



Certificate no.:
TAA00003UF

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Temperature Sensor**

with type designation(s)
iTHERM CableLine TST310, iTHERM CableLine TSC310

issued to

Endress+Hauser Wetzer GmbH+Co. KG
Nesselwang, Bayern, Germany

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
iTHERM CableLine TST310	D	B	A*/B*	--	Required protection according to DNV Rules shall be provided upon installation onboard
iTHERM CableLine TSC310	D	B	A*/B*	--	Required protection according to DNV Rules shall be provided upon installation onboard

* Application/Limitation to be observed

Issued at **Hamburg** on **2026-03-13**

This Certificate is valid until **2031-03-12**.

for **DNV**

DNV local unit: **Essen**

Approval Engineer: **Holger Jansen**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

iTHERM CableLine TST310

Measuring sensor:	1 or 2 resistance thermometers (RTD)
Temperature measurement range:	-200°C to +600°C
Electrical connection:	flying leads, Cable length max. 10m
Process connection(thread):	Thread ($\geq \frac{1}{4}$ "), Compression fitting ($\geq \frac{1}{4}$ ")
Immersion length U:	$\geq 3\text{mm}$ and $< 6\text{mm}$: Without fixation $\leq 100\text{mm}$ (4g); longer, fixation every 200mm and max. unsupported end 100mm (0,7g only) $\geq 6\text{mm}$: Without fixation $\leq 200\text{mm}$ (4g); longer, fixation every 400mm and max. unsupported end 150mm (0,7g only)

iTHERM CableLine TSC310

Measuring sensor:	1 thermocouple (TC) Type K (NiCr-Ni); Diameter: $\geq 3\text{mm}$ and $< 6\text{mm}$ 1 or 2 thermocouples (TC) Type K (NiCr-Ni); Diameter: $\geq 6\text{mm}$
Temperature measurement range:	-270°C to +1100°C
Electrical connection:	flying leads, Cable length max. 10m
Process connection(thread):	Thread ($\geq \frac{1}{4}$ "), Compression fitting ($\geq \frac{1}{4}$ ")
Immersion length U:	$\geq 3\text{mm}$ and $< 6\text{mm}$: Without fixation $\leq 100\text{mm}$ (4g); longer, fixation every 200mm and max. unsupported end 100mm (0,7g only) $\geq 6\text{mm}$: Without fixation $\leq 200\text{mm}$ (4g); longer, fixation every 400mm and max. unsupported end 150mm (0,7g only)

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

In case compression fitting is used the distance between cable and compression fitting should be kept as short as possible. Unsupported length should not be greater than 200mm.

Vibration classes: A=0.7g, B=4g, Details see product description

Sensors have to be connected to a DNV type approved input card or transmitter (for example TMT82 by Endress+Hauser)

Type Approval documentation

Tests carried out

Applicable tests according to DNV Class Guideline CG0339, August 2021.

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

Manufactured by:

Endress+Hauser Sigestherm S.r.L.
Via Martin Luther King 7
20042 Pessano con Bornago (MI)
Italy

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31 JiangSu Province
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END OF CERTIFICATE