

CERTIFICATE

(1) EU-Type Examination

(2) **Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **KEMA 09ATEX0048** Issue Number: **5**

(4) Product: **Differential Pressure Transmitters DELTABAR M Model PMD55 and Pressure Transmitters CERABAR M Model PMC51, Model PMP51 and Model PMP55 and DELTAPILOT M Model FMB50, Model FMB51, Model FMB52 and Model FMB53**

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

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

(7) This product 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 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 confidential test report number NL/KEM/ExTR09.0017/04.

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

EN 60079-0 : 2012 + A11 :2013 EN 60079-11 : 2012 EN 60079-26 : 2015 EN 60079-31 : 2014

except in respect of those requirements listed at item 18 of the Schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule 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 1/2 G Ex ia IIC T6 ... T3 Ga/Gb or
II 2 G Ex ia IIC T6 ... T3 Gb and/or
II 1/2 D Ex ia IIIC T75 °C Da/Db or
Ex ta/tb IIIC T75 °C Da/Db

Date of certification: 16 February 2017

DEKRA Certification B.V.

R. Schuller
Certification Manager



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(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 09ATEX0048**

Issue No. 5

(15) **Description**

Differential Pressure Transmitters DELTABAR M Model PMD55 and Pressure transmitters CERABAR M Models PMC51, PMP51 and PMP55 and DELTAPILOT M Models FMB50, FMB51, FMB52 and FMB53 are used in potentially explosive atmospheres caused by the presence of flammable gases, liquids, vapours or dusts for the measurement of level, flow, differential pressure, over- and under pressure.

The pressure signal at the ceramic or metal sensor is converted into an electrical signal.

The output of the Pressure or Differential Pressure Transmitter is a 4 - 20 mA current output signal with or without a superimposed HART digital signal, or the transmitter is intended to be connected to a fieldbus system (Profibus PA or Foundation Fieldbus).

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

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

Optionally, the display connector can be used for temporary connection of a service tool (e.g. Endress+Hauser Commubox type FXA191 or type FXA195).

Optionally the Pressure Transmitters that are intended for application in explosive gas atmospheres, may be provided with a sensor with extension cable.

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

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

temperature class	ambient temperature	process temperature				
		FMB50	FMB51	FMB52, FMB53	PMD55	PMP55 ¹⁾ , PMC51, PMP51
T6	≤ 40 °C	≤ 80 °C	≤ 80 °C	≤ 80 °C	≤ 80 °C	≤ 80 °C
T4	≤ 70 °C	≤ 100 °C	≤ 85 °C	≤ 80 °C	≤ 120 °C	≤ 125 °C ²⁾
T3	≤ 70 °C					≤ 150 °C

NOTE 1: Depending on the diaphragm seal used in model PMP55, a higher process temperature is permitted. For details, refer to the relevant equipment manual.

NOTE 2: Process temperature for Models PMC51 and PMP51 with hygienic process connection ≤ 130 °C.

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Issue No. 5

Electrical data

Transmitters in type of protection intrinsic safety Ex ia

Interface 4 - 20 mA (with or without HART communication):

Supply and output circuit (terminals + and - or connector):

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

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $L_i = 0 \text{ mH}$; $C_i = 10 \text{ nF}$.

Interface Profibus PA or Foundation Fieldbus:

Supply and data circuit (terminals + and - or connector):

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

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

or to an intrinsically safe fieldbus in accordance with FISCO, with the following maximum values:

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

Display connector:

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

$U_o = 8,6 \text{ V}$; $I_o = 39 \text{ mA}$; $P_o = 124 \text{ mW}$ and

$U_i = 8,5 \text{ V}$; $I_i = 7 \text{ mA}$; $P_i = 10 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_o = 0 \text{ mH}$.

Transmitters in type of protection Ex t

$U_{\text{max}} = 45 \text{ V}$ (interface 4 - 20 mA), respectively 32 V (fieldbus interface).

Installation instructions

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

(16) **Report Number**

No. NL/KEM/ExTR09.0017/04.

(17) **Specific conditions of use**

None.

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

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/KEM/ExTR09.0017/04.

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Issue No. **5**

(20) **Certificate history**

Issue 1 - 212327600	initial certificate
Issue 2 - 213104100	addition of models
Issue 3 - 214052900	addition of high temperature and hygienic/T3 models
Issue 4 - 215876900	constructional changes and standards upgrade
Issue 5 - 219596300	constructional changes and standards upgrade