



(1) EC-TYPE-EXAMINATION CERTIFICATE (Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**



(3) EC-type-examination Certificate Number:

PTB 03 ATEX 2021 X

- (4) Equipment: Ultrasonic flowmeter measuring system, consisting of signal converter, type UFC 030 F-EEx, primary head, type UFS 3000 F-EEx or type UFS 3000 F/XT-EEx and compact flowmeter, type UFM 3030 K-EEx
- (5) Manufacturer: Krohne Altometer
- (6) Address: Kerkeplaat 12, 3313 LC Dordrecht, The Netherlands
- (7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC 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 confidential report PTB Ex 03-22343.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 50014:1997 + A1 + A2 EN 50018:2000 EN 50019:2000 EN 50020:1994
- (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 schedule to this certificate.
- (11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the 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 2 G EEx d [ib] IIC T6 or EEx de [ib] IIC T6 or EEx ib IIC T6...T3
or EEx ib IIC T6...T2 or EEx d [ib] IIC T6...T3 or EEx de [ib] T6...T3**

Zertifizierungsstelle Explosionsschutz

Braunschweig, March 18, 2003

By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



(13)

SCHEDULE

(14)

EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

(15) Description of equipment

The ultrasonic flowmeter measuring system is used to measure, count and display the flow rate of flammable and non-flammable liquid media. The system is manufactured as remote version with separate signal converter, type UFC 030 F-EEEx and associated primary head, type UFS 3000 F-EEEx or type UFS 3000 F/XT-EEEx as well as a compact version where both units are mounted to each other. Both versions are equipped with the same electronic assembly.

The permissible range of the ambient temperature is: -40 °C up to +60 °C

For assignment of the temperature class to the maximum permissible medium temperature for the remote version, reference is made to table 1.

Table 1 **UFS 3000 F-EEEx and UFS 3000 F/XT-EEEx**

temperature class	maximum permissible medium temperature	
	primary head, type UFS 3000 F-EEEx	primary head, type UFS 3000 F/XT-EEEx
T6	80 °C	80 °C
T5	95 °C	95 °C
T4	130 °C	130 °C
T3	180 °C	195 °C
T2	-	220 °C

For assignment of the temperature class to the maximum permissible medium temperature in dependency of the ambient temperature for the compact version, reference is made to table 2.

Table 2 **UFM 3030 K-EEEx**

temperature class	maximum permissible medium temperature		
	T_{amb} = 40 °C	T_{amb} = 50 °C	T_{amb} = 60 °C
T6	80 °C	80 °C	80 °C
T5	95 °C	95 °C	95 °C
T4	130 °C	130 °C	125 °C
T3	180 °C	165 °C	125 °C

Electrical data:

Signal converter, type UFC 030 F-EEx

Supply circuit (terminals L, N, PE) 100 ... 240 V AC +10 % / -15 %, 11 VA
 $U_m = 265 \text{ V}$

Signal in/outputs (terminals \perp , A2, A1, P, I/C) 24 V DC $\pm 10 \%$ (max. 40 V DC), 0-22 mA (max. 100 mA)
 $U_m = 265 \text{ V}$

Ultrasonic sensor circuits (6 separate SMB-connectors 3.1, 2.1, 1.1, 1.2, 3.2, 2.2) type of protection Intrinsic Safety EEx ib IIC
maximum values per circuit:
 $U_o = 8.15 \text{ V}$
 $I_o = 220 \text{ mA}$
 $P_o = 448 \text{ mW}$
linear characteristic
 $L_o = 0.5 \text{ mH}$
 $C_o = 1.3 \text{ }\mu\text{F}$

All circuits are considered to be interconnected.

