

# 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: **DEKRA 18ATEX0103 X** Issue Number: **1**

(4) Product: **Temperature assemblies, Type TM111 and Type TM131**

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

(6) Address: **Obere Wank 1, 87484 Nesselwang, 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/DEK/ExTR18.0060/01.

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

**EN 60079-0 : 2012 + A11**  
**EN 60079-26 : 2015**

**EN 60079-1 : 2014**  
**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 2 G Ex db IIC T6...T1 Gb**  
**II 2 D Ex tb IIIC T85 °C...T450 °C Db**  
**II 1/2 G Ex db IIC T6...T1 Ga/Gb**  
**II 1/2 D Ex ta/tb IIIC T85 °C...T450 °C Da/Db** See Annex 1 for details

Date of certification: 1 December 2022

DEKRA Certification B.V.

R. Schuller  
Certification Manager



(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate DEKRA 18ATEX0103 X**

Issue No. 1

(15) **Description**

The temperature assemblies, type TM111 and TM131 consist of a flameproof and/or dust ignition protected enclosure containing terminals, flying leads or a transmitter and a directly connected temperature sensor.

Type TM111 is optionally provided with a thermowell and connection fittings between the enclosure and the thermowell.

Type TM131 is provided with a thermowell and optionally provided with connection fittings between the enclosure and the thermowell.

At type TM131 the thermowell provides the separation between the areas requiring EPL Ga and Gb and between the areas requiring EPL Da and Db.

The enclosure is flameproof and dust ignition protected connection head type TA30H; dust ignition protected connection head type TA30A or TA30D; or the flameproof and dust ignition protected enclosure of Field Transmitter type iTEMP TMT142 or type iTEMP TMT162 and can be provided with a blind or a windowed cover.

The connection heads may be provided with terminals or a head transmitter.

The Field transmitters consist of an enclosure with a transmitter.

The connection heads, Types TA30x are separately certified by KEMA 08ATEX0145 U.

The optional RBFF1NS union is separately certified by CESI 99 ATEX 034 U.

For details about the type designation, thermal data, electrical data and marking see Annex 1 to Report No. NL/DEK18.0060/01.

**Installation instructions**

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

(16) **Report Number**

NL/DEK/ExTR18.0060/01.

(17) **Specific conditions of use**

- The flameproof joints are not intended to be repaired.
- TM111 temperature sensors with a diameter smaller than 6 mm shall be protected by a thermowell.
- TM111 temperature sensors with suffix code f = D, E or F shall be protected by a thermowell.
- TM131 temperature sensors shall always be protected by a thermowell.
- It shall be verified, taking into account the worst case process and ambient temperatures,
  - o that the temperature of the enclosure at the process connection point does not exceed the ambient temperature range of the assembly
  - o that the temperature of the optionally used RBFF1NS union does not exceed the service temperature range as listed in Annex 1.

(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate DEKRA 18ATEX0103 X**

Issue No. 1

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

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR18.0060/01.

(20) **Certificate history**

Issue 0 - 222531500	initial certificate
Issue 1 - 224795600	Introduction of alternative transmitters. Including the dual chamber field housing without display in the nomenclature for TM131.

## Type designation

Type Suffix Code

TM111-abcdefghijklmnpqrstuv

Designation	Explanation	Value	Explanation
a	Approval	8F	ATEX IECEx II2D Ex tb IIIC Db
		86	ATEX IECEx II2G Ex db IIC Gb II2D Ex tb IIIC Db
b	Insert Diameter	A	3 mm
		C	6 mm
c	Process Connection; Material	n.s. *1	Not relevant for Explosion Safety
d	Immersion Length "U"	n.s. *1	Not relevant for Explosion Safety
e	Lagging Length "T"	n.s. *1	Not relevant for Explosion Safety
f	Sensor Type; Measuring Range; Material	A	1xPt100 TF; -50...+400 °C; 316L
		B	1xPt100 WW; -200...+600 °C; 316L
		C	2xPt100 WW; -200...+600 °C; 316L
		D	1xPt100 TF StrongSens; -50...+500 °C; 316L
		E	1xPt100 TF QuickSens; -50...+200 °C; 316L
		F	1xPt100 TF QuickSens; -50...+400 °C; 316L
		L	1xTC type J; max. 800 °C; 316L
		M	2xTC type J; max. 800 °C; 316L
		N	1xTC type K; max. 1100 °C; Alloy600
		O	2xTC type K; max. 1100 °C; Alloy600
g	Sensor Standard; Classification	n.s. *1	Not relevant for Explosion Safety
h	Electrical Connection	0A	Flying leads
		1A	Terminal block (only with terminal head A1, D1, H1 H3)
		2A	4-20mA, 1-channel TMT180 PCP 0.2K, head transmitter DIN B
		2B	4-20mA, 1-channel TMT180 PCP 0.1K, head transmitter DIN B
		2C	4-20mA, 1-channel TMT71, head transmitter DIN B
		2H	4-20 mA, 1-channel TMT31, PCP 0.15 K, head transmitter DIN B
		2I	4-20 mA, 1-channel TMT31, PCP 0.1 K, head transmitter DIN B
		3A	HART, 1-channel TMT72, head transmitter DIN B
		3C	HART, 2-channel TMT82, head transmitter DIN B
		3D	HART, 2-channel TMT82, SIL head transmitter DIN B
		4A	FOUNDATION Fieldbus, 2-channel TMT85, head transmitter DIN B
		5A	PROFIBUS PA, 2-channel TMT84, head transmitter DIN B
		6B	PROFINET w. Ethernet-APL/SPE, TMT86, head transmitter DIN B
		6C	PROFINET w. Ethernet-APL/SPE, TMT86 SIL, conformity + PROFIsafe, head transmitter DIN B

