



# 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](http://www.iecex.com)

Certificate No.: IECEx KEM 06.0011 Issue No: 5 Certificate history:  
Status: **Current** Page 1 of 4 Issue No. 5 (2017-02-16)  
Date of Issue: **2017-02-16** Issue No. 4 (2012-09-25)  
Applicant: **Endress + Hauser GmbH + Co. KG** Issue No. 3 (2008-04-18)  
Hauptstraße 1, Issue No. 2 (2007-11-13)  
D-79689 Maulburg Issue No. 1 (2006-06-06)  
**Germany**  
Equipment: **Pressure transmitter CERABAR-S Types PMP71, PMP75 and PMC71 and  
Deltapilot-S Type FMB70 and Differential pressure transmitter DELTABAR-  
S Types PMD75, FMD77 and FMD78**  
Optional accessory:  
Type of Protection: **Ex ia, Ex ta, tb , tc**  
Marking:  
Ex ia IIC T6 ... T2 Ga/Gb or  
Ex ia IIC T6 ... T2 Gb and/or  
Ex ia IIIC T85 °C Da  
Ex ia IIIC T85 °C Da/Db or  
Ex ta IIIC T85 °C Da / Ex tb IIIC T85 °C Db or  
Ex ta IIIC T85 °C Da / Ex tc IIIC T85 °C Dc

Approved for issue on behalf of the IECEx  
Certification Body:

R. Schuller

Position:

Certification Manager

Signature:  
(for printed version)

Date:

2017-02-16

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:

**DEKRA Certification B.V.**  
Meander 1051  
6825 MJ Arnhem  
The Netherlands





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Manufacturer: **Endress + Hauser GmbH + Co. KG**  
Hauptstraße 1,  
D-79689 Maulburg  
**Germany**

Additional Manufacturing Location(s):

**Refer to the Annex 2 to this CoC for Additional Manufacturing Locations.**

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:

|  |  |
|--|--|
| <b>IEC 60079-0 : 2011</b><br>Edition:6.0     | Explosive atmospheres - Part 0: General requirements                                 |
| <b>IEC 60079-11 : 2011</b><br>Edition:6.0    | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"        |
| <b>IEC 60079-26 : 2014-10</b><br>Edition:3.0 | Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga  |
| <b>IEC 60079-31 : 2013</b><br>Edition:2      | Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t" |

*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:

[NL/KEM/ExTR06.0005/05](#)

Quality Assessment Report:

[DE/TUN/QAR06.0003/06](#)



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

Pressure transmitters CERABAR-S Types PMP71, PMP75 and PMC71 and DELTAPILOT-S Type FMB70 and Differential pressure transmitters DELTABAR-S Types PMD75, FMD77 and FMD78 are used in potentially explosive atmospheres for the measurement of level, flow, differential pressure, over- and under pressure.

For further details, refer to Annex 1.

**CONDITIONS OF CERTIFICATION: NO**



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

- Update of the 60079-26 and 60079-31 standard
- Changed former Da/Db - Da/Dc marking
- Removal of models PMP72, PMD70, FMD76
- Addition/removal/change of the circuitry
- Addition/removal/change of the sensors

## Annex:

[219596300-KEM06.0011-iss5-Annex 1.pdf](#)

[219596300-KEM06.0011-iss5-Annex 2.pdf](#)

## Annex 1 to Certificate of Conformity IECEx KEM 06.0011, issue 5

### Description

Pressure transmitters CERABAR-S Types PMP71, PMP75 and PMC71 and DELTAPILOT-S Type FMB70 and Differential pressure transmitters DELTABAR-S Types PMD75, FMD77 and FMD78 are used in potentially explosive atmospheres for the measurement of level, flow, differential pressure, over- and under pressure.

Depending on the electronics insert the output of the Pressure or Differential Pressure Transmitter is a 4 - 20 mA current output signal with a superimposed HART digital signal, or the transmitter is connected to a Fieldbus system for the supply and the communication.

The several versions of the Pressure Transmitters differ in type of sensor, type of electronics insert, type of enclosure, process connection etc.

Optionally all versions of the Pressure and Differential Pressure Transmitters may be provided with an indicator and/or overvoltage protection.

A certified intrinsically safe device may be connected to the display interface of all versions for service purposes.

Optionally all intrinsically safe versions of the Pressure and Differential Pressure Transmitters may be provided with an extended sensor cable.

The enclosure of the apparatus provides a degree of protection of at least IP66 and IP67 in accordance with IEC 60529.

### Thermal data

Ambient temperature range -50 °C to +70 °C.

#### Transmitters of equipment protection level Ga/Gb and Gb

The relation between the temperature class, the ambient temperature and the process temperature is given in the following table:

| Temperature class | Ambient temperature | Process temperature |
|-------------------|---------------------|---------------------|
| T6                | ≤ 40 °C             | ≤ 80 °C             |
| T4                | ≤ 70 °C             | ≤ 120 °C            |
| T3                | ≤ 70 °C             | ≤ 180 °C            |
| T2                | ≤ 70 °C             | ≤ 280 °C            |

The maximum allowed process temperature for the different types of Pressure Transmitters and Differential Pressure Transmitters is listed in the relevant equipment manuals.

#### Transmitters of equipment protection level Da, Db and Dc

The maximum surface temperature of the enclosure T85 °C is based on the maximum ambient temperature of 70 °C with a dust layer up to 5 mm.

## Annex 1 to Certificate of Conformity IECEx KEM 06.0011, issue 5

### Electrical data

#### Equipment in type of protection intrinsic safety “i”

Transmitters with electronics insert 4 - 20 mA HART or 4 - 20 mA HART (SIL version)

Supply and output circuit (Terminals + and – or connector):

in type of protection intrinsic safety Ex ia IIC and Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

$U_i = 30 \text{ V}$ ;  $I_i = 300 \text{ mA}$ ;  $P_i = 1 \text{ W}$ ;  $L_i = 225 \text{ }\mu\text{H}$ ;  $C_i = 11.8 \text{ nF}$  (output options A, B and C);

$U_i = 30 \text{ V}$ ;  $I_i = 300 \text{ mA}$ ;  $P_i = 1 \text{ W}$ ;  $L_i = \text{negligible}$ ;  $C_i = 11.8 \text{ nF}$  (output options D, E and F).

Transmitters with electronics insert Profibus PA or Foundation Fieldbus

Supply and output circuit (terminals 1 and 2):

in type of protection intrinsic safety Ex ia IIC and Ex ia IIIC, only for connection to a certified intrinsically safe Fieldbus system, e.g. according to FISCO, with the following maximum values:

$U_i = 17.5 \text{ V}$ ;  $I_i = 500 \text{ mA}$ ;  $P_i = 5.5 \text{ W}$ ;  $L_i = 10 \text{ }\mu\text{H}$ ;  $C_i = 5 \text{ nF}$ ;

or

in type of protection intrinsic safety Ex ia IIC and Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with following maximum values:

$U_i = 24 \text{ V}$ ;  $I_i = 250 \text{ mA}$ ;  $P_i = 1.2 \text{ W}$ ;  $L_i = 10 \text{ }\mu\text{H}$ ;  $C_i = 5 \text{ nF}$ .

#### Equipment in type of protection dust ignition protection by enclosure “t”

Transmitters with electronics insert 4 - 20 mA HART or 4 - 20 mA HART (SIL version)

Supply and output circuit (Terminals + and – or connector):

$U \leq 45 \text{ Vdc}$

Transmitters with electronics insert Profibus PA or Foundation Fieldbus

Supply and output circuit (Terminals 1 and 2):

$U \leq 32 \text{ Vdc}$