Primary head, type UFS 3000 F-EEx and UFS 3000 F/XT-EEx

Ultrasonic sensor circuits (6 separate SMB-connectors 3.1, 2.1, 1.1, 1.2, 3.2, 2.2) type of protection Intrinsic Safety EEx ib IIC
for connection to intrinsically safe circuits only
maximum values:

$U_i = 13.1 \text{ V}$
 $I_i = 600 \text{ mA}$
 $L_i = 134 \text{ }\mu\text{H}$
 $C_i = 13.1 \text{ nF}$

Compact-flowmeter, type UFM 3030 K-EEx

Supply circuit (terminals L, N, PE) 100 ... 240 V AC +10 % / -15 %, 11 VA
 $U_m = 265 \text{ V}$

Signal in/outputs (terminals \perp , A2, A1, P, I/C) 24 V DC $\pm 10 \%$ (max. 40 V DC), 0-22 mA (max. 100 mA)
 $U_m = 265 \text{ V}$

Ultrasonic sensor circuits (6 separate SMB-connectors) internal, type of protection Intrinsic Safety EEx ib IIC

All circuits are considered to be interconnected.

(16) Test report PTB Ex 03-22343

(17) Special conditions for safe use

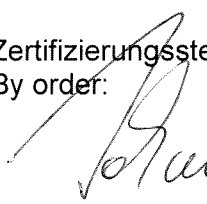
1. It must be safeguarded that the terminal for the equipotential bonding conductor is securely connected to the equipotential bonding system of the hazardous area.
2. For types UFC 030 F-EEx and UFM 3030 K-EEx a waiting time shall be obeyed between de-energizing of the flowmeter and opening of the flameproof enclosure (warning label). This waiting time depends on the temperature class as follows:

T6...20 min; T5...11 min.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:


Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



Braunschweig, March 18, 2003


1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

(Translation)

Equipment: Ultrasonic flowmeter measuring system, consisting of
signal converter, type UFC 030 F-EEx,
primary head, type UFS 3000 F-EEx or type UFS 3000 F/XT-EEx
and compact flowmeter, type UFM 3030 K-EEx

Marking:  II 2 G EEx d [ib] IIC T6 or EEx de [ib] IIC T6 or
EEx ib IIC T6...T3 or EEx ib IIC T6...T2 or
EEx d [ib] IIC T6...T3 or EEx de [ib] T6...T3

Manufacturer: Krohne Altometer

Address: Kerkeplaat 12, 3313 LC Dordrecht, The Netherlands


Description of supplements and modifications

In future the ultrasonic flowmeter measuring system may also be manufactured and operated with the modifications in accordance with the test documents listed in the test report. The modifications concern the separately certified electronic assembly, type UFC 030...-EEx, which will be used with the additional variants according to 1st supplement to PTB 02 ATEX 2205 U. Furthermore the separately certified primary head, type UFS 500 F/...-EEx bzw. UFS 500 F/HT-EEx (PTB 01 ATEX 2012 X) may be used in combination with the modified electronic assembly, both, for the remote version and the compact flowmeter.


Due to these measures the "Electrical data" as well as marking and type designation of the additional variants change as follows:

Type designation: Marking:

Signal converter

UFC 030 F/i-EEx  II 2 G EEx d [ja/ib] IIC T6 or II 2 G EEx de [ja/ib] IIC T6


Primary head

UFS 500 F/...-EEx  II 2 G EEx ib IIC T6...T3

UFS 500F/HT-EEx  II 2 G EEx ib IIC T6...T1

Compact-flowmeter

UFM 3030K/i-EEx  II 2 G EEx d [ja/ib] IIC T6...T3 or II 2 G EEx de [ja/ib] IIC T6...T3

UFM 530 K-EEx  II 2 G EEx d [ib] IIC T6...T3 or II 2 G EEx de [ib] IIC T6...T3

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1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

Electrical data:

**Signal converter
Compact-flowmeter**

**UFC 030 F-EEEx, UFC 030 F/i-EEEx
UFM 3030 K-EEEx, UFM 3030 K/i-EEEx, UFM 530 K-EEEx**

Supply circuit
(terminals L, N, PE)

