Non-invasive sensor
A new era of temperature measurement
Why use a non-invasive sensor?
A simpler and safer approach

**SAFER**
and no risk of thermowell breaking off

**REDUCED COST**
Quick to install for less costly installation
No thermowell testing, calculations or need for exotic materials

**HIGH PERFORMANCE**
Keep your measurement quality

**SIMPLER**
Straightforward from ordering to maintenance
No thermowell stocking
Introducing TSP341-N – A simpler and safer way of measuring your process temperature without the need to shut down, drill a hole or install a thermowell.

With its innovative double sensor architecture and specially developed calculation algorithm, it greatly enhances your safety and reduces your installation costs without sacrificing the quality of your measurement.

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SAFER
No process penetration

The non-invasive sensor measures at the surface, eliminating the need for a thermowell and avoiding process intrusion altogether: Its approach is inherently safer!

- Reduces risks for humans, the environment, the medium as well as other system components
- Eliminates risk of failure of a thermowell
- Simplifies the compliance of safety and environmental aspects
LOWER COST OF OWNERSHIP
Faster and more cost-efficient

No need to shut down for installation and service

Suitable for various applications and industries

Increases plant availability, lowers system costs significantly

More than 75% CAPEX cost reduction

Cost comparison invasive vs. non-invasive
HIGH PERFORMANCE
Keep your measurement quality

Accuracy and response time close to or better than invasive measurement

Repeatability proven under long-term industrial testing during development

Standard insets widely used in industry

Real Time Model based inference of $T_{\text{medium}}$

Use of standard insets

No process penetration

No explicit need for insulation

Measuremant of heat transfer rate

Accurate measurement of $T_{\text{surface}}$
**Simpler**

Straightforward from ordering to maintenance

**Easy ordering and delivery process**
Ordering a TSP341-N is completely simple. A thermowell is not necessary, therefore process compatibility does not have to be considered.

**Less installation effort**
Low installation time and effort due to the clamp-on concept. The installation can be done while the process is running. The sensor can be easily integrated into an existing system structure.

**Intuitive commissioning and handling**
Product parameterization happens via the HART interface. Handling during operation is possible. The TSP341-N has the ABB common look and feel with text display.

**Minimal maintenance effort**
The product is independent of the process and easy to maintain. An incorrect installation can be removed quickly. Maintenance may be carried out without shutting down the process.
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