


(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 ¼ 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/mm². 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 $\frac{3}{4}$ " 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, 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/mm². 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

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.

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



Certification body



Special services unit

Translation

(1) **3. 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 NI.

(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 ethane, n-butane, n-pentane, n-hexane, propylene, propylene oxide, acetone, cyclopentane and ethyl acetate in the measuring range 0 - 100 % LEL, i-butane in the measuring range 0 - 70 % LEL and toluene in the measuring range 0 - 50 % LEL.

This supplement to the EC-type examination certificate covers equipment with software version 3.4.

(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 27. January 2014

Signed: Siebrecht

Signed: Kiesewetter

Certification body

Special services unit

- (13) Appendix to
- (14) **3. 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

This supplement to the EC-type examination certificate concerns the measuring function for further gases and vapours.
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 NI as of 27/01/2014
- (17) Special conditions for safe use

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

- See BVS 10 ATEX E 157 X and supplement 1
- See LCIE 10 ATEX 3090 X
- For the measurement of n-Pentane, n-Hexane, Propylene, Ethane or i-Butane PrimaX IR shall be calibrated with the target gas at a span value of approximately 50 % LEL.
- 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.

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, 27. January 2014
PFG-Kie/Bre



Certification body



Special services unit

(1) 4th 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: **MSA - The Safety Company / Mine Safety Appliances Company, LLC**
- (6) Address: **1000 Cranberry Woods Drive, Cranberry Township, PA 16066-5296, United States of America**
- (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 60079-0:2012 + A11:2013 General requirements**
EN 60079-1:2007 Flameproof enclosure "d"
EN 60079-31:2009 Protection by enclosure "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 2015-11-19

Certification body

Special services unit

- (13) Appendix to
- (14) **4th 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. The heater voltage and the nominal power values have got a small modification. The maximum power dissipation of the heaters is unchained.

Another reason for the supplement is the update of the standard EN 60079-0.

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 5,475	V
Rated power	2,3	W
Maximum power dissipation of each leg heater	2,5	W
Ambient temperature range	-50 °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 2015-11-19

- (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 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 so 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 the enclosure. Opening of the device will invalidate the type approval. The screws must have a minimum yield stress of 600 N/mm². This has to ensure by warning remark in the instructions.



Translation

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

(Supplement accordant with Annex III number 6)

- (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: **PrimaX IR**
- (5) Manufacturer: **Mine Safety Appliances Company, LLC**
- (6) Address: **1000 Cranberry Woods Drive, Cranberry Township, PA 16066, 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 NII.
- (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

- (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 19/04/2016

Signed: Simanski

Certification body

Signed: Kiesewetter

Special services unit

- (13) Appendix to
- (14) **5. 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

This supplement to the EC-type examination certificate concerns modification of the software.

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 (4-20 mA equivalent to 0 - 100 % LEL). The device is also equipped with a HART-interface for maintenance and parametrization.

15.3 Parameters

see EC-type examination certificate BVS 10 ATEX E 157 X and supplements 1 and 4

15.4 Measuring function for explosion protection

This supplement to the EC-type examination certificate covers:

- equipment with software version 3.6.
- measurement of methane, propane ethane, n-butane, n-pentane, n-hexane, propylene, propylene oxide, acetone, cyclopentane and ethyl acetate in the measuring range 0 - 100 % LEL, i-butane in the measuring range 0 - 70 % LEL and toluene in the measuring range 0 - 50 % LEL
- use of the following outputs for safety relevant purposes:
 - 4-20 mA output for measured values
- use of the following accessories:
 - Calibration cap, part-no. 10111874
 - HART Calibration cover, part-no. 10122228
 - Flow cap, part-no. 10113100
 - Environmental guard, part-no. 10113663
 - Insect screen, part-no. 10116419
 - Aluminium junction box kit, part-no. 10117607 (NPT) and part-no. 10117606 (M25)
 - 316 stainless steel junction box kit, part-no. 10117608 (NPT) and part-no. 10117609 (M25)
 - PrimaX IR Link Version 1.06

The EC-type examination includes the following deviations from the operating conditions required by EN 60079-29-1:

- Extended range of storage temperature: -40 °C to +80 °C
- Extended range of temperature at operation: -50 °C to +80 °C
- Extended range of humidity of the measured gas: 15 % RH to 95 % RH

- (16) Test and assessment report


PFG-no. 41300213P NII of 07/04/2016

(17) Special conditions for safe use

- See BVS 10 ATEX E 157 X and supplements 1 and 4
- See LCIE 10 ATEX 3090 X
- For the measurement of n-Pentane, n-Hexane, Propylene, Ethane or i-Butane PrimaX IR shall be calibrated with the target gas at a span value of approximately 50 % LEL.
- 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.

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
Bochum, 19/04/2016



Certification body



Special services unit

EU-Type Examination Certificate Supplement 6

Change to Directive 2014/34/EU

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 10 ATEX E 157 X**

Product: **Infrared gas monitor type PrimaX IR**

Manufacturer: **MSA - The Safety Company / Mine Safety Appliances Company, LLC**

Address: **1000 Cranberry Woods Drive, Cranberry Township, PA 16066-5296,
United States of America**

This supplementary certificate extends EC-Type Examination Certificate No. BVS 10 ATEX E 157 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

DEKRA EXAM GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. PP 11.2179 EU.


Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 + A11:2013	General requirements
EN 60079-1:2014	Flameproof enclosure "d"
EN 60079-31:2014	Protection by Enclosure "t"

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

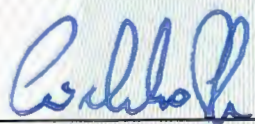
The marking of the product shall include the following:

 **II 2G Ex db IIC T4 Gb**
II 2D Ex tb IIIC T130°C Db

DEKRA EXAM GmbH
Bochum, 2017-08-03



Certifier



Approver

13 **Appendix**
 14 **EU-Type Examination Certificate**
BVS 10 ATEX E 157 X
Supplement 6

15 **Product description**

15.1 **Subject and type**

Infrared gas monitor type PrimaX IR

15.2 **Description**

With this supplement the certificate is changed to Directive 2014/34/EU.
 (Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

Reason for the supplement:

Change to Directive 2014/34/EU

The Infrared gas monitor type PrimaX IR was tested in accordance to the standards listed on page 1.

The marking and the parameters of the Infrared gas monitor type PrimaX IR has changed.

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 3/4 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	5.475	V
Rated power		2.3	W
Maximum power dissipation of each leg heater		2.5	W
Ambient temperature range		-50 °C to +80	°C

IP degrees of protection according to EN 60529 IP67

16 **Report Number**

BVS PP 11.2179 EU, as of 2017-08-03

17 **Special Conditions for 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 4/5) 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 Table 2 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 4.6.2, 4.8.2 and 4.9 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 to.

The screw heads are filled with potting to prevent self-loosening and unauthorized entry. The user may not open enclosure. Opening of the device will invalidate the type approval. The screws must have a minimum yield stress of 600 N/mm². This has to ensure by warning remark in the instructions.

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.