100 ... 240 V AC +10 % / -15 %, 11 VA , $U_m = 265$ V
resp.
24 V AC +10 % / -15 %, 8 VA , $U_m = 265$ V
resp.
24 V DC +33 % / -25 %, 8 W , $U_m = 265$ V

Signal converter

UFC 030 F-EEEx, UFC 030 F/i-EEEx

Ultrasonic sensor circuits
(6 separate SMB-connectors
3.1, 2.1, 1.1, 1.2, 3.2, 2.2)

type of protection Intrinsic Safety EEx ib IIC
maximum values per circuit:

$U_o = 8.15$ V
 $I_o = 220$ mA
 $P_o = 448$ mW
linear characteristic
 $L_o = 0.5$ mH
 $C_o = 1.3$ μ F

Compact-flowmeter

UFM 3030 K-EEEx, UFM 3030 K/i-EEEx, UFM 530 K-EEEx

Ultrasonic sensor circuits
(6 or 4 (UFM 530 K-EEEx) separate
SMB-connectors)

internal circuits, type of protection Intrinsic Safety
EEx ib IIC

**Signal converter
Compact-flowmeter**

**UFC 030 F-EEEx
UFM 3030 K-EEEx, UFM 530 K-EEEx**

Signal in/outputs
(terminals \perp , A2, A1, P, I/C)

24 V DC ± 10 % (max.40 V DC), 0-22 mA (max. 100 mA)
 $U_m = 265$ V

All circuits shall be considered to be interconnected.

1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

Signal converter **UFC 030 F/i-EEx (MODIS-version)**
Compact-flowmeter **UFM 3030 K/i-EEx (MODIS-version)**

Signal in/outputs

Modules:

P-SA type of protection Intrinsic Safety EEx ia IIC
(terminals: I \perp , I) for connection to a certified intrinsically safe circuit only

maximum values:

$U_i = 30 \text{ V}$
 $I_i = 250 \text{ mA}$
 $P_i = 1 \text{ W}$
 $L_i = \text{negligibly low}$
 $C_i = 0.5 \text{ nF}$

FA-ST type of protection Intrinsic Safety EEx ia IIC
(terminals: B1 \perp , B1 or B2 \perp , B2) for connection to a certified intrinsically safe circuit only

maximum values:

$U_i = 30 \text{ V}$
 $I_i = 250 \text{ mA}$
 $P_i = 1 \text{ W}$
 $L_i = \text{negligibly low}$
 $C_i = 0.5 \text{ nF}$

F-PA type of protection Intrinsic Safety EEx ia IIC
(terminals: D \perp , D) for connection to a certified intrinsically safe circuit only

maximum values:

$U_i = 30 \text{ V}$
 $I_i = 380 \text{ mA}$
 $P_i = 5.32 \text{ W}$
 $L_i = \text{negligibly low}$
 $C_i = 0.5 \text{ nF}$

The intrinsically safe module circuits are safely electrically isolated from the non-intrinsically safe circuits up to a peak value of the nominal voltage of 375 V.

Physikalisch-Technische Bundesanstalt


Brunswick and Berlin

2. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

Equipment: Ultrasonic flowmeter measuring system, consisting of signal converter, type UFC 030 F-EEEx, primary head, type UFS 3000 F-EEEx or type UFS 3000 F/XT-EEEx and compact flowmeter, type UFM 3030 K-EEEx

Marking:  **II 2 G EEx d [ib] IIC T6 or EEx de [ib] IIC T6 or EEx ib IIC T6...T3 or EEx ib IIC T6...T2 or EEx d [ib] IIC T6...T3 or EEx de [ib] IIC T6...T3**

