CERTIFICATE OF CONFORMITY



1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. Certificate No:

3. Equipment: (Type Reference and Name)

4. Name of Listing Company:

5. Address of Listing Company:

FM17US0306X

iTEMP type TMT82-abcdefghijklmnopq Temperature Transmitter.

iTEMP Series TMT84 -abcdefghijklmn and TMT85 – abcdefghijklmn Temperature Transmitter

Endress + Hauser Wetzer GmbH + Co KG

Obere Wank 1, D-87484 Nesselwang, Germany

6. The examination and test results are recorded in confidential report number:

3040401 dated 7th January 2011

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM 3600:2022, FM 3610:2021, FM 3611:2021, FM 3615:2022, FM 3810:2021, NEMA 250:2003, ANSI/UL 60079-0:2009, ANSI/UL 60079-1:2013, ANSI/UL 60079-11:2011, ANSI/UL 61010-1:2012, ANSI/UL 121201:2019

- 8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
- 9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
- 10. Equipment Ratings:

See Annex

11. The marking of the equipment shall include:

See Annex

Certificate issued by:

9.8. Marquedia

J.E. Marquedant

VP, Manager - Electrical Systems

FM Approvals

6 October 2023

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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12. Description of Equipment:

The temperature transmitter iTEMP type TMT82, is a two wire transmitter (head or DINrail version) with analogue output. It has measuring input circuits for resistance thermometers (RTD) in 2-, 3- or 4-wire connection, thermocouples and voltage transmitters.

Setting up of the TMT82 is done using the HART® -Protocol. The TMT82 DIN Rail version will be installed in a Class I, Division 2 or Zone 1 classified area with Intrinsically Safe outputs to a Class I, Division 1 area (Class I, Zone 0, Group IIC) per control drawing titled XA01032T (drawing no. 10000004705).

The temperature transmitter iTEMP type TMT84 or TMT85 is a two-wire transmitter providing two measuring inputs (optional). It transmits converted signals from resistance thermometers and thermocouples as well as resistance signals and signals in the mV-range using the FOUNDATION FieldbusTM (TMT85) or PROFIBUS PA (TMT84). The apparatus is supplied from the FOUNDATION FieldbusTM H1-bus or the PROFIBUS PA.

Construction:

The Field Temperature Transmitter iTEMP types TMT82, TMT84 and TMT85 consists of a field enclosure, containing head transmitter and optionally a display. The enclosures have Ingress Protection ratings of Type 4X, IP66 and IP68 (1.83m @ 24hrs)

See Annex for Electrical Ratings, Temperature Ratings and Model Codes

13. Specific Conditions of Use:

See Annex

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description	
7 January 2011	Original Issue.	
7 February 2018	Supplement 7: Report Reference: Project ID 3062083 dated 7 th February 2018. Description of the Change: Updated TMT82 12.5mm model. Updated Document	nts

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Date	Description
4 February 2020	Supplement 8: Report Reference: RR220694 dated 4 th February 2020. Description of the Changes: 1. Updated iTemp Type TMT82 model code options. 2. Corrected formatting issues on certificate. 3. FM3600 and FM3615 updated to latest edition (2018).
11 August 2020	Supplement 9: Report Reference: RR224514 dated 11 th August 2020. Description of the Changes: 1. Updated FM3610, FM3611, FM3810 to the latest editions (2018) 2. Updated ANSI/ISA 61010-1 to 2012 edition. 3. Added ANSI/UL 121201:2018 edition to list of standards.
4 August 2022	Supplement 10: Report Reference: RR233803 dated 4 th August 2022. Description of the Changes: 1. FM3600 and FM3615 updated to the latest edition (2022) 2. FM3610, FM3611 and FM3810 updated to the latest edition (2021)

Report Reference: RR238565 dated 6 October 2023.

Description of the Change(s): IP rating updated from IP67 to IP68

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6 October 2023

Supplement 11:



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ANNEX

iTEMP Series TMT84-abcdefghijklmnopq and TMT85-abcdefghijklmnopq Temperature Transmitter

Equipment Ratings:

Intrinsically Safe for use in Class I, Division 1, Groups A, B, C, & D in accordance with Control Drawing 34 02 00 111 Intrinsically Safe for Class 1, Zone 0, AEx ia IIC T4 Ga in accordance with Control Drawing 34 02 00 111 Nonincendive for use in Class I, Division 2, Groups A, B, C & D in accordance with Control Drawing per 34 02 00 111

T4, Ta = -40 °C to +85°C

T5, Ta = -40 °C to +70°C

T6, Ta = -40 °C to +55°C

Type 4X; IP66/IP68

Markings:

