

CESI



CESI S.p.A.
Via Rubattino 54
I-20134 Milano - Italy
Tel: +39 02 21251
Fax: +39 02 21255440
e-mail: info@cesi.it
www.cesi.it

Schema di certificazione
CESI-ATEX

ATEX 0000474-1-EN



PRD N. 018B
Membro degli Accordi di Mutuo
Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

CERTIFICATE



[1] EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use
in potentially explosive atmospheres
Directive 2014/34/EU**

[3] EU-Type Examination Certificate number:

CESI 20 ATEX 033 X

[4] Product: **Multipoint thermometer iTHERM®, type TMS21**

[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] CESI, notified body n. 0722 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and Council of 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 equipment or 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 report n. EX-C0016042.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-26:2015

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 special conditions for safe use specified in the schedule to this certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified Product in accordance to the Directive 2014/34/EU. 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 1/2G Ex ia IIC T6...T1 Ga/Gb
II 1/2D Ex ia IIIC T85 °C...450 °C Da/Db**

This certificate may only be reproduced in its entirety and without any change, schedule included.

Date 29.01.2021 - Translation issued the 29th 01.2021

Prepared
Guido Prazzoli

Verified
Alessandro Fedato

Approved
Roberto Piccin

Guido Prazzoli Alessandro Fedato Roberto Piccin

[13]

Schedule

[14]

EU-TYPE EXAMINATION CERTIFICATE n. CESI 20 ATEX 033 X

[15] **Description of Product**

The Multipoint thermometer iTHERM, type TMS21, is a bundle of multipoint sensors from 2 up to 20 of thermocouple elements (type K, J, N or E), inside a thermowell tube, distributed at different location to measure a temperature profile. Each single complete thermo element is made by connecting a thermocouple based on MgO cable with a flexible thermocouple's extension cable. The total length of each complete thermo element can be up to 50 meters.

The TMS21 is available in a "standalone" version or combined with an additional housing (*junction box*) that can accommodate additional equipment such as temperature transmitters. For connection to the junction box, the equipment is completed with a metal flexible conduit that falls within the TMS21 enclosure.

However, integration with the junction box does not fall within the scope of this certificate which only covers the TMS21 multi-point thermometer.

Application

EPL Ga (*Zone 0*) or EPL Da (*Zone 20*) is applicable for the part of the multipoint thermometer continuously immersed in the process and exposed to its operating conditions. The parts in Zone 0 are the thermowell with the bundle of internal thermocouples and part of the reinforced sleeve.

EPL Gb (*Zone 1*) or EPL Db (*Zone 21*) is applicable for the part of the multipoint thermometer not immersed in the process and exposed to the operating conditions of the environment. This part consists of the external part of the reinforced sleeve (*which includes each thermocouple connected to its extension cable*), threaded to the metal flexible conduit that protects the extension cable bundle. The separation between the two EPL zones is the process connection, the thermowell and the thermowell reinforcement tube.

Identification code

The product structure is the list of the standard product characteristics and options that can be selected to configure the TMS21 as below described.

TMS21- **A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P-Q-R-S-T-U-V-W-X-Y-Z-ZA-ZB-ZC-ZD-ZE**

A (010) Approval:

AE ATEX IECEx Approval Ex ia

AF ATEX Approval Ex ia

B (020) Thermowell Design - Not safety relevant

C (030) Thermowell Material: option A, B, C, D, E, various type of still

D (040) Reinforcemen; Flex; Thermowell Diam.; Min. Thickness:

A 8 mm; n.a.; 3.2 mm; ($0.2\text{ mm} \leq Th \leq 1\text{ mm}$)

C 12.7 mm; n.a.; 8 mm; ($Th \geq 1\text{ mm}$)

D 15 mm; n.a.; 9.5 mm; ($Th \geq 1\text{ mm}$)

I 1/2" (12.7 mm); n.a.; 1/4" (6.35 mm); ($Th \geq 1\text{ mm}$)

K 8 mm; n.a.; 6 mm; ($0.2\text{ mm} \leq Th \leq 1\text{ mm}$)

L 12.7 mm; n.a.; 6 mm; ($Th \geq 1\text{ mm}$)

E (050) Thermowell Length M:

X inch ($L+LE \leq 1968\text{ inch}$)

8 mm ($L+LE \leq 50000\text{ mm}$)

F (060) Flexible Length H - Not safety relevant

G (070) Process Connection - Not safety relevant

H (080) Process Connection Material: option B, C, D, E, various type of still

I (090) Sensor Type; Measuring Range - Not safety relevant

J (100) Standard/Class - Not safety relevant

K (110) Sensor Execution - Not safety relevant

L (120) Number of Measurement Points: 8 piece (2-20)

M (130) Measurement Point Distribution - Not safety relevant

N (140) First Point Location LMP1 - Not safety relevant

This certificate may only be reproduced in its entirety and without any change, schedule included.