Manufacturer: Krohne Altometer

Address: Kerkeplaat 12, 3313 LC Dordrecht, The Netherlands

Description of supplements and modifications

In future the ultrasonic flowmeter measuring system may also be manufactured and operated with the modifications in accordance with the test documents listed in the test report. The modifications concern the increase of the permissible ambient temperatures, the use of a sticker as data plate, the introduction of the new apparatus variant compact flowmeter type UFM 530 C/HP/...-EEEx with primary head type UFS 500 HP-EEEx for process pressures up to 500 bar, as well as the change of the type designation for the system components UFM 3030 K-EEEx and UFM 530 K/...-EEEx. These are alternative and changed as follows:

	type designation up till now	alternative type designation
compact flowmeter	UFM 3030 K-EEEx	UFM 3030 C/...-EEEx
compact flowmeter	UFM 530 K/...-EEEx	UFM 530 C/...-EEEx

The permissible range of the ambient temperature of the primary head type UFS 3000 F-EEEx and type UFS 3000 F/XT-EEEx is now -40°C up to +70°C.

The permissible range of the ambient temperature of all standard variants and MODIS variants is now -40°C up to +65°C.

Physikalisch-Technische Bundesanstalt

Brunswick and Berlin

2. Supplement to EC-Type-Examination certificate PTB 03 ATEX 2021 X

The relationship between temperature class, maximum permissible ambient temperature and maximum permissible medium temperature is listed in the following table.

Temperature class	Maximum permissible medium temperature			
	$T_a = 40^\circ\text{C}$	$T_a = 50^\circ\text{C}$	$T_a = 60^\circ\text{C}$	$T_a = 65^\circ\text{C}$
T6	80°C	80°C	80°C	80°C
T5	95°C	95°C	95°C	95°C
T4	130°C	130°C	125°C	100°C
T3	180°C	165°C	125°C	100°C

The following instruction applies in case that a sticker is used as data plate:

Instruction for manufacturing and operation

The equipment are marked clearly readable and permanently attached according to the PTB test criteria or according to applicable standards that are comparable to the PTB test criteria.

All further data and specifications as well as "Special conditions" remain without changes.

Test report: PTB Ex 04-24214

Approval department Explosion Safety
On behalf of

Official stamp
of the PTB

Brunswick, August 25, 2004

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Physikalisch-Technische Bundesanstalt


Brunswick and Berlin

3. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

Equipment: Ultrasonic flowmeter measuring system, consisting of signal converter, type UFC 030 F-EEx, primary head, type UFS 3000 F-EEx or type UFS 3000 F/XT-EEx and compact flowmeter, type UFM 3030 K-EEx

Marking:  **II 2 G EEx d [ib] IIC T6 or EEx de [ib] IIC T6 or EEx ib IIC T6...T3 or EEx ib IIC T6...T2 or EEx d [ib] IIC T6...T3 or EEx de [ib] IIC T6...T3**

Manufacturer: Krohne Altometer


Address: Kerkeplaat 12, 3313 LC Dordrecht, The Netherlands

Description of supplements and modifications

The ultrasonic flowmeter measuring system may from now on also be manufactured and operated in accordance with the test documents listed in the test report. The modifications concern the introduction of new meter variants UFM 500F/H50-Ex and UFM 500 F/H80-Ex. These are each provided with up to 4 electrical heating elements, one at each ultrasonic transducer, to prevent the accumulation and cure of wax at the transducer, which certain measuring liquids (e.g. crude oil) contain. The electrical connections of the heating elements are established via two connection boxes (junction box 1 and 2). The intrinsically safe connection cables are run separately.

The heating elements, the connection boxes and their cable glands are separately approved in types of protection flameproof enclosure "Ex d" or increased safety "Ex e".

