

UK Type Examination Certificate CML 22UKEX2610X Issue 0**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Microwave units Micropilot FMR6xB**
- 3 Manufacturer **Endress+Hauser SE+Co. KG**
- 4 Address **Hauptstraße 1,
79689 Maulburg,
Germany**

- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.

- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018

EN 60079-1:2014

EN 60079-7:2015

EN IEC 60079-7:2015+A1:2018

EN 60079-11:2012

EN 60079-26:2015

EN 60079-31:2014

- 10 The equipment shall be marked with the following:

See marking in Section 11





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11 Description

The microwave units Micropilot, type series FMR6xB are used for the contactless, continuous level measurement of liquid and solid media in explosion hazardous areas with gas or dust atmosphere. The Micropilot is a “down-looking” measuring system that works according to the principle of the modulated continuous wave radar (Frequency Modulated Continuous Wave, FMCW). The antenna shines an electromagnetic wave with continuously changing frequency. This wave is reflected by the product and received again by the antenna.

The measured variable is the distance between the reference point R and the product surface. The product can be a liquid or a solid product.

The electronic transforms this into an electrical signal which is evaluated and put out as analogue (e.g., 4..20mA) measurement values.

Classification of installation and use:

stationary

Ingress protection:

IP66 / IP67 / IP68

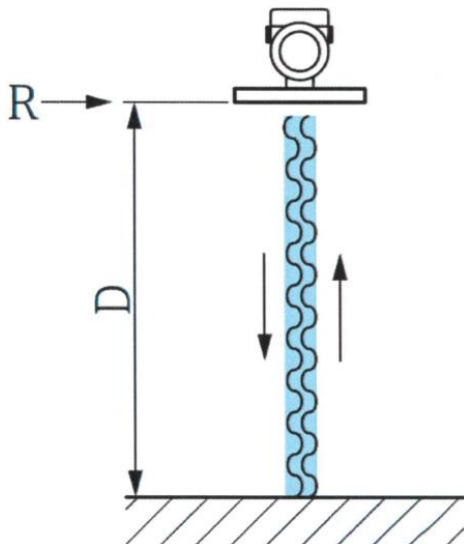
Rated ambient temperature range (°C):

Refer to Temperature classification
at general product information

Rated ambient temperature range (°C) for Ex Components:

N/A

Measurement principle for Level:





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Rating:

Type of protection ia:

For MA10 - 4..20 mA (HART):

$U_i \leq 30 \text{ V DC}$, $I_i \leq 300\text{mA}$, $P_i \leq 1 \text{ W}$, $C_i \leq 10\text{nF}$, $L_i = 0$

For MA11 - Profibus PA, Foundation Fieldbus:

FISCO: $U_i \leq 17,5 \text{ V DC}$, $I_i \leq 380\text{mA}$, $P_i \leq 5,32 \text{ W}$, $C_i \leq 5\text{nF}$, $L_i = 0$

Entity: $U_i \leq 24 \text{ V DC}$, $I_i \leq 300\text{mA}$, $P_i \leq 1,2 \text{ W}$, $C_i \leq 5\text{nF}$, $L_i = 0$

For MA12 - PROFINET APL:

2-WISE: $U_i \leq 17,5 \text{ V DC}$, $I_i \leq 380\text{mA}$, $P_i \leq 5,32 \text{ W}$, $C_i \leq 5\text{nF}$, $L_i = 0$

Entity: $U_i \leq 17,5 \text{ V DC}$, $I_i \leq 300\text{mA}$, $P_i \leq 1,2 \text{ W}$, $C_i \leq 5\text{nF}$, $L_i = 0$

Type of protection db or ec or ta or tb or tc:

For MA10: 4..20 mA (HART):

$U \leq 35 \text{ V DC}$, $P \leq 1 \text{ W}$

For MA11 - Profibus PA, Foundation Fieldbus:

$U \leq 32 \text{ V DC}$, $P \leq 0.7 \text{ W}$



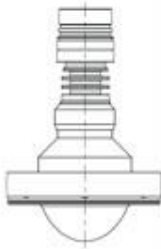
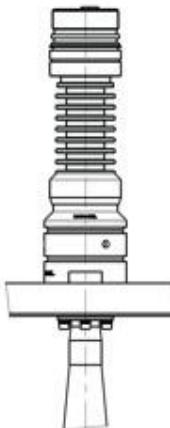
For MA12: Profisafe APL:

$U \leq 15 \text{ V DC}$, $P \leq 0.7 \text{ W}$



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Temperature classification:

Type 1 Compact dust/gas	Type 2 Standard	Type 3 Standard	Type 4 XT/HT
T_{p_max}			
80°C /130°C	150°C	200°C	280°C/450°C
			

