ABB MEASUREMENT & ANALYTICS

Temperature measurement

Precise and flexible for efficient processes

Measurement made easy

To operate any process efficiently, it is essential to measure, actuate, record and control. In selecting ABB you are choosing a partner who is offering the best measurement and analytical solution for your needs, enabling maximum return on your investment. When investing in ABB's measurement and analytical solutions you are receiving the best technology, reliability and service in the business.

Research and development is a vital source of ABB's technology leadership. ABB constantly builds on the foundation of existing technologies for new applications, and continues to develop the breakthrough technologies needed to meet the challenges of the future.

Comprehensive measurement solutions
Tailor-made for every industry

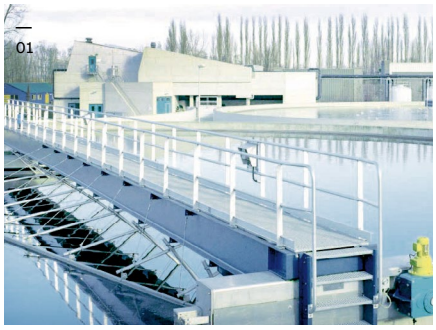
01 Water and waste water
02 Power and steam generation
03 Chemical and petrochemical
04 Oil and gas
05 Pulp and paper
06 Minerals
07 Metals
08 Food and beverages
09 Marine

ABB's measurement and analytical products provide world-class measurement solutions for any industry, utility or municipality. Latest innovations deliver technological solutions to make it easier for you to run your plant. ABB's measurement and analytics products are based on common technology, providing a common look and feel and method of operation. This results in products, that are easy to configure, easy to integrate, and easy to maintain.

For more information please visit:
abb.com/measurement

ABB's measurement and analytics product portfolio

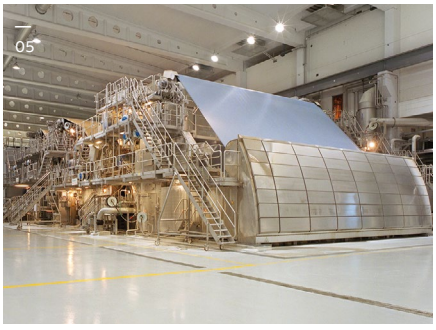
- Analytical measurement
- Flow measurement
- Pressure measurement
- Temperature measurement
- Level measurement
- Actuators and positioners
- Recorders and controllers
- Device management, Fieldbus and Wireless
- Force measurement
- Service


01


02


03


04


05


06


07


08


09

Global availability
A partner to rely on

The ABB service is available for you worldwide

ABB is the competent partner for industrial automation. The large number of globally installed products and solutions speaks for itself. Use the knowledge and experience of ABB for stable processes, as well as to optimize the security and accuracy of your plants.

From installation and commissioning to dismantling and disposal, ABB experts provide you with a comprehensive range of service and support services throughout the entire life cycle of your plant.

Device management, fieldbus and wireless
Important information always accessible

ABB's intelligent measurement and analytical products have innovative, integrated diagnostic functions. Access to information about devices and processes is possible through various communication protocols. Different applications are available for device management. Thus, you can optimize your processes.

The portfolio includes:
- Solutions for fieldbus and wireless
- Handheld terminals
- Device management through Field Information Manager FIM

—
01 ABB service – available wherever you are
—
02 ABB's non-invasive temperature measurement solution - NINVA™

—
01

—
02

Temperature measurement
Precise and flexible

03 Temperature measurement in the oil and gas industry

04 High temperature measurement up to 1800 °C

05 HART is a registered trademark of HART Communication Foundation PROFIBUS and PROFIBUS PA are registered trademarks of PROFIBUS & PROFINET International (PI) FOUNDATION Fieldbus is a registered trademark of FieldComm Group, Austin, Texas, USA

Many industrial processes require precise temperature measurement. For this, ABB offers one of the most extensive product portfolios. The reliable devices and solutions meet your requirements and they have proven themselves in many instances of use in various industries. ABB has extensive experience and supports you in the selection of tailor-made solutions.

With ABB's innovative temperature sensors and transmitters, you benefit from low investment costs and standardized modules with high long-term stability.