Designation	Explanation	Value	Explanation
i	Terminal Head; Material; Protect. Class:	A1 *2	TA30A comfort flip cover; Alu; IP66/68
		A2 *2	TA30A + display, comfort flip cover; Alu; IP66/68
		D1 *2	TA30D comfort, high flip cover; Alu; IP66/68
		H1	TA30H Ex d/XP; 316L; IP66/68
		H2	TA30H Ex d/XP + display; 316L; IP66/68
		H3	TA30H Ex d/XP; Alu; IP66/68
		H4	TA30H Ex d/XP + display; Alu; IP66/68
j	Cable entry Terminal head	A	1x thread M20x1.5
		B	1x thread NPT1/2
		C	1x thread G1/2 (only for Ex tb)
		D	2x thread M20x1.5
		E	2x thread NPT1/2
k	Device Version:	n.s. *1	Not relevant for Explosion Safety
l	Second Transmitter (mounted):		Not allowed
m	Service:	n.s. *1	Not relevant for Explosion Safety
n	Test, Certificate, Declaration:	n.s. *1	Not relevant for Explosion Safety
o	Additional Approval:	n.s. *1	Not relevant for Explosion Safety
p	Additional Option:	n.s. *1	Not relevant for Explosion Safety
q	Accessory Mounted:	n.s. *1	Not relevant for Explosion Safety
r	Calibration Thermometer:	n.s. *1	Not relevant for Explosion Safety
s	Calibration Points $\geq 0$ °C:	n.s. *1	Not relevant for Explosion Safety
t	Calibration-Points $\leq 0$ °C:	n.s. *1	Not relevant for Explosion Safety
u	Firmware Version:	n.s. *1	Not relevant for Explosion Safety
v	Marking:	n.s. *1	Not relevant for Explosion Safety

\*1 n.s. means the value is neither related to Explosion Safety nor in the scope.

\*2 only possible when designation a = 8F

Type Suffix Code  
 TM131-abcdefghijklmnopqrstuvwxy

Designation	Explanation	Value	Explanation
a	Approval:	8F	ATEX IECEx II1/2D Ex ta/tb IIIC Da/Db
		86	ATEX IECEx II1/2G Ex db IIC Ga/Gb, II1/2D Ex ta/tb IIIC Da/Db
b	Thermowell	A	Thermometer to be assembled into existing thermowell
		B	Thermometer with thermowell, continuous, similar to DIN43772 Form 2, 3 G/F
		C	Thermometer with thermowell, hexagonal, similar to DIN43772 Form 5, 8
		D	Thermometer with thermowell, w/o lagging, similar to DIN43772 Form 2, 3
c	Thermometer Design:	A	W/o neck, DIN43772 form 2
		D	Removable neck D11mm acc. to DIN43772
		E	Removable neck D12mm acc. to DIN43772
		F	Removable neck D12mm M20 connection similar to DIN43772
		L	Nipple connection NPT1/2
		M	Nipple-union connection NPT1/2
		N	Nipple-union-nipple connection NPT1/2
d	Process Connection; Material:	n.s. *1	Not relevant for Explosion Safety
e	Thermowell Diameter, Material:	A1	W/o, insert D3mm, to be assembled into existing thermowell
		A2	W/o, insert D6mm, to be assembled into existing thermowell
		B1	9x1.25 mm, 316L
		B2	11x2 mm, 316L
		B3	14x2 mm, 316L
		B4	16x3.5 mm, 316L
		C1	9x1.25 mm, 316Ti
		C2	11x2 mm, 316Ti
		C3	14x2 mm, 316Ti
		C4	12x2.5 mm, 316Ti BASF
		D1	9x1.25 mm, AlloyC276
		D2	11x2 mm, AlloyC276
		E1	9x1.25 mm, Alloy600
		E2	11x2 mm, Alloy600
		F1	1/4"sch.80, 316
		F2	1/2"sch.80, 316
		G1	1/2"sch.40, 446
		H1	12x2.5 mm, 321
I1	11 mm 316Ti + 12mm Tantal		
I2	12x2.5 mm 316Ti + 13mm Tantal		
f	Tip Shape:	A	Not needed (without thermowell)
		B	Straight (DIN 43772 form 2/2G/2F)
		C	Reduced, L>=50 mm
		D	Reduced, L>=70 mm
		E	Tapered, L>=90 mm

