



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx PTB 11.0005X	Issue No: 6	<u>Certificate history:</u>
Status:	Current	Page 1 of 4	Issue No. 6 (2016-03-24)
Date of Issue:	2016-03-24		Issue No. 5 (2014-05-06)
Applicant:	Dräger Safety AG & Co. KGaA Revalstrasse 1 23560 Luebeck Germany		Issue No. 4 (2013-08-28)
Electrical Apparatus:	Gas detection transmitters, Series ETR/ITR/XTR 0***		Issue No. 3 (2013-06-07)
<i>Optional accessory:</i>			Issue No. 2 (2012-09-17)
Type of Protection:	Flameproof enclosure "d", Increased safety "e", Intrinsic Safety "ia", Protection by enclosure "t"		Issue No. 1 (2011-12-06)
Marking:	Ex db IIC T6/T4 Gb or Ex db e IIC T6/T4 Gb or Ex tb IIIC T80°C/T130°C Db Ex db [ia] IIC T6/T4 Gb or Ex db ia [ia] IIC T6/T4 Gb or Ex db e [ia] IIC T6/T4 Gb or Ex db e ia [ia] IIC T6/T4 Gb or Ex tb [ia] IIIC T135° Db		Issue No. 0 (2011-01-17)

Approved for issue on behalf of the IECEx
Certification Body:

Dr. Uwe Klausmeyer

Position:

Head of Department "Explosion Protection in Energy Technology"

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:



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Manufacturer: **Dräger Safety AG & Co. KGaA**
Revalstrasse 1
23560 Luebeck
Germany

Additional Manufacturing
location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2006-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[DE/PTB/ExTR11.0010/00](#) [DE/PTB/ExTR11.0010/01](#) [DE/PTB/ExTR11.0010/02](#)
[DE/PTB/ExTR11.0010/03](#) [DE/PTB/ExTR11.0010/04](#)

Quality Assessment Report:

[DE/BVS/QAR09.0003/07](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Gas detection transmitters ETR/ITR/XTR 0*** consist of three different types of sensing systems. ETR 0*** uses the electrochemical sensing principle, ITR 0*** uses the infrared sensing principle and XTR 0*** uses the catalytic sensing principle or infrared sensing principle with a catalytic sensor Interface.

For further informations, please refer to the attachment.

CONDITIONS OF CERTIFICATION: YES as shown below:

Remain valid unchanged, as of Issue 0, 1, 2, 3, 4 and 5



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Update to newest edition of standard IEC 60097-0 Ed. 6, IEC 60079-1 Ed. 7 and IEC 60079-31 Ed. 2.

Additional internal electronic PCB providing intrinsically safe Fieldbus interface with model code extension for the "4:Interface" with digit A, B, E, F, S, T, W and X.

Additional internal electronic PCB providing non-intrinsically safe Fieldbus interface with model code extension for the "4: Interface" with digit 2 and K.

Ex marking update in accordance with IEC 60079-1 Ed. 7.

Annex:

[Attachment to IECEx PTB 11.0005 X.pdf](#)



Applicant: Draeger Safety AG & Co. KGaA
Revalstrasse 1
23560 Luebeck
Germany

Electrical Apparatus: Gas detection transmitters. ETR/ITR/XTR 0***

Description of equipment:

The Gas detection transmitters ETR/ITR/XTR 0*** consist of three different types of sensing systems. ETR 0*** uses the electrochemical sensing principle, ITR 0*** uses the infrared sensing principle and XTR 0*** uses the catalytic sensing principle or infrared sensing principle with a catalytic sensor interface. The sensor frontend (EC sensing head) of the ETR 0*** series comprises a galvanically separating barrier circuit (inside the flameproof enclosure) and intrinsically safe electronics located outside the flameproof enclosure as well as an electro-chemical sensor - all of them being covered by this certificate. The sensors of the ITR 0*** and XTR 0*** series are covered by separate certifications, which are accepted under this certificate.

The internal electronic covers the intrinsically safe fieldbus under consideration of the maximum FISCO input ratings applicable for the operation as both FISCO Field device or alternatively none- intrinsically safe fieldbus PA/FF.

History of changes:

Description of changes of Issue 2:

Addition of the Gas detection transmitters types ETR 04** and ETR 05** using intrinsically safe sensing head, whose electronics is located in a plastic housing outside the flameproof enclosure and which is supplied by a galvanically isolating barrier circuit.

Description of changes of Issue 3:

Correction of the marking.

Description of changes of Issue 4:

Minor formal changes in the IECEx CoC Attachment of Issue 3. No technical or Ex-relevant changes.

Description of changes of Issue 5:

Addition of the Gas detection transmitters types ETR 02** and ETR 03** using electrochemical sensors, whose electronics is located in a housing of the type of protection flameproof enclosure and which provides intrinsic safe circuits to supply the field sensors.

The flameproof enclosure of the series *TR 0*** no longer requires an O-Ring gasket between bottom part and cover. The specified torque value is reduced from originally 30 Nm to 5 Nm. This applies to the aluminium and stainless steel variant.

The minimum depth of the blind plugs (see Drawing No. SE20882) of the enclosure series *TR 0*** changes from 15.1 mm to 13.9 mm initially.



The Nomenclature varies in removing the DrägerSensor XS variant under item “3:Sensor”. The nomenclature and rated data in the 3. ATEX Supplement covers all changes of the supplements 1 to 3.

The Gas detection transmitters of type ETR/ITR/XTR 0*** meet the requirements of the standards IEC 60079-0 Ed.6. The requirements of IEC 60079-1 Ed.6, IEC 60079-7 Ed.4, IEC 60079-11 Ed.6 and IEC 60079-31 Ed.1 remain unchanged.