IS Class I, Division 1, Groups A, B, C and D; T6...T4

Class 1 Zone 0, AEx ia IIC T6...T4 Ga

Class I, Division 2, Groups A, B, C, and D; T6...T4;NIFW

T4, Ta = -40 °C to +85°C

T5, Ta = -40 °C to +70°C

T6, Ta = -40 °C to +55°C

Type 4X; IP66/IP68

Description of Equipment:

iTEMP Series TMT84 -abcdefghijklmnopg and TMT85 -abcdefghijklmnopg Temperature Transmitter

FISCO/FNICO Wiring Parameters:

Terminals	V _{max/} Ui (V)	li/l _{max} (mA)	P _i (W)	C _i (nF)	L _i (μΗ)
1 and 2 Entity	24	250	1.2	5	10
1 and 2 FISCO	17.5	500	5.5	5	10

Outputs:

Terminals	Uo/V _{oc} (V)	lo/l _{sc} (mA)	P _o (mW)	Co/C _a (μF)		Lo/L _a (mH)	IU
				Group A & B resp IIC	13.5	Group A & B resp IIC	59

To verify the availability of the Approved product, please refer to www.approvalguide.com

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Terminals	Uo/V _{oc} (V)	lo/l _{sc} (mA)	P _o (mW)	Co/C _a (μF)		Lo/L _a (mH)	
3-7	7.2	25.9	46.7	Group C resp IIB	240	Group C resp IIB	238
			М	Group D resp IIA	1000	Group D resp IIA	477
Nonincendive	Field Wiring Pa	rameters:					

Nonincendive Field Wiring Parameters:

Terminals	V _{max} (V)	C _i (nF)	L _i (μH)
1 and 2	35	5	10

A	Approval:	C1, CA
В	Communication; Output Signal:	A
С	Electrical Connection:	1, 2
D	Field Housing	A, B, C, D, E, F, G, H, I, J, K, L, M
Е	Configuration Input:	Not safety relevant
F	Sensor type Channel 1:	Not safety relevant
g ¹	Display; Operating:	E1
h ¹	Calibration:	Not safety relevant
i ¹	Additional Approval:	Not safety relevant
j ¹	Additional Option:	Not safety relevant
k ¹	Field housing; Mounting:	Not safety relevant
ı1	Accessories mounted:	Not safety relevant
m ¹	Accessories enclosed:	Not safety relevant
n ¹	Cable glands; temp. range; protection	S1, S4
o ¹	Plug; temp. range; protection	T1, T2

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p ¹	Firmware Version	Not Safety relevant
q ¹	Marking	Not Safety relevant

¹Options that can additionally be ordered

Specific Conditions of Use:

iTEMP type TMT84 or TMT85 Temperature Head Transmitter shall be installed in a tool secured enclosure in compliance with the mounting, spacing and segregation requirements of the ultimate application.

iTEMP Series TMT84-abcdefghijklmnopq and TMT85-abcdefghijklmnopq Temperature Transmitter

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups A, B, C and D; T6...T4

Dust-ignitionproof for Class II,III, Division 1, Groups E, F and G; T6...T4

Nonincendive for use in Class I, Division 2, Groups A, B, C & D; T6...T4; in accordance with Control Drawing 34 02 00 113

ADDI UV dis

Flameproof for Class 1, Zone 1, AEx d IIC T6...T4

T4, Ta = -40 °C to +85°C

T5, Ta = -40 °C to +70°C

T6, Ta = -40 °C to +55°C

Type 4X; IP66/IP68

Markings:

XP Class I, Division 1, Groups ABCD; T6...T4

DIP Class II, III, Division 1, Groups EFG; T6...T4

Class I, Division 2, Groups ABCD; T6...T4; NIFW

Class I, Zone 1, AEx d IIC T6...T4 Gb

T4, Ta = -40 °C to +85°C

T5, Ta = -40 °C to +70°C

T6, Ta = -40 °C to +55°C

Type 4X; IP66; IP68

Description of Equipment:

iTEMP Series TMT84 -abcdefghijklmnopq and TMT85 -abcdefghijklmnopq Temperature Transmitter Nonincendive Field Wiring Parameters:

Terminals	V _{max}	Ci	Li
	(V)	(nF)	(μH)
1 and 2	35	5	10

To verify the availability of the Approved product, please refer to www.approvalguide.com

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Page 6 of 13

US Certificate Of Conformity No: FM17US0306X



Outputs:

Terminals	Uo/V _{oc} (V)	lo/l _{sc} (mA)	P _o (mW)	Co/C _a (μF)		Lo/L _a (mH)	
				Group A & B resp IIC	13.5	Group A & B	59
3 – 7	7.2	25.9	46.7	Group C, D resp IIB	240	Group C	238
				Group C, D resp IIA	1000	Group D	477

