Translation

(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 12 ATEX E 088**

(4) Equipment: **Flame detector type UniVario FMX5000 IR Ex ***

(5) Manufacturer: **MINIMAX GmbH & Co. KG**

(6) Address: **Industriestr. 10/12, 23840 Bad Oldesloe Germany**

(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 12.2134 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 General requirements
EN 60079-11:2012 Intrinsic Safety „i“
EN 60079-26:2007 Equipment with equipment protection level (EPL) Ga
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 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:

Ex	**II 1G Ex ia IIC T4...T6 Ga**	or	**II 1G Ex ia IIC T4...T6**
	II 2G Ex ia IIC T4...T6 Gb		
	II 1D Ex ia IIIC T95°C Da	or	**II 1D Ex ia IIIC T95 °C**
	II 1D Ex ta IIIC T95°C Da	or	**II 1D Ex ta IIIC T95 °C**

DEKRA EXAM GmbH
Bochum, dated 28.09.2012

Signed: Hans-Christian Simanski
Certification body

Signed: Dr. Michael Wittler
Special services unit

DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Phone +49.234.3696-105 Fax +49.234.3696-110 zs-exam@dekra.com

(13) Appendix to

(14) **EC-Type Examination Certificate**
BVS 12 ATEX E 088

(15) 15.1 Subject and type

The Flame detector type FMX5000 IR Ex * is built in the following variations:

Type	Description	Type of protection
FMX5000 IR Ex	Standard Flame detector with aluminium enclosure	II 2G Ex ia IIC T4...T6 Gb II 1D Ex ia IIIC T95°C Da
FMX5000 IR Ex SF	Silicon free product	
FMX5000 IR Ex HR	Special enclosure coating for corrosive atmospheres	
FMX5000 IR Ex ST	Stainless steel enclosure for corrosive atmospheres	II 1G Ex ia IIC T4...T6 Ga II 1D Ex ia IIIC T95°C Da
FMX5000 IR Ex Dust	Flame detector for non-intrinsically safe applications	II 1D Ex ta IIIC T95°C Da

The communication module KMX5000 AP Ex for Apollo communication line can be used in all detector types.

15.2 Description

The flame detector type FMX5000 IR Ex * is used for the warning of flames and fires in explosion-hazard areas of zone 0 (with stainless steel enclosure), zones 1, 2, 20, 21 and 22.

The flame detector senses flames with their typical flame spectrum in optical wavelength and frequency. The electronics comprises 3 sensors with a digital signal processing. A regular self-test is carried out to monitor the detectors key functions. This includes a test of the optical channels via an integrated infrared emitter. The external connection is done by terminals. A 2-wire interface is used to supply the detectors and send an alarm indication to the fire panel; optionally a second 2-wire- interface can be used to send an interference signal to the fire panel.

Additionally the flame detector can be equipped with a communication module type KMX5000 AP Ex. The module transfers serial data of the detector's status via the supply circuitry e.g. to a superior fire-detection system.

15.3 Parameters

15.3.1 Electrical parameters
for FMX5000 IR Ex, FMX5000 IR Ex SF, FMX5000 IR Ex HR, FMX5000 IR Ex ST

Power supply circuit (UL+, UL-, Ext, Test)

Maximum input voltage	Ui	DC 28	V
Maximum input current	Ii	100	mA
Maximum input power	Pi	1,2	W
Maximum internal capacitance	Ci	360	pF
Maximum internal inductance	Li	960	nH

Fault-Line circuit (+UF, UL-)

Maximum input voltage	Ui	DC 28	V
Maximum input current	Ii	100	mA
Maximum input power	Pi	1,2	W
Maximum internal capacitance	Ci	negligible	
Maximum internal inductance	Li	720	nH

The power supply circuit and the fault line circuit are not galvanically isolated from each other.

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15.3.2 Electrical parameters for FMX5000 IR Ex Dust

Rated voltage	DC 28	V
Rated current	100	mA
Power dissipation	1,2	W

15.3.3 Ambient temperature range

Gas applications	Ta	for T4	-25°C up to +80°C
		for T5	-25°C up to +55°C
		for T6	-25°C up to +40°C
Dust applications	Ta		-25°C up to +80°C

(16) Test and assessment report

BVS PP 12.2134 EG as of 28.09.2012

(17) Special conditions for safe use

None

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, 28th September 2012
BVS-Ste/Mu A 20120344

Certification body

Special services unit

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Translation

1 EU-Type Examination Certificate Supplement 1

Change to Directive 2014/34/EU

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

3 EU-Type Examination Certificate Number: **BVS 12 ATEX E 088**

4 Product: **Flame detector type UniVario FMX5000 IR Ex ***

5 Manufacturer: **MINIMAX GmbH & Co. KG**

6 Address: **Industriestr. 10/12, 23840 Bad Oldesloe, Germany**

7 This supplementary certificate extends EC-Type Examination Certificate No. BVS 12 ATEX E 088 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.