[13]

Schedule

[14]

EU-TYPE EXAMINATION CERTIFICATE n. CESI 20 ATEX 033 X

Identification code *(continue)*

- O (150) Last Point Location LMPn - Not safety relevant
- P (160) Cable Gland (Flexible Conduit Diameter):
 - A M32 (DN 29)
 - B M40 (DN 36)
 - C M50 (DN 48)
- Q (170) Extension Cable Material; Meas. Range: D MFA sheath; -200...+250°C
- R (180) Flexible Conduit Cable Length A:
 - X ...inch (L+LE ≤ 1968 inch)
 - 8 ...mm (L+LE ≤ 50000 mm)
- S (190) Version According to TSP - Not safety relevant
- T (510) Electrical Connection (transmitters) - Not safety relevant
- U (520) Quantity Electrical Connection - Not safety relevant
- V (530) Approval Type Transmitter/Components - Not safety relevant
- W (570) Service - Not safety relevant
- X (580) Test, Certificate, Declaration - Not safety relevant
- Y (600) Additional Option - Not safety relevant
- Z (630) Calibration/Evaluation - Not safety relevant
- ZA (640) Calibration Points - Not safety relevant
- ZB (650) Housing Material; Approval: (optional junction box) - Not safety relevant
- ZC (660) Cable Output Terminal Housing (optional junction box) - Not safety relevant
- ZD (670) Quantity Cable Output Terminal Housing - Not safety relevant
- ZE (895) Marking - Not safety relevant

Electrical characteristics

The equipment shall be connected to certified intrinsically safe and galvanically isolated equipment.

Electrical parameters of each input circuit are the followings:

Ui: 9 V Ii: 26 mA Pi: 0.05 W
 Li: 0.5 μH Ci: 10 nF

Temperature

For each part of TMS21 the temperature Class T6...T1 and the maximum surface temperature T85 °C...T450 °C depends on the process and ambient temperature in accordance with the below table

Sensor Element/Type: K, J, N, E	Maximum allowed process temperature Tp (thermowell)	Maximum allowed ambient temperature Ta (main bushing)	Temperature class / Maximum surface temperature
	-50...+440 °C	-50...+100 °C	T1 / 450°C
	-50...+290 °C	-50...+100 °C	T2 / T300°C
	-50...+195 °C	-50...+100 °C	T3 / T200°C
	-50...+130 °C	-50...+100 °C	T4 / T135°C
	-50...+95 °C	-50...+95 °C	T5 / T100°C
	-50...+80 °C	-50...+80 °C	T6 / T85°C

[13]

Schedule

[14]

EU-TYPE EXAMINATION CERTIFICATE n. CESI 20 ATEX 033 X

Warning labels

None

[16]

Report n. EX-C0016042

Routine tests

None

[17]

Special conditions for safe use (X)

Install and use the equipment according to the manufacturer's Safety Instructions and any other valid standards and regulations (e.g. EN 60079-14, EN 60079-25).

The manufacturer, based on the maximum operating temperature of the process, shall establish and place on the nameplate the assigned values for the Temperature Class / Surface Temperature of the equipment.

It is installer responsibility to guarantee that the maximum ambient temperature at the installation point of main bushing, flexible conduit and glands is +100 °C for T1÷T4 (T450÷T135), +95 °C for T5 (T100) and +80 °C for T6 (T85) applications.

The connection of TMS21 with a junction box shall not invalidate the type of protection of the latter and the junction box and its accessories (e.g. cable gland) shall be certified according to EN 60079 relevant standards series.

The mechanical construction of the thermowell and the reinforcement pipe, complies with a partition wall according to EN 60079-26 (clause 4.1.3.2). For construction variants where the thickness of this wall is less than 1 mm, the user shall ensure that the equipment is not subject to environmental conditions that may adversely affect the partition wall.

If the equipment is mounted between an area requiring EPL Ga and an area with EPL Gb, the TMS21 shall be installed in a way that process connection meets the requirements of clause 4.3 of EN 60079-26.

The equipment and the final junction box, shall be connected equipotentially to each other.

The sensors of the equipment are not isolated from the enclosure, in accordance with EN 60079-11; therefore the circuits shall be powered by intrinsically safe equipment, galvanically isolated.

For ambient temperatures above +70 °C, shall be used accessories with an operational temperature at least +5 K higher than the surrounding environment.

[18]

Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following have been considered.

Clause	Subject	Compliance
1.2.7	Protection against other hazards	Manufacturer responsibility
1.2.8	Overloading of equipment	User/Installer responsibility
1.4	Hazards arising from external effects	User/Installer responsibility

[13]

Schedule

[14]

EU-TYPE EXAMINATION CERTIFICATE n. CESI 20 ATEX 033 X

[19]

Descriptive documents (prot. EX-C0017336)

- | | |
|---|------------------|
| - n. QUD_F3060 - Description ATEX_IECEEx, Rev. 1.5 (pg. 19) | dated 20.10.2020 |
| - n. 10000009517 - TMS21_CPL, Rev. 0, (pg. 8) | dated 28.05.2019 |
| - n. 10000009306 - Nameplate ATEX_IECEEx, Rev. 0, (pg. 1) | dated 28.05.2019 |
| - n. 10000009516 - Safety Instructions, Rev. 0, (pg. 1) | dated 03.05.2019 |
| - n. 10000011420 - Risk Analysis TMS21, Rev. 0, (pg. 7) | dated 10.11.2019 |
| - FAC-SIMILE - EU Declaration of Conformity, (pg. 1) | |

One copy of all documents mentioned above is kept in CESI files.