Ex ia IIC T6...T1:					
		Type 1	Type 2	Type 3	Type 4
T-Class	$T_{p_range}^{1)}$ [°C]	T_{amb_range} [°C]			
T6	-40...80	-50...46			
T5	-40...95	-50...61			
T4-T1	-40...130	-50...65			
T3	-40...150	-	-50...65		
	-40...195	-	-	-50...65	
T2-T1	-40...200	-	-	-50...65	
	-40...280	-	-		
T1	-40...440	-	-	-	-50...65
1) Possible down to -196°C					
Ex db IIC T6...T1:					
		Type 1	Type 2	Type 3	Type 4
T-Class	$T_{p_range}^{1)}$ [°C]	T_{amb_range} [°C]			
T6	-40...80	-	-60...74		
T5	-40...95	-	-60...79		
T4-T1	-40...130	-	-60...79		
T3	-40...150	-	-60...79		
	-40...195	-	-	-60...79	
T2-T1	-40...200	-	-	-60...79	
	-40...280	-	-		
T1	-40...440	-	-	-	-60...77



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Ex ec IIC T6...T1:					
		Type 1	Type 2	Type 3	Type 4
T-Class	T _{p_range} ¹⁾ [°C]	T _{amb_range} [°C]			
T6-T1	-40...80	-20...74	-20...74		
T5	-40...95	-	-40...79		
T4-T1	-40...130	-	-40...79		
T3-T1	-40...150	-	-40...79		
	-40...195	-	-	-40...79	
T2-T1	-40...200	-	-	-40...79	
	-40...280	-	-		
T1	-40...440	-	-	-	-40...77

Ex ta/tb IIIC Txxx°C:					
		Type 1	Type 2	Type 3	Type 4
	T _{p_range} ¹⁾ [°C]	T _{amb_range} [°C]			
Ex ta/tb IIIC T _L 80°C Da/Db	-20...80	-20...65	-40...65	-	-
Ex ta/tb IIIC T _L 100°C Da/Db	-40...100	-	-40...60	-40...65	-
Ex ta/tb IIIC T _L 130°C Da/Db	-40...130	-	-40...55	-	-
Ex ta/tb IIIC T _L 150°C Da/Db	-40...150	-	-40...50	-40...60	-40...70
Ex ta/tb IIIC T _L 200°C Da/Db	-40...200	-	-	-40...55	-40...65
Ex ta/tb IIIC T _L 280°C Da/Db	-40...280	-	-	-	-40...55
Ex ta/tb IIIC T _L 200°C Da/Db	-40...450	-	-	-	-40...30



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Ex ia IIIC Txxx°C:					
	T _{p_range} ¹⁾ [°C]	Type 1	Type 2	Type 3	Type 4
		T _{amb_range} [°C]			
Ex ia IIIC T _L 80°C Da/Db	-20...80	-20...55	-40...60	-	-
Ex ia IIIC T _L 100°C Da/Db	-40...100	-	-40...55	-40...60	-
Ex ia IIIC T _L 130°C Da/Db	-40...130	-	-40...50	-	-
Ex ia IIIC T _L 150°C Da/Db	-40...150	-	-40...45	-40...55	-40...65
Ex ia IIIC T _L 200°C Da/Db	-40...200	-	-	-40...50	-40...60
Ex ia IIIC T _L 280°C Da/Db	-40...280	-	-	-	-40...50
Ex ia IIIC T _L 200°C Da/Db	-40...450	-	-	-	-40...30

1) Details for Deratings see relevant Safety Instruction for each explosion protection

Marking

The following marking strings are possible for all types and in combination with each other.



II 2 G Ex db IIC T6...T1 Gb
 II 1/2 G Ex db IIC T6...T1 Ga/Gb
 II 1 G Ex ia IIC T6...T1 Ga
 II 2 G Ex ia IIC T6...T1 Gb
 II 1/2 G Ex ia IIC T6...T1 Ga/Gb
 II 2 D Ex ia IIIC Txxx °C Db
 II 1/2 D Ex ia IIIC Txxx °C Da/Db
 II 2 D Ex tb IIIC Txxx °C Db
 II 1/2 D Ex ta/tb IIIC Txxx °C Da/Db

For types with MA11 module and FISCO the following text is added to the marking:
FISCO field device

For types with MA12 module and 2-WISE the following text is added to the marking:
2-WISE
2-WISE power load



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12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	20 Dec 2022	R15858A/00	Issue of the prime certificate.

Note: Drawings that describe the equipment are listed in the Annex.

13 Conditions of Manufacture

None

14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- i. For EPL Ga enclosures made of aluminium must be installed protected from impact and friction.
- ii. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.

Certificate Annex

Certificate Number CML 22UKEX2610X
Equipment Microwave units Micropilot FMR6xB
Manufacturer Endress+Hauser SE+Co. KG



The following documents describe the equipment defined in this certificate:

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Drawing No	Sheets	Rev	Approved date	Title
961006681	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UA
961006682	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UB
961006683	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UC
961006684	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UG
961006685	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UH
961006686	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UK
961006688	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UN
961006689	1 to 2	A	20 Dec 2022	Nameplate UKEx Micropilot FMR6xB-UO