а	Approval:	F3 ¹
b	Communication; Output Signal:	А
С	Electrical Connection:	1, 2
d	Field Housing	D, E, F, G
е	Configuration Input:	Not safety relevant
f	Sensor type Channel 1:	Not safety relevant
g ²	Display; Operating:	E1U V U U
h ²	Calibration:	Not safety relevant
i ²	Additional Approval:	Not safety relevant
j2	Additional Option:	Not safety relevant
k ²	Field housing; Mounting:	Not safety relevant
l ²	Mounting accessories mounted:	Not safety relevant
m²	Mounting accessories enclosed:	Not safety relevant
n ²	Cable glands; temp. range; protection	Not allowed
o ²	Plug; temp. range; protection	Not allowed
p²	Firmware Version	Not Safety relevant
q²	Marking	Not Safety relevant

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¹Option code for explosionproof, dust ignitionproof, and non-incendive

Specific Conditions of Use:

iTEMP type TMT84 or TMT85 Temperature Head Transmitter shall be installed in a tool secured enclosure in compliance with the mounting, spacing and segregation requirements of the ultimate application.

iTEMP type TMT82-abcdefghijklmnopqr Temperature Transmitter

Equipment Ratings:

Explosion proof for Class I, Division 1, Groups A, B, C and D; T6...T4

Dust-ignition proof for Class II, III, Division 1, Groups E, F and G; T6...T4

Nonincendive for use in Class I, Division 2, Groups A, B, C & D; T6...T4; in accordance with Control Drawing 34 02 00 113

Approvals

Flameproof for Class 1, Zone 1, AEx d IIC Gb T6...T4

T4, Ta = -40 °C to +85°C

T5, Ta = -40 °C to +70°C

T6, Ta = -40 °C to +55°C

Type 4X; IP66/IP68

Markings:

XP Class I, Division 1, Groups ABCD; T6...T4 DIP Class II, III, Division 1, Groups EFG; T6...T4 Class I, Division 2, Groups ABCD; T6...T4; NIFW Class I, Zone 1, AEx d IIC T6...T4 Gb

T4, Ta = -40 °C to +85°C

T5, Ta = -40 °C to +70°C

T6, Ta = -40 °C to +55°C

Type 4X; IP66; IP68

Description of Equipment:

iTEMP type TMT82-abcdefghijklmnopgr. Temperature Transmitter.

Nonincendive Field Wiring Parameters:

Terminals	V _{max}	C _i	L _i
	(V)	(nF)	(μΗ)
1 and 2	30	19091	7 0 0 1 0

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²Options that can additionally be ordered

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а	Approval:	F1, 8C
b	Communication; Output Signal:	А
С	Electrical Connection:	1, 2
d	Field Housing	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q
е	Configuration Universal Input:	Not safety relevant
f	Sensor type Channel 1:	Not safety relevant
g	Sensor type Channel 2:	Not safety relevant
h	Input; Interconnection:	Not safety relevant
i ¹	Display; Operating:	E1
j ¹	Calibration:	Not safety relevant
k ¹	Service:	H1 or JM
I ¹	Additional Approval:	Not safety relevant
m ¹	Additional Option:	Not safety relevant
n ¹	Accessories mounted:	Not safety relevant
o ¹	Accessories enclosed:	Not safety relevant
p ¹	Cable glands; temp. range; protection	S1, S4
q ¹	Firmware Version	Not Safety relevant
r ¹	Marking	Not Safety relevant

¹Options that can additionally be ordered

Specific Conditions of Use:

iTEMP type TMT82 Head and DIN rail transmitter shall be installed in a tool secured enclosure in compliance with the mounting, spacing and segregation requirements of the ultimate application.

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iTEMP type TMT82-abcdefghijklmnopqr Temperature Transmitter.

Equipment Ratings:

For TMT82-xxx1 or TMT82-xxx2

Intrinsically Safe for use in Class I, Division 1, Groups A, B, C, & D in accordance with Control Drawing 34 02 00 111 Intrinsically Safe for Class 1, Zone 0, AEx ia IIC T4 Ga in accordance with Control Drawing 34 02 00 111 Nonincendive for use in Class I, Division 2, Groups A, B, C & D in accordance with Control Drawing per 34 02 00 111

T4, Ta = -40 °C to +85°C (with display), Ta = -50 °C to +85°C (without display)

T5, Ta = -40 °C to +70°C (with display), Ta = -50 °C to +70°C (without display)

T6, Ta = -40 °C to +55°C (with display), Ta = -50 °C to +55°C (without display)

Type 4X; IP66/IP68

For TMT82-xxx3 or TMT82-xxx4 or TMT82-xxx5

Associated Intrinsically Safe for Class I, Division 1, Groups A, B, C and D in accordance with Control drawing XA01032T

Intrinsically Safe for Class I, Zone 1 with Intrinsically Safe connections to Class I, Zone 0 in accordance with Control drawing XA01032T

Nonincendive for use in Class I, Division 2, Groups A, B, C & D in accordance with Control Drawing XA01032T