8 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. BVS PP 12.2134 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

EN 60079-0:2012 + A11:2013	**General requirements**
EN 60079-11:2012	**Intrinsic Safety "i"**
EN 60079-26:2015	**Equipment with equipment protection level (EPL) Ga**
EN 60079-31:2014	**Protection by Enclosure "t"**

10 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.

11 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.

12 The marking of the product shall include the following:

II 1G Ex ia IIC T4...T6 Ga
II 2G Ex ia IIC T4...T6 Gb
II 1D Ex ia IIIC T_{200} 95 °C Da
II 1D Ex ia IIIC T_{200} 105 °C Da
II 1D Ex ta IIIC T_{200} 95°C Da
II 1D Ex ta IIIC T_{200} 105 °C Da

DEKRA EXAM GmbH
Bochum, 2018-11-12

Signed: Jörg Koch
Certifier

Signed: Dr Franz Eickhoff
Approver

DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,
telephone +49.234.3696-105, fax +49.234.3696-110, zs-exam@dekra.com

13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 12 ATEX E 088
Supplement 1

15 **Product description**

15.1 **Subject and type**

The flame detector type FMX5000 IR Ex * is built in the following variations:

Type	Description	Type of protection
FMX5000 IR Ex	Standard Flame Detector with aluminium enclosure	II 2G Ex ia IIC T4...T6 Gb II 1D Ex ia IIIC T_{200} 95°C Da II 1D Ex ia IIIC T_{200} 105°C Da
FMX5000 IR Ex SF	Silicon free product	
FMX5000 IR Ex HR	Special enclosure coating for corrosive atmospheres	
FMX5000 IR Ex ST	Stainless steel enclosure for corrosive atmospheres	II 1G Ex ia IIC T4...T6 Ga II 1D Ex ia IIIC T_{200} 95°C Da II 1D Ex ia IIIC T_{200} 105°C Da
FMX5000 IR Ex Dust	Flame Detector for non-intrinsically safe applications	II 1D Ex ta IIIC T_{200} 95°C Da II 1D Ex ta IIIC T_{200} 105°C Da

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 and update to the standard editions listed on page 1.

One new potting material was added. The new material fulfils the requirements of the current standards.

A temperature measurement was done to determinate the maximum surface temperature for EPL Da. The marking for dust applications has been changed. The maximum surface temperature depends on the maximum ambient temperature.

The lower temperature range was changed from -25 °C to -40 °C and the marking has been adapted. New practical tests are not necessary.

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Description of Product

The flame detector type FMX5000 IR Ex * is used for the warning of flames and fires in explosion-hazard areas of Zone 0 (with stainless steel enclosure), Zones 1, 2, 20, 21 and 22.

The flame detector senses flames with their typical flame spectrum in optical wavelength and frequency. The electronics comprises 3 sensors with a digital signal processing. A regular self-test is carried out to monitor the detectors key functions. This includes a test of the optical channels via an integrated infrared emitter. The external connection is done by terminals. A 2-wire interface is used to supply the detectors and send an alarm indication to the fire panel; optionally a second 2 wire interface can be used to send a fault indication to the fire panel.

Additionally the flame detector can be equipped with a communication module type KMX5000 AP Ex. The module transfers serial data of the detector's status via the supply circuitry e.g. to a superior fire-detection system.

15.3 Parameters

15.3.1 Electrical parameters for FMX5000 IR Ex, FMX5000 IR Ex SF, FMX5000 IR Ex HR, FMX5000 IR Ex ST

Power supply circuit (UL+, UL-, Ext, Test)

Maximum input voltage	U_i	DC	28	V
Maximum input current	I_i		100	mA
Maximum input power	P_i		1.2	W
Maximum internal capacitance	C_i		360	pF
Maximum internal inductance	L_i		960	nH

Fault-Line circuit (+UF, UL-)

Maximum input voltage	U_i	DC	28	V
Maximum input current	I_i		100	mA
Maximum input power	P_i		1.2	W
Maximum internal capacitance	C_i		negligible	
Maximum internal inductance	L_i		720	nH

The power supply circuit and the fault line circuit are not galvanically isolated from each other.

15.3.2 Electrical parameters for FMX5000 IR Ex Dust

Rated voltage	DC	28	V
Rated current		100	mA
Power dissipation		1.2	W

15.3.3 Ambient temperature range

Gas applications	T_a	for T4	-40 °C up to +80 °C
		for T5	-40 °C up to +55 °C
		for T6	-40 °C up to +40 °C
Dust applications	T_a	for T_{200} 105 °C	-40 °C up to +80 °C
		for T_{200} 95 °C	-40 °C up to +70 °C

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16 **Report Number**

BVS PP 12.2134 EU, as of 2018-11-12

17 **Special Conditions for Use**

None

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.

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, dated 2018-11-12
BVS-Bo/Mu A 20171014

i.V. _____
Certifier

_____
Approver

DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,
telephone +49.234.3696-105, fax +49.234.3696-110, zs-exam@dekra.com

Translation

1 # EU-Type Examination Certificate Supplement 2

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

3 EU-Type Examination Certificate Number: **BVS 12 ATEX E 088**

4 Product: **Flame detector type UniVario FMX5000 IR Ex ***

5 Manufacturer: **MINIMAX GmbH & Co. KG**

6 Address: **Industriestr. 10/12, 23840 Bad Oldesloe, Germany**

7 This supplementary certificate extends EU-Type Examination Certificate No. BVS 12 ATEX E 088 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.