Designation	Explanation	Value	Explanation
		F	Tapered, L $\geq$ 115 mm (DIN 43772 Form 3G/3F)
		G	Tapered for usage with Tantal-sleeve
g	Immersion Length U:	n.s. *1	Not relevant for Explosion Safety
h	Removable Neck Length E:	n.s. *1	Not relevant for Explosion Safety
i	Lagging Length T:	n.s. *1	Not relevant for Explosion Safety
j	Sensor Type; Measuring Range; Material:	A	1xPt100 TF; -50...+400 °C; 316L
		B	1xPt100 WW; -200...+600 °C; 316L
		C	2xPt100 WW; -200...+600 °C; 316L
		D	1xPt100 TF StrongSens; -50...+500 °C; 316L
		E	1xPt100 TF QuickSens; -50...+200 °C; 316L
		F	1xPt100 TF QuickSens; -50...+400 °C; 316L
		L	1xTC type J; max. 800 °C; 316L
		M	2xTC type J; max. 800 °C; 316L
		N	1xTC type K; max. 1100 °C; Alloy600
		O	2xTC type K; max. 1100 °C; Alloy600
		P	1xTC type N; max. 1100 °C; Pyrosil
		Q	2xTC type N; max. 1100 °C; Pyrosil
k	Sensor Standard; Classification:	n.s. *1	Not relevant for Explosion Safety
l	Electrical Connection:	0A	Flying leads
		1A	Terminal block (only with terminal head A1, D1, H1 H3)
		2A	4-20 mA, 1-channel TMT180 PCP 0.2K, head transmitter DIN B
		2B	4-20 mA, 1-channel TMT180 PCP 0.1K, head transmitter DIN B
		2C	4-20 mA, 1-channel TMT71, head transmitter DIN B
		2D *3	4-20 mA HART, TMT162
		2E *3	4-20mA HART, TMT162 SIL
		2F *3	4-20mA HART, 2-channel TMT162
		2G *3	4-20mA HART, 2-channel TMT162 SIL
		2H	4-20mA, 1-channel TMT31, PCP 0.15 K, head transmitter DIN B
		2I	4-20mA, 1-channel TMT31, PCP 0.1 K, head transmitter DIN B
		3A	HART, 1-channel TMT72, head transmitter DIN B
		3C	HART, 2-channel TMT82, head transmitter DIN B
		3D	HART, 2-channel TMT82, SIL head transmitter DIN B
		3F	HART, 2-channel TMT82 SIL2/3 OIML, head transmitter DIN B
		4A	FOUNDATION Fieldbus, 2-channel TMT85, head transmitter DIN B
		4B *3	FOUNDATION Fieldbus, TMT162
		4C *3	FOUNDATION Fieldbus, 2-channel TMT162
		5A	PROFIBUS PA, 2-channel TMT84, head transmitter DIN B
		5B *3	PROFIBUS PA, TMT162
		5C *3	PROFIBUS PA, 2-channel TMT162
6B	PROFINET w. Ethernet-APL/SPE, TMT86, head transmitter DIN B		