The versatile product offering for temperature measurement is based on a flexible modular principle. Standard models are available within a very short time. The clear portfolio structure simplifies the ordering process.

ABB Product Line Temperature

05

Best in class - Transmitters
- Latest Safety standards -SIL2/3
- Singe / Dual channel (3/4 wires RTD, TC)
- Full NE107 diagnostics
- Single and dual compartment field housings

The Essential - Sensors and Thermowells
- RTD and Thermocouples - (-200°C to 1800°C)
- Proven and robust sensor performance
- Heavy duty to fast response time
- Customized/tailored designs

The disrupter - NINVA (non-invasive)
- Simpler and safer approach
- Eliminating the need for a thermowell
- High performance matches thermowells
- World's 1st SIL 2 certified non-invasive temperature sensor

03

04

ABB temperature transmitters

ABB temperature transmitters
The first choice for any application

—
01 Field-mount temperature transmitter TTF300
—
02 Dual Compartment Field Temperature transmitter TTD300

Robust measurement in harsh process conditions

ABB temperature transmitters have always set the standard for safety, reliability and performance in the process industry. The flagship and core of ABBs temperature portfolio is the TTX300 transmitter electronics. Developed to the latest Safety standards and with a proven track record hundreds of thousands of installations world wide, the core electronics is available in head and field mount variants. Certain process conditions however, do not allow for head mounted transmitters. The reason may be particularly high or low temperatures, which have a negative effect on the lifetime of the electronics. Vibrations or electromagnetic sources in the immediate vicinity can affect the measurement. In the case of measuring points that are not easily accessible, it is also difficult to read or configure on site.

The solution
With the single compartment TTF300 and dual compartment TTD300 field transmitters, ABB offers robust solutions for the demands of the process industry. A version with stainless steel housing allows it to be used in harsh ambient conditions at temperatures down to –50 °C (–58 °F). The devices are available with an indicator, which optionally also allows configuration on site without additional handheld terminal. Sensor redundancy, sensor drift monitoring and freestyle characteristic are available.

The electronics are completely sealed and thus protected against external influences so that the transmitters are characterized by high reliability and long-term stability. With their approvals for different application environments and SIL2/SIL3, they meet all requirements of the process industry.

Reliable temperature measurement

A typical power plant has hundreds of temperature measurements. Most of them are concerned with the burning of fuel to raise steam for the massive turbines which power the generators. A wide range of operation is demanded from a temperature sensor used in this application. The majority of these measurements are therefore made using thermocouples, which are ideally suited due to their wide temperature range.

Intelligent solution for temperature measurement
The TTR200 temperature transmitter is designed for rail mounting in cabinet racks. It is a version of the TTH200 transmitter with the addition of two LEDs. A green LED indicates that the transmitter is powered, whilst a red LED would indicate a fault in either the unit or the sensor. The TTR200 converts the voltage signal of the thermocouple to a robust communication protocol such as 4 to 20 mA or HART. Nevertheless thermocouple signals are very small, with the correct compensation cable they can run over relatively long distances without any significant loss in accuracy. The thermocouple sensors themselves are very quick to respond to temperature changes and extremely robust.

TTR200 transmitter benefits
- Simplified storage by universal input
- Hardware-write protection