8 DEKRA Testing and Certification 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. BVS PP 12.2134 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018	**General requirements**
EN 60079-11:2012	**Intrinsic safety "i"**
EN 60079-26:2015	**Equipment with equipment protection level (EPL) Ga**
EN 60079-31:2014	**Protection by enclosures "t"**

10 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.

11 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.

12 The marking of the product shall include the following:

II 1G Ex ia IIC T4...T6 Ga
II 2G Ex ia IIC T4...T6 Gb
II 1D Ex ia IIIC T_{200} 95°C Da
II 1D Ex ia IIIC T_{200} 105°C Da
II 1D Ex ta IIIC T_{200} 95°C Da
II 1D Ex ta IIIC T_{200} 105°C Da

DEKRA Testing and Certification GmbH
Bochum, 2021-07-01

Signed: Jörg-Timm Kilisch

Managing Director

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Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
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13 Appendix

14 **EU-Type Examination Certificate**

BVS 12 ATEX E 088
Supplement 2

15 **Product description**

15.1 **Subject and type**

Flame detector type UniVario FMX5000 IR Ex *

The flame detector type FMX5000 IR Ex * is built in the following variations:

Type	Description	Type of protection
FMX5000 IR Ex	Standard Flame Detector with aluminium enclosure	II 2G Ex ia IIC T4...T6 Gb II 1D Ex ia IIIC T_{200} 95°C Da II 1D Ex ia IIIC T_{200} 105°C Da
FMX5000 IR Ex SF	Silicon free product	
FMX5000 IR Ex HR	Special enclosure coating for corrosive atmospheres	
FMX5000 IR Ex ST	Stainless steel enclosure for corrosive atmospheres	II 1G Ex ia IIC T4...T6 Ga II 1D Ex ia IIIC T_{200} 95°C Da II 1D Ex ia IIIC T_{200} 105°C Da
FMX5000 IR Ex Dust	Flame Detector for non-intrinsically safe applications	II 1D Ex ta IIIC T_{200} 95°C Da II 1D Ex ta IIIC T_{200} 105°C Da

The communication module KMX5000 AP Ex for Apollo communication line can be used in all detector types.

15.2 **Description**

The flame detector type FMX5000 IR Ex * is used for the warning of flames and fires in explosion-hazard areas of Zone 0 (with stainless steel enclosure), Zones 1, 2, 20, 21 and 22.

The flame detector senses flames with their typical flame spectrum in optical wavelength and frequency. The electronics comprises 3 sensors with a digital signal processing. A regular self-test is carried out to monitor the detectors key functions. This includes a test of the optical channels via an integrated infrared emitter. The external connection is done by terminals. A 2-wire interface is used to supply the detectors and send an alarm indication to the fire panel; optionally a second 2-wire interface can be used to send a fault indication to the fire panel.

Additionally the flame detector can be equipped with a communication module type KMX5000 AP Ex. The module transfers serial data of the detector's status via the supply circuitry e.g. to a superior fire-detection system.
Short description of the variation to the product; otherwise: "unchanged"

Reasons for this supplement:

- Updating to the current standards
- Modification of documentation

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15.3 Parameters

Electrical parameters
for FMX5000 IR Ex, FMX5000 IR Ex SF, FMX5000 IR Ex HR, FMX5000 IR Ex ST

Power supply circuit (UL+, UL-, Ext, Test)

Maximum input voltage	U_i	DC	28	V
Maximum input current	I_i		100	mA
Maximum input power	P_i		1.2	W
Maximum internal capacitance	C_i		360	pF
Maximum internal inductance	L_i		960	nH

Fault-Line circuit (+UF, UL-)

Maximum input voltage	U_i	DC	28	V
Maximum input current	I_i		100	mA
Maximum input power	P_i		1.2	W
Maximum internal capacitance	C_i		negligible	
Maximum internal inductance	L_i		720	nH

The power supply circuit and the fault line circuit are not galvanically isolated from each other.

Electrical parameters for FMX5000 IR Ex Dust

Rated voltage	DC	28	V
Rated current		100	mA
Power dissipation		1.2	W

Ambient temperature range

Gas applications	T_a	for T4	-40 °C up to +80 °C
		for T5	-40 °C up to +55 °C
		for T6	-40 °C up to +40 °C
Dust applications	T_a	for T_{200} 105 °C	-40 °C up to +80 °C
		for T_{200} 95 °C	-40 °C up to +70 °C

16 Report Number

BVS PP 12.2134 EU, as of 2021-07-01

17 Special Conditions for Use

None

DAkkS Deutsche Akkreditierungsstelle D-ZE-17438-02-00

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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.

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 Testing and Certification GmbH
Bochum, 2021-07-01
BVS-Wlo/Mu A20210205

Managing Director

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DAkkS Deutsche Akkreditierungsstelle D-ZE-17438-02-00

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