

Endress+Hauser launches iTHERM SurfaceLine TM611

Non-invasive thermometer delivers invasive-level accuracy and response time, reducing risk and cost across critical industrial applications

November 1, 2025 – Endress+Hauser has unveiled iTHERM SurfaceLine TM611, a non-invasive thermometer engineered to deliver high-performance temperature measurement across a wide range of industrial applications. Designed for environments where traditional invasive sensors pose safety, engineering or cost challenges, iTHERM SurfaceLine TM611 offers a breakthrough solution that combines precision, reliability and ease of installation.

iTHERM SurfaceLine TM611 is built for demanding process conditions such as high flow velocities, elevated pressures, corrosive or abrasive media and small pipe diameters. It is suitable for use in industries including chemical processing, LNG regasification, hydrogen production, food and beverage and data center cooling. The device is also ideal for energy and safety monitoring, temporary measurements and retrofitting in existing facilities.

Unlike conventional invasive sensors that require thermowells, flanges or pipe modifications, iTHERM SurfaceLine TM611 mounts externally on the pipe surface. Its advanced thermal coupling element ensures optimal heat transfer to the sensor while minimizing ambient interference. This design enables measurement accuracy and response time comparable to invasive RTD and thermocouple sensors, without the risk of leakage or process disruption.

Technical highlights:

- Operating temperature range: -196 °C to 400 °C (-320.8 °F to 752 °F)
- Accuracy classes: Class AA, A, B (IEC 60751); Class 1 or 2 (IEC 60584-2); ASTM E230 standards
- Response time: Comparable or superior to invasive sensors, even at shallow immersion depths
- Sensor types: RTD or thermocouple
- Transmitter: iTEMP with support for all major communication protocols and optional Bluetooth® connectivity
- Certifications: ATEX, IECEx, CSA, NEPSI for explosion protection; SIL for functional safety

iTHERM SurfaceLine TM611's modular design supports flexible positioning on various pipe sizes and configurations, enabling installation across multiple points in a plant without interrupting operations. It is especially effective in applications involving pigging, abrasion or highly viscous media, where invasive sensors may be impractical or unsafe.

Operational and economic advantages:

- No process penetration required, eliminating leakage risk and reducing engineering complexity
- Shorter development and project planning timelines
- Lower installation and certification costs
- No need for thermowells, nozzles, flanges or weld seam inspections
- Simplified maintenance and commissioning

iTHERM SurfaceLine TM611 is part of Endress+Hauser's commitment to delivering innovative, high-accuracy measurement solutions that enhance process safety, efficiency and sustainability. Its performance has been validated through extensive thermal analysis and field testing, showing superior accuracy and faster response times compared to many invasive thermometers with straight thermowells.

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About Endress+Hauser

Endress+Hauser is a global leader in measurement and automation technology for process and laboratory applications. The family company, headquartered in Reinach, Switzerland, achieved net sales of more than 3.7 billion euros in 2024 with a total workforce of over 17,000.

Endress+Hauser devices, solutions and services are at home in many industries. Customers thus use them to gain valuable knowledge from their applications. This enables them to improve their products, work economically and at the same time protect people and the environment.

Endress+Hauser is a reliable partner worldwide. Its own sales companies in more than 50 countries as well as representatives in another 70 countries ensure competent support. Production facilities on four continents manufacture quickly and flexibly to the highest quality standards.

Endress+Hauser was founded in 1953 by Georg H Endress and Ludwig Hauser. Ever since, the company has been pushing ahead with the development and use of innovative technologies, now helping to shape the industry's digital transformation. Over 9,000 patents and applications protect the Group's intellectual property.

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