Markings:

For TMT82-xxx1 or TMT82-xxx2

IS Class I, Division 1, Groups A, B, C and D; T6...T4

Class 1 Zone 0, AEx ia IIC T6...T4 Ga

Class I, Division 2, Groups A, B, C, and D; T6...T4; NIFW

T4, Ta = -40 °C to +85°C (with display), Ta = -50 °C to +85°C (without display)

T5, Ta = -40 °C to +70 °C (with display), Ta = -50 °C to +70 °C (without display)

T6, Ta = -40 °C to +55°C (with display), Ta = -50 °C to +55°C (without display)

Type 4X; IP66/IP68

For TMT82-xxx3 or TMT82-xxx4 or TMT82-xxx5

AIS Class I, Division 1, Groups A, B, C and D; T6...T4

Class 1 Zone 1, AEx ib [ia Ga] IIC T6...T4 Gb

Class I, Division 2, Groups A, B, C, and D; T6...T4;NIFW

T4, Ta = -40 °C to +85°C

T5. Ta = -40 °C to +70°C

T6. Ta = -40 °C to +55°C

Type 4X; IP66/IP68

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Description of Equipment:

iTEMP type TMT82-abcdefghijklmnopqr Temperature Transmitter.

For TMT82-xxx1 or TMT82-xxx2

Entity Parameters:

	Vmax / Ui	Imax / li	Pi	Ci	Li
	(V)	(mA)	(mW)	(nF)	(µH)
Terminals 1-2	30	130	800	0	0

Outputs:

Terminals	V _{oc} /Uo (V)	lo/l _{sc} (mA)	P _o (mW)	Co/C _a (μF)		Lo/L _a (mH)	
			Sale Sales	Group A & B resp IIC	10.4	Group A & B resp IIC	236
3 – 7	7.6	13	24.7	Group C, D resp. IIB	160	Group C, D resp IIB	946
				Group C, D resp IIA	1000	Group C, D resp IIA	1893

Nonincendive field wiring parameters:

Terminals	V _{max}	C _i	L _i
	(V)	(nF)	(μH)
1 and 2	30	0	0

а	Approval:	F1, 8C		
b	Communication; Output Signal:	A		
С	Electrical Connection:	1, 2		
d	Field Housing	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q		
е	Configuration Universal Input:	Not safety relevant		
f	Sensor type Channel 1:	Not safety relevant		
g	Sensor type Channel 2:	Not safety relevant		

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h	Input; Interconnection:	Not safety relevant
i ¹	Display; Operating:	E1
j ¹	Calibration:	Not safety relevant
k ¹	Service:	H1 or JM
11	Additional Approval:	Not safety relevant
m ¹	Additional Option:	Not safety relevant
n ¹	Accessories mounted:	Not safety relevant
o ¹	Accessories enclosed:	Not safety relevant
p ¹	Cable glands; temp. range; protection	S1, S4
q ¹	Firmware Version	Not Safety relevant
r ¹	Marking	Not Safety relevant

¹ Options that can additionally be ordered

For TMT82-xxx3 or TMT82-xxx4 or TMT82-xxx5

Entity Parameters:

	Vmax / Ui	Imax / Ii	Pi	Ci	Li
	(V)	(mA)	(mW)	(nF)	(µH)
Terminals 1-2	30	130	770	0	0

Outputs:

Terminals	V _{oc} / Uo (V)	lo / I _{sc} (mA)	P _o (mW)	Co / C _a (μF)		Lo/L _a (mH)	
				Group A & B resp IIC	4.9	Group A & B resp IIC	236
3 – 8	9	13	29.3	Group C, D resp. IIB	40	Group C, D resp IIB	946
				Group C, D resp IIA	500	Group C, D resp IIA	1893

Nonincendive Field Wiring Parameters:

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Terminals	V _{max}	C _i	L _i
	(V)	(nF)	(μΗ)
1 and 2	35	0	0

а	Approval:	F1, 8C
b	Communication; Output Signal:	A
С	Electrical Connection:	3, 4, 5
d	Field Housing	С
е	Configuration Universal Input:	Not safety relevant
f	Sensor type Channel 1:	Not safety relevant
g	Sensor type Channel 2:	Not safety relevant
h	Input; Interconnection:	Not safety relevant
i ¹	Display; Operating:	Not applicable
j ¹	Calibration:	Not safety relevant
k ¹	Service:	HIU V U I U
l ¹	Additional Approval:	Not safety relevant
m ¹	Additional Option:	Not safety relevant
n ¹	Accessories mounted:	Not applicable
o ¹	Accessories enclosed:	Not applicable
p ¹	Cable glands; temp. range; protection	Not applicable
q ¹	Firmware Version	Not Safety relevant
r ¹	Marking	Not Safety relevant

¹ Options that can additionally be ordered

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