Furthermore does this amendment create a conversion to the actual status of valid standards of the EN 60079-ff series and therefore a change in the marking. The marking for the apparatus' variants until now says:



	II 2 G Ex d [ib] IIC T6	or	Ex de [ia/ib] IIC T6	or
	Ex ib IIC T6...T3	or	Ex ib IIC T6...T2	or
	Ex d [ib] IIC T6...T3	or	Ex de [ib] IIC T6...T3	or
	Ex d [ia/ib] IIC T6...T3	or	Ex de [ia/ib] IIC T6...T3	

Physikalisch-Technische Bundesanstalt

Brunswick and Berlin

3. Supplement to EC-Type-Examination certificate PTB 03 ATEX 2021 X

The marking as well as the maximum permissible medium temperature in dependence of the temperature class and the maximum permissible ambient temperature of the new meters' variants are listed in the following table.

Type	UFM 500 F/H50-Ex				UFM 500 F/H80-Ex			
Marking	 II 2 G Ex d [ib] IIC T4/T3 Ex de [ib] IIC T4/T3 Ex d [ia/ib] IIC T4/T3 Ex de [ia/ib] IIC T4/T3				 II 2 G Ex d [ib] IIC T3 Ex de [ib] IIC T3 Ex d [ia/ib] IIC T3 Ex de [ia/ib] IIC T3			
	Maximum permissible medium temperature in °C for T _{amb} :							
T _{amb} [°C]	40	50	60	65	40	50	60	65
Temperature class								
T4	130	130	125	100	not applicable			
T3	180	165	125	100	180	165	125	100

Electrical data: UFS 500 F/H50-Ex and UFS 500 F/H80-Ex

Heater circuits (4) Maximum values per circuit

Rated voltage	250 V
Permissible supply voltage	265 V
Rated current	1 A

All further electrical data and descriptions in the EC-type examination certificate and the 1st and 2nd amendments also apply unchanged for this 3rd amendment.

The "special requirements" are extended as follows with point 3.

Special requirements

3. The in EC-type examination certificate of the heating elements (PTB 02 ATEX 1116 X) listed "special requirements" must be followed accordingly.

Applied standards

EN 60079-0:2006

EN 60079-1:2004

EN 60079-7:2007

EN 60079-11:2007

Assessment and test report: PTB Ex 09-28174

Approval department Explosion Safety
On behalf of

Official stamp
of the PTB

Brunswick, April 23, 2009

Dr.-Ing. U. Johannsmeyer
Director and professor

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Physikalisch-Technische Bundesanstalt

Brunswick and Berlin

3. Supplement to EC-Type-Examination certificate PTB 03 ATEX 2021 X

The marking as well as the maximum permissible medium temperature in dependence of the temperature class and the permissible ambient temperature of the new variants are listed in the following table.

Type	Marking	Temperature class	Maximum temperature of process and heating medium	Permissible ambient temperature
UFS 3000 F/HJ-Ex	II 2 G Ex ib IIC T6...T3	T6 T5 T4 T3	80°C 95°C 130°C 180°C	-40°C...+70°C
UFS 3000 F/XT/HJ-Ex	II 2 G Ex ib IIC T6...T2	T6 T5 T4 T3 T2	80°C 95°C 130°C 195°C 220°C	-40°C...+70°C

All further electrical data and descriptions in the EC-type examination certificate and the 1st to 3rd amendments as well as the "special requirements" also apply unchanged for this 4th amendment.

Applied standards

EN 60079-0:2006

EN 60079-1:2004

EN 60079-7:2007

EN 60079-11:2007

Assessment and test report: PTB Ex 10-29388

Approval department Explosion Safety
On behalf of

Official stamp
of the PTB

Brunswick, Juli 30, 2010

Dr.-Ing. U. Johannsmeyer
Director and professor

Physikalisch-Technische Bundesanstalt

Brunswick and Berlin

5. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

Equipment: Ultrasonic flowmeter measuring system, consisting of signal converter, type UFC 030 F-Ex, primary head, type UFS 3000 F-Ex or type UFS 3000 F/XT-Ex and compact flowmeter, type UFM 3030 K-Ex

Marking:



