

# (1) EC-Type Examination Certificate

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
- (3) No. of EC-Type Examination Certificate: **BVS 10 ATEX E 157 X**
- (4) Equipment: **Infrared gas monitor type PrimaX IR**
- (5) Manufacturer: **Mine Safety Appliances Co.**
- (6) Address: **Cranberry Township, PA 16066-5296, USA**
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test and assessment report BVS PP 11.2179 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:
- EN 60079-0:2009 General requirements**  
**EN 60079-1:2007 Flameproof enclosure**  
**EN 60079-31:2009 Equipment dust ignition protection by enclosure**
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

 **II 2G Ex d IIC T4 Gb**  
**II 2D Ex tb IIIC T130°C Db**  
**IP 67**

DEKRA EXAM GmbH  
Bochum, dated 22.07.2011



Certification body



Special services unit



- (13) Appendix to
- (14) **EC-Type Examination Certificate  
BVS 10 ATEX E 157 X**
- (15) 15.1 Subject and type  
Infrared gas monitor type PrimaX IR

15.2 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 ¾ NPT thread.

15.3 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

- (16) Test and assessment report  
BVS PP 11.2179 EG as of 22.07.2011

- (17) Special conditions for safe use

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 to 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  $\frac{3}{4}$ " 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 do not open 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 ensure by warning remark in the instructions.



(1) **1. Supplement to the EC-Type Examination Certificate**

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC Supplement accordant with Annex III number 6
- (3) No. of EC-Type Examination Certificate: **BVS 10 ATEX E 157 X**
- (4) Equipment: **Infrared gas monitor type PRIMAX IR**
- (5) Manufacturer: **Mine Safety Appliances Co.**
- (6) Address: **Cranberry Township, PA 16066-5296, USA**
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test and assessment report BVS PP 11.2179 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:
- EN 60079-0:2009 General requirements**  
**EN 60079-1:2007 Flameproof enclosure „d“**  
**EN 60079-31:2009 Protection by enclosures „t“**
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.
- (11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

 **II 2G Ex d IIC T4 Gb**  
**II 2D Ex tb IIIC T130°C Db**  
**IP 67**

DEKRA EXAM GmbH  
 Bochum, dated 19.10.2012



Certification body



Special services unit



- (13) Appendix to
- (14) **1. Supplement to the EC-Type Examination Certificate  
BVS 10 ATEX E 157 X**
- (15) 15.1 Subject and type

Infrared gas monitor type PrimaX IR

15.2 Description

The Infrared gas monitor can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report. The Infrared gas monitor type PrimaX IR is now also usable in ambient temperature ranges from -50 °C up to +80 °C.

15.3 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		-50 °C up to +80 °C

IP degrees of protection according to EN 60529 IP 67

- (16) Test and Assessment Report

BVS PP 11.2179 EG as of 19.10.2012

- (17) Special conditions for safe use

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 to, 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 3/4" 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, too.

The screw heads are filled with potting to prevent self-loosening and unauthorized entry. The user does not open 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.



## Translation

# (1) 2. Supplement to the EC-Type Examination Certificate

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC Supplement accordant with Annex III number 6
- (3) No. of EC-Type Examination Certificate: **BVS 10 ATEX E 157 X**
- (4) Equipment: **PrimaX IR**
- (5) Manufacturer: **Mine Safety Appliances Co.**
- (6) Address: **Cranberry Township, PA 16066-5296, USA**
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test report PFG-no. 41300213P.
- (9) The Essential Health and Safety Requirements with respect to the measuring function for explosion protection are assured by application of:
- EN 60079-29-1:2007**  
**EN 50271:2010**
- This supplement to the EC-type examination certificate covers the measuring function for methane and propane in the measuring range 0 - 100 % LEL.  
This supplement to the EC-type examination certificate covers equipment with software version 3.3.
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.
- (11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.  
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

**not changed**

DEKRA EXAM GmbH  
Bochum, dated 15. July 2013

Signed: Müller

\_\_\_\_\_  
Certification body

Signed: Kiesewetter

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Special services unit



- (13) Appendix to
- (14) **2. Supplement to the EC-Type Examination Certificate  
BVS 10 ATEX E 157 X**

(15) 15.1 Subject and type

Transmitter PrimaX IR

15.2 Description

The transmitter PrimaX IR is a fixed device for the measurement of flammable gases. The measurement is done with the principle of infrared absorption. A 3-wire 4-20 mA interface serves as power supply and for transmission of the measured value. The device is also equipped with a HART-interface for maintenance and parametrization.

15.3 Parameters

See BVS 10 ATEX E 157 X and supplement 1

(16) Test and assessment report

PFG-no. 41300213P as of 15/07/2013  
 EC-type examination certificate FM06ATEX0029U and supplements 1 and 2  
 EC-type examination certificate LCIE 10 ATEX 3090 X  
 EC-type examination certificate BVS 10 ATEX E 066 X and supplement 1

(17) Special conditions for safe use

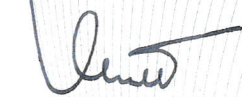
The following special properties have to be considered at operation of the remote sensor:

- See BVS 10 ATEX E 157 X and supplement 1
- See LCIE 10 ATEX 3090 X
- The HART-interface is included in this supplement to the EC-type examination certificate with respect to the use for parametrization, commissioning, test and maintenance of the device.

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We confirm the correctness of the translation from the German original.  
 In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH  
 44809 Bochum, 15. July 2013  
 PFG-Kie/Bre



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 Certification body



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 Special services unit