—
01

—
02

Temperature transmitters

Single and dual channel world-class transmitters

Product types	TTR200	TTH200	TTH300
			
Communication protocol	HART 7	HART 7	HART 7, PA, FF,
Device type	Rail mount	Head mount	Head mount
Sensor Inputs	Single sensor	Single sensor	Dual sensor
Sensor connection	Pt100, two-wire, three-wire, four-wire, thermocouple with internal reference junction	Pt100, two-wire, three-wire, four-wire, thermocouple with internal reference junction	• Pt100, two-wire, three-wire, four-wire, thermocouple with internal reference junction • 2x Pt100 two-wire and three-wire, 2x thermocouple or 1x Pt100 two-wire, three-wire, four-wire and 1x thermocouple
Features	• Continuous sensor monitoring and self- monitoring - Supply voltage monitoring - Wire break and corrosion monitoring • Sensor error adjustment • Electrical isolation	• Hart variable mapping • "Easy setup" - ABB guided device and sensor commissioning Diagnosis active alerts and mapping • NAMUR status selection • Event and configuration Monitor • EMC Filter • Backup/sensor Redundancy (TTH300) • Specific Linearization _ calender van dusen, 32 pt value pair table • Non-invasive Capable (TTH300) • Write protection NE 131 • Current pulse for output maintenance - Supply voltage monitoring - Wire break and corrosion monitoring • Sensor error adjustment • Electrical isolation	
Indicator	None	Transmitter-controlled, graphical 2 line (alphanumeric) LCD indicator for process value, sensor value and actual value	
Housings	None	ABB and industry standard housings, Aluminum and Stainless steel, With or without display window	
Configuration	EDD, DTM	FDI, EDD, DTM	-
Functional safety	Sil2/3	SIL2/3 with unique SIL CHECK FUNCTION	
Approvals	IECEx, ATEX, FM, Kosha	IECEx, ATEX, cFMus, Nepsi, Kosha, PESO,	
Data sheet	TTR DS	TTX DS	-

Field-mount temperature transmitters

Single and dual chamber for the most demanding applications

Product types	TTF300 (N)	TTD300 (N)
		
Communication protocol	HART 7, PA, FF, (WirelessHART)	HART 7
Device type	Single Chamber Field Mount	Dual Chamber Field Mount
Sensor Inputs	Dual Sensor	Dual Sensor
Sensor connection	• Pt100, two-wire, three-wire, four-wire, thermocouple with internal reference junction • 2x Pt100 two-wire and three-wire, 2x thermocouple or 1x Pt100 two-wire, three-wire, four-wire and 1x thermocouple	
Features	• Hart variable mapping • "Easy setup" - ABB guided device and sensor commissioning Diagnosis active alerts and mapping • NAMUR status selection • Event and configuration Monitor • EMC Filter • Backup/sensor Redundancy (TTH300) • Specific Linearization _ calender van dusen, 32 pt value pair table • Non-invasive Capable (TTH300) • Write protection NE 131 • Current pulse for output maintenance - Supply voltage monitoring - Wire break and corrosion monitoring • Sensor error adjustment • Electrical isolation •(N) NINVA - Non-invasive capable	
Indicator	Transmitter-controlled, graphical 2 line (alphanumeric) LCD indicator for process value, sensor value and actual value	
Configuration	EDD, DTM, FDI, EDD, DTM	
Functional Safety	SIL2/3 with unique SIL CHECK FUNCTION	
Surge Protection	1KV standard	1 kV standard, 4kV optional internal surge protection
Approvals	IECEx, ATEX, FM, Kosha, NEPSI, PESO	IECEx, ATEX, cFMus, PESO, others in progress
Data sheet	TTF DS	TTD DS

Temperature measurement under control
LCD indicator

ABB operation concept
Temperature sensors and transmitters are optionally equipped with an LCD indicator. With it, all the relevant parameters can be viewed on the spot. The LCD indicator is offered in two variants: with and without push buttons for configuring device parameters. The menu navigation takes place via the integrated display and four buttons. It is intuitive and user-friendly. Buttons and LCD indicator are located under a housing cover with a viewing window for protection.

The following functions and parameters can be set:
- Sensor configuration
- Measuring ranges, limit values
- Behavior in the event of an error (HART version)
- Software-write protection
- Device address for fieldbus communication
- Diagnostic information

LCD indicator with push buttons for configuration	**LCD indicator**
	

ABB temperature sensors

Temperature sensor solutions
First choice for any application

01 Temperature measurement of a process gas with temperature sensor TSP131

02 Specifically designed thermowells

Intrinsic safety for the chemical industry

Many processes and products in the chemical industry are located in explosive hazardous areas. Only electrical devices that are not an ignition source may be used. Due to their design principles, intrinsically safe devices ensure that ignitable energy cannot evolve even in the event of a fault.

The safe solution
The temperature sensors of series TSP are designed for connection to the head-mount temperature transmitter TTH200 and TTH300. Both product lines are available with the intrinsic safety option. Due to this electrical protection standard, the reliable and durable TSP sensor will never produce the amount of energy required to cause an explosion. The building of intrinsically safe circuits is a highly specialized engineering discipline. To assist you, ABB provides all the information you need in a well-structured and easily understandable manner.

