

CERTIFICATE

(1) EC-Type Examination

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(3) EC-Type Examination Certificate Number: **KEMA 05ATEX1009** Issue Number: **3**

(4) Equipment: **Pressure transmitter CERABAR S Types PMP71, PMP72 and PMP75 and Differential pressure transmitter DELTABAR S Types PMD75, FMD77 and FMD78**

(5) Manufacturer: **Endress+Hauser GmbH+Co. KG**

(6) Address: **Hauptstraße 1, 79689 Maulburg, Germany**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., notified body number 0344 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 confidential test report number 213103500-2.

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

EN 60079-0 : 2012
EN 60079-26 : 2007

EN 60079-1 : 2007

EN 60079-11 : 2012

(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 according 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 1/2 G Ex ia IIC T6 ... T4 Ga/Gb or Ex ia IIC T6 ... T2 Ga/Gb and
II 2 G Ex d IIC T6 ... T4 Gb or Ex d IIC T6 ... T2 Gb

This certificate is issued on 15 October 2012 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

DEKRA Certification B.V.

T. Pijpker
Certification Manager

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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 05ATEX1009**

Issue No. 3

(15) **Description**

Pressure transmitter CERABAR S Type PMP71, Type PMP72 and Type PMP75 and differential pressure transmitter DELTABAR S Type PMD75, Type FMD77 and Type FMD78 are used in potentially explosive atmospheres caused by the presence of flammable gases, liquids or vapours, for measurement of level, flow, differential pressure, over- and underpressure. The pressure signal at the ceramic or metal sensor is converted into an electrical signal (4 - 20 mA analogue with superimposed HART digital signal or for connection to a fieldbus, Profibus PA or Foundation Fieldbus).

The types of pressure transmitters differ in type of sensor, type of enclosure, process connection etc.

Optionally the transmitter is provided with an indicator and/or with overvoltage protection.

The transmitters are selectable for use as equipment either in type of protection intrinsic safety or in type of protection flameproof enclosures. Once the type of protection is selected, this may not be changed.

Ambient temperature range:

-50 °C ... +70 °C (type of protection intrinsic safety);

-50 °C ... +75 °C (type of protection flameproof enclosures).

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

Process temperature	Ambient temperature		Temperature class
	Ex ia IIC	Ex d IIC	
≤ 80 °C	≤ 40 °C	≤ 75 °C	T6
≤ 90 °C	---	≤ 75 °C	T5 ¹⁾
≤ 120 °C	≤ 70 °C	≤ 75 °C	T4
≤ 180 °C	≤ 70 °C	≤ 75 °C	T3 ²⁾
≤ 280 °C	≤ 70 °C	≤ 75 °C	T2 ²⁾

Note 1: Temperature class T5 is not applicable for intrinsically safe transmitters.

Note 2: Temperature class T2 and T3 for CERABAR S Type PMP72 only.

The maximum allowed process temperature for the different types of pressure transmitters and differential pressure transmitters is to be taken from the applicable equipment manual.

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 05ATEX1009**

Issue No. 3

Electrical data

Intrinsically safe apparatus

Transmitters with electronics insert 4 - 20 mA (HART)

4 – 20 mA input circuit (terminals + and -):

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

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 11,8 \text{ nF}$; $L_i = 225 \text{ }\mu\text{H}$ (output options A, B and C)

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 11,8 \text{ nF}$; $L_i = \text{negligible}$ (output options D, E and F).

Transmitter with electronics insert Profibus PA or Foundation Fieldbus

Fieldbus input circuit (terminals 1 and 2):

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

$U_i = 17,5 \text{ V}$; $I_i = 500 \text{ mA}$; $P_i = 5,5 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 10 \text{ }\mu\text{H}$

or

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

$U_i = 24 \text{ V}$; $I_i = 250 \text{ mA}$; $P_i = 1,2 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 10 \text{ }\mu\text{H}$.

Non-intrinsically safe apparatus

Transmitters with electronics insert 4 - 20 mA (HART)

Supply and output circuit (Terminals + and – or connector): $U \leq 45 \text{ Vdc}$.

Transmitter with electronics insert Profibus PA or Foundation Fieldbus

Supply and output circuit (Terminals 1 and 2): $U \leq 32 \text{ Vdc}$.

Installation instructions

The instructions provided with the equipment shall be followed in detail to assure safe operation of the equipment.

(16) **Test Report**

No. 213103500-2.

(17) **Special conditions for safe use**

None.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 21303500-2.