Designation	Explanation	Value	Explanation
		6C	PROFINET w. Ethernet-APL/SPE, TMT86 SIL, conformity + PROFIsafe, head transmitter DIN B
		7A *4	HART, 1-channel TMT142
m	Terminal Head; Material; Protect. Class:	A1 *2	TA30A comfort flip cover; Alu; IP66/68
		A2 *2	TA30A + display, comfort flip cover; Alu; IP66/68
		D1 *2	TA30D comfort, high flip cover; Alu; IP66/68
		F1 *3	Dual chamber field housing; Alu; IP67 NEMA 4X, backlit display
		F2 *3	Dual chamber field housing; 316L; IP67 NEMA 4X, backlit display
		F3 *4	Single chamber field housing; Alu; IP67 NEMA 4X, backlit display
		F4 *4	Single chamber field housing; 316L; IP67 NEMA 4X, backlit display
		F5 *4	Single chamber field housing; Alu; IP67 NEMA 4X, w/o display
		F6 *4	Single chamber field housing; 316L; IP67 NEMA 4X, w/o display
		F7 *3	Dual chamber field housing; Alu; IP67 NEMA 4X, w/o display
		F8 *3	Dual chamber field housing; 316L; IP67 NEMA 4X, w/o display
		H1	TA30H Ex d/XP; 316L; IP66/68
		H2	TA30H Ex d/XP + display; 316L; IP66/68
		H3	TA30H Ex d/XP; Alu; IP66/68
		H4	TA30H Ex d/XP + display; Alu; IP66/68
		H5	TA30H field housing, display frontal; Alu; IP66/68
		H6	TA30H field housing, display frontal; 316; IP66/68
n	Cable entry Terminal head	A	1x thread M20x1.5
		B	1x thread NPT1/2
		C	1x thread G1/2 (only for Ex tb)
		D	2x thread M20x1.5
		E	2x thread NPT1/2
o	Device Version:	n.s. *1	Not relevant for Explosion Safety
p	Second Transmitter (mounted):		Not allowed
q	Service:	n.s. *1	Not relevant for Explosion Safety
r	Test, Certificate, Declaration:	n.s. *1	Not relevant for Explosion Safety
s	Additional Approval:	n.s. *1	Not relevant for Explosion Safety
t	Additional Option:	n.s. *1	Not relevant for Explosion Safety
u	Accessory Mounted:	n.s. *1	Not relevant for Explosion Safety
v	Calibration Thermometer:	n.s. *1	Not relevant for Explosion Safety
w	Calibration Points $\geq 0$ °C:	n.s. *1	Not relevant for Explosion Safety
x	Calibration-Points $\leq 0$ °C:	n.s. *1	Not relevant for Explosion Safety
y	Firmware Version:	n.s. *1	Not relevant for Explosion Safety
z	Marking:	n.s. *1	Not relevant for Explosion Safety

\*1 n.s. means the value is neither related to Explosion Safety nor in the scope.

\*2 only possible when designation a = 8F

\*3 part of field temperature transmitter TMT162

\*4 part of field temperature transmitter TMT142



### Thermal data

The relation between the type, electrical connection, temperature class, maximum surface temperature, ambient temperature range and process temperature range is shown in the following table.

Electrical connection*1	Temperature class	Maximum surface temperature	Ambient temperature range	Process temperature range	
				Insert diameter	
				3 mm, 6 mm dual	6 mm
Type TM111 and Type TM131					
Terminal block*2: 1A	T6	T85 °C	-50 °C to +70 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-50 °C to +80 °C	-50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-50 °C to +120 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-50 °C to +120 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-50 °C to +120 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-50 °C to +120 °C	-50 °C to +415 °C	-50 °C to +428 °C
Flying leads: 0A Transmitter TMT31: 2H, 2I TMT71: 2C TMT72: 3A TMT82: 3C, 3D, 3F TMT84: 5A TMT85: 4A TMT86: 6B, 6C TMT180: 2A, 2B	T6	T85 °C	-40 °C to +65 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-40 °C to +80 °C	-50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-40 °C to +85 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-40 °C to +85 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-40 °C to +85 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-40 °C to +85 °C	-50 °C to +415 °C	-50 °C to +428 °C
Type TM131					
Transmitter TMT142: 7A TMT162: 2D, 2E, 2F, 2G, 4B, 4C, 5B, 5C	T6	T85 °C	-40 °C to +55 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-40 °C to +70 °C	-50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-40 °C to +80 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-40 °C to +80 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-40 °C to +80 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-40 °C to +80 °C	-50 °C to +415 °C	-50 °C to +428 °C

\*1: TM111 suffix code h, TM131 suffix code l.

\*2: In an enclosure with a blind cover: TM111 suffix code i / TM131 suffix code m = A1, D1, H1 or H3.

Cortem RBFF1NS union:

material	Service temperature range
Stainless steel	-50 °C to +150 °C

**Electrical data**

Power supply transmitter TMT162: max. 40 Vdc, 3 W  
 transmitter TMT142: max. 36 Vdc, 1 W  
 other transmitters: max. 42 Vdc, 30 mA

Sensor: max. 10 Vdc, 1 mA

**Marking**

Type	Suffix code a	ATEX code	IEC code
TM111	8F	⊕ II 2 D	Ex tb IIIC T85 °C...T450 °C Db
	86	⊕ II 2 G	Ex db IIC T6...T1 Gb
		⊕ II 2 D	Ex tb IIIC T85 °C...T450 °C Db
TM131	8F	⊕ II 1/2 D	Ex ta/tb IIIC T85°C...T450°C Da/Db
	86	⊕ II 1/2 G	Ex db IIC T6...T1 Ga/Gb
		⊕ II 1/2 D	Ex ta/tb IIIC T85°C...T450°C Da/Db