.3 (Table 1) of EN 60079-7. The non-shielded cables of the gas monitor must be routed and connected so as to be mechanically protected and corresponding to the temperature resistance of the cables as per 4.2, 4.5.1 and 4.8 of EN 60079-7.

For dust applications any intensive electrostatic charging processes to the instrument label have to be prevented.

The ¼" NPT fixture has to be sealed with 2 layer PTFE sealing tape or according to the instructions of the manufacturer of the enclosure with NPT thread; when removed, new PTFE sealing has to be used after reinstalling.

The gas monitor PrimaX IR must be screwed into the housing wall such that it is secured against self-loosening. The specified minimum thread depth of the add-on housing has to be observed.

The gas monitor PrimaX IR must be included into the earthing and equipotential bonding of the complete system, including the enclosure it is connected to.

The screw heads are filled with potting to prevent self-loosening and unauthorized entry. The user does not open the enclosure. Opening of the device will invalidate the type approval. The screws must have a minimum yield stress of 600 N/mm<sup>2</sup>. This has to be ensured by warning remark in the instructions.



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## EQUIPMENT(continued):

### Parameters

#### Infrared gas monitor

Rated voltage for power supply		DC 24	V
Rated current of the output signal	4	to 20	mA
Maximum power dissipation of electronic circuits		6	W
Maximum temperature for the potting at the wire bushing		120	°C

#### Heater

Rated voltage		DC 5	V
Rated power		2	W
Maximum power dissipation of each leg heater		2.5	W
Ambient temperature range	-40 °C	to	+80 °C

IP degrees of protection according to EN 60529		IP	67
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