Description of changes of Issue 6:

Update to newest edition of standard IEC 60097-0 Ed. 6, IEC 60079-1 Ed. 7 and IEC 60079-31 Ed. 2.

Additional internal electronic PCB providing intrinsically safe Fieldbus interface with model code extension for the “4:Interface” with digit A, B, E, F, S, T, W and X.

Additional internal electronic PCB providing non-intrinsically safe Fieldbus interface with model code extension for the “4: Interface” with digit 2 and K.

Ex marking update in accordance with IEC 60079-1 Ed. 7.

Nomenclature:

$\frac{*}{1} \text{TR} \frac{0}{2} \frac{*}{3} \frac{*}{4}$

1: Sensing principle / sensor

- E = electrochemical
- I = infrared
- X = catalytic

2: Series and enclosure material

- 2 = 02/03 series, aluminum enclosure
- 3 = 02/03 series, stainless steel enclosure
- 4 = 04/05 series, aluminum enclosure
- 5 = 04/05 series, stainless steel enclosure

3: Sensor

ITR 0 ***

3:Sensor

- 0 = IDS 0001
- 1 = IDS 0101
- 2 = IDS 0102
- 5 = IDS 0105



ETR 0 ^{***}

- 3: Sensor
0 = DrägerSensor or XS with adapter

XTR 0 ^{***}

- 3: Sensor
0 = IDS 0002
1 = XDS 020*
2 = Ex-Sensor LC NPT

4: Interface

- 0 = "d", 4-20 mA
1 = "d", 4-20 mA with Relay
2 = "d", Modbus RTU
A = "d"+"ia", Foundation Fieldbus
B = "d"+"ia", Foundation Fieldbus SIF
E = "d"+"ia", Profibus
F = "d"+"ia", Profisafe
I = "d"+"e", 4-20 mA
J = "d"+"e", 4-20 mA with Relay
K = "d"+"e", Modbus RTU
S = "d"+"e"+"ia", Foundation Fieldbus
T = "d"+"e"+"ia", Foundation Fieldbus SIF
W = "d"+"e"+"ia", Profibus
X = "d"+"e"+"ia", Profisafe

Nomenclature for Junction Box, type EAC 01 (Remote Sensor)**

EAC 01 ^{**}
1 2

- 1: Enclosure Material
0 = Aluminum
1 = Stainless Steel
2: Features not relevant for the types of protection

The relation between ambient temperature and the assigned temperature class is as follows:

Type	Ambient temperature range	Temperature class (Gas)	Maximum surface temperature (Dust)
ITR 0*0, XTR0*0*	-40 °C to +65 °C	T4	T130 °C
All other versions	-40 °C to +80 °C	T4	T130 °C
All versions	-40 °C to +40 °C	T6	T80 °C
ETR 02/03**, ETR 04/05**	-40 °C to +70 °C	T4	T135 °C
E ETR 02/03**, ETR 04/05**	-40 °C to +40 °C	T6	T135 °C



Electrical Ratings:

Maximum supply wattage: P_{max} : 5 W

Supply:

ETR 02/03** series	10...30 VDC, 0.08...0.15 A
ITR 02/03** series	10...30 VDC, 0.1...0.75 A
XTR 02/03** series	10...30 VDC, 0.1...0.2 A
ETR 04/05** series	10...30 VDC, 0.1...0.35 A
ITR 04/05** series	10...30 VDC, 0.3...1.0 A
XTR 04/05** series	10...30 VDC, 0.15...0.45 A
Relay	5A, 30 VDC or 230 VAC

Fieldbus circuit

Field device as Fieldbus system in type of protection Intrinsic Safety Ex ia IIC; FISCO in acc. of IEC 60079-11, using only for the interface type A; B; E; F; S; T; W and X

or

Field device as Fieldbus system (non-intrinsically safe) using only for interface type 2 and K

Electrical data:

Maximum values:

Model	Voltage, U_i [VDC]	Current, I_i [mA]	Power, P_i [mW]
ETR 04**	17.5	380	5320
ETR 05**			
ITR 04**			
ITR 05**			
XTR 04**			
XTR 05**			

For the Gas detection transmitters series ETR ****

Sensor circuit: in type of protection Intrinsic safety Ex ia IIC / IIIC;
only for connecting DrägerSensor or XS with adapter

Routine tests:

- Routine tests according to clause 16 of IEC 60079-1 are to be conducted.
- Dielectric tests in accordance with clause 7.1 of IEC 60079-7 are to be conducted.
- For ETR 0*** series only: Routine test for infallible Transformer according to IEC 60079-11 Ed. 6 §11.2 needs to be performed by the manufacturer with a test voltage of 1500 V for a period of at least 60 s, or alternatively the test might be carried out at 1.2 times the test voltage, but with reduced duration of at least 1 s.

Conditions of certification:

- Repair on the basis of the values in table 1 and 2 of IEC 60079-1 is not accepted. Repairs on flameproof joints may only be performed in accordance with the manufacturer's design specifications.



Additional notes for safe operation:

- Any compounds attached or installed by the end user (e.g. terminal compartments, bushings, Ex cable glands, connectors) must be of a technical standard that complies with the specifications on the cover sheet. They must be suited for the operating conditions, and be covered by a separate examination certificate, and a separate examination certificate must have been issued for them. The operating conditions set forth in the relevant component certificates must be all means be complied with.
- For relation between ambient temperature and temperature class the installer or end user has to refer to this Certificate or manufacturers Installation Instructions.
- The circuits are limited to overvoltage category I/II/III (non mains/mains circuits) as defined in IEC 60664-1 for FISCO field device operation.