II 2 G **Ex d [ib] IIC T6** or **Ex de [ia/ib] IIC T6** or
 Ex ib IIC T6...T3 or **Ex ib IIC T6...T2** or
 Ex d [ib] IIC T6...T3 or **Ex de [ib] IIC T6...T3** or
 Ex d [ia/ib] IIC T6...T3 or **Ex de [ia/ib] IIC T6...T3**

Manufacturer: Krohne Altometer

Address: Kerkeplaat 12, 3313 LC Dordrecht, The Netherlands

Description of supplements and modifications

The ultrasonic flowmeter measuring system may from now on also be manufactured and operated in accordance with the test documents listed in the test report. The modifications concern the introduction of new flowsensor variants UFS 3000 F/LT-Ex and UFS 3000 F/XXT-Ex for use at very low or high process temperatures.

The permissible process temperatures of each design of the primary head in dependence of the temperature class are listed in the table:

Type	UFS 3000 F/ LT-Ex	UFS 3000 F-Ex	UFS 3000 F/ XT-Ex	UFS 3000 F/ XXT-Ex
	Minimum process temperature			
	-200 °C	-50 °C	-50 °C	-50 °C
Temperature class	Maximum permissible process temperature			
T6	80 °C	80 °C	80 °C	80 °C
T5	95 °C	95 °C	95 °C	95 °C
T4	130 °C	130 °C	130 °C	130 °C
T3	180 °C	180 °C	195 °C	195 °C
T2	---	---	220 °C	250 °C

The permissible ambient temperature range for all variants is: -40 °C to +70 °C.

Physikalisch-Technische Bundesanstalt

Brunswick and Berlin

5. Supplement to EC-Type-Examination certificate PTB 03 ATEX 2021 X

The electrical data and all further descriptions in the EC-type examination certificate and the 1st to 4th amendments as well as the “special requirements” apply unchanged for this 5th amendment as well.

Applied standards

EN 60079-0:2006

EN 60079-1:2004

EN 60079-7:2007

EN 60079-11:2007

Assessment and test report: PTB Ex 11-21050

Approval department Explosion Safety
On behalf of

Official stamp
of the PTB

Brunswick, June 24, 2011

Dr.-Ing. U. Johannsmeyer
Director and professor

Physikalisch-Technische Bundesanstalt


Brunswick and Berlin

6. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2021 X

Equipment: Ultrasonic flowmeter system, consisting of
Signal converter type UFC 030 F/...-Ex,
Sensor head type UFS 3000 F/...-Ex
Compact flowmeter types UFM 3030 K/...-Ex and UFM 530 K/...-Ex

Marking:  **II 2 G Ex d [ib] IIC T6** resp. **Ex d e [ib] IIC T6** resp.
Ex ib IIC T6...T3 resp. **Ex ib IIC T6...T2** resp.
Ex d [ib] IIC T6...T3 resp. **Ex d e [ib] IIC T6...T3** resp.
Ex d [ia/ib] IIC T6...T3 resp. **Ex d e [ia/ib] IIC T6...T3**

Manufacturer: KROHNE Altometer

Address: Kerkeplaat 12, 3313 LC Dordrecht, The Netherlands

Description of supplements and modifications

The ultrasonic flowmeter system, consisting of signal converter type UFC 030 F/...-Ex, sensor head type UFS 3000 F/...-Ex as well as the compact flowmeter types UFM 3030 K/...-Ex and UFM 530 K/...-Ex may from now on also be manufactured and operated in accordance with the test documents listed in the test report. The modifications concern the update to the current applicable standards. No technical modifications were made.

The electrical data, the "special requirements" and all further specifications of the EC-type examination certificate as well as supplement 1 through 5 also apply unchanged for this 6th supplement.

Applied standards**EN 60079-0:2012****EN 60079-1:2007****EN 60079-7:2007****EN 60079-11:2012**Test report: PTB Ex 15-25053

Approval department Explosion Safety
On behalf of

Official stamp
of the PTB

Brunswick, May 4, 2015

Dr.-Ing. U. Johannsmeyer
Director and Professor

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