Functional safety according to IEC 61508
ABB offers temperature sensors and transmitters with SIL declaration of conformity for use in safety-related applications.

Thermowells for the oil and gas industry

The most important challenge in the design of measurement solutions for the oil and gas industry is the selection of the right thermowells. In liquid natural gas (LNG) plants, natural gas is liquefied at particularly low temperatures up to –163 °C (–261.4 °F). Ordinary stainless steel thermowells are not advised for cryogenic temperatures.

In close cooperation with the plant engineers in the oil and gas industry, ABB has developed a solution based on a high-quality chromium-molybdenum alloy (F44, 1.4547) for these particular measurement tasks.

In case given process conditions might lead to wake vibrations close to the thermowells' resonant frequency, the product is subjected to a wake frequency assessment. This helps to preserve product quality of customized products even in very specific situations.

The production and documentation of these thermowells meet the highest requirements.

01

02

—
03 High temperature thermometer in use in a furnace
—
04 Multipoint thermometer

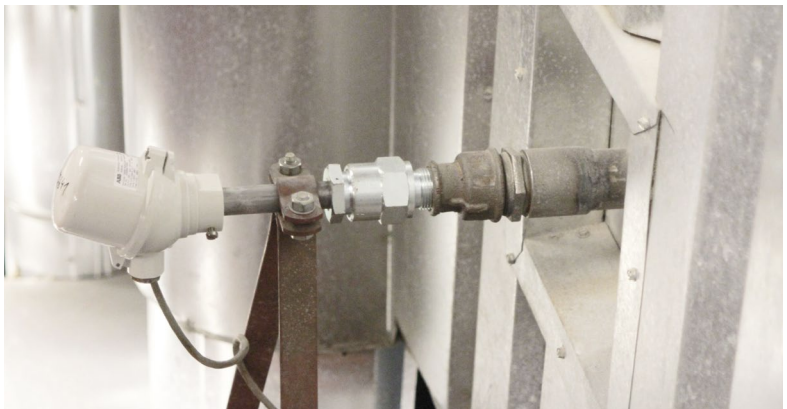
Temperature measurement in the cement industry

The production of cement from raw meal involves intensive and finely controlled heating. Temperatures that are too low result in a poor finished product yield, temperatures that are too high cause excessive energy consumption. Only an accurate and robust high temperature measurement solution will satisfy the need for balance between quality and cost.

The challenge: Erosive media in potentially hazardous atmospheres
The rotary kiln operates between 1400 °C and 1500 °C (2552 and 2732 °F), the raw meal preheaters at 1100 °C to 1300 °C (2012 and 2372 °F). Cement products are extremely erosive. Hot dust can cause an explosive hazardous atmosphere.

The solution: High temperature measurement
TSH high temperature measurement products offer a range of solutions all engineered to the highest degree. For measurements of up to 1100 °C (2012 °F), simple thermocouples with metal thermowells are a cost-effective solution. However, copper elements have a low melting point and are not suitable for high-temperature measurements in an erosive environment.
For this purpose, ABB offers precious metal thermocouples with ceramic thermowells, which are robust and temperature-resistant up to 1800 °C (3272 °F).

—
03



—
04

Temperature measurement for oil and gas
Safe, robust and reliable

Temperature measurements, along with pressure, are the most critical measures for the safe and productive operation of a chemical or oil and gas facility.

Ensuring the safety, robustness, reliability, and accuracy of measurement are multifaceted. From carrying out our wake frequency calculations to prevent catastrophic failure to helping ensure you have the traceability for the right materials, ABB provides you with complete end-to-end support for your measurement.

Vibration-proof design
In high flow installations, unsupported thermowells can produce wake vibrations that could approach their resonant frequency leading to serious cracking and even destruction of the thermowell. This can cause cracks. The thermowell may be damaged completely. ABB engineers know where potential problems could occur and recommend available options.

Thermowells, sensors, and transmitters from a single source
A key component of ABB's quality confidence comes from the use of own components, thermowells and transmitters. The control of quality and materials is maintained at every critical stage. From sensors that are laser welded to thermowells manufactured on dedicated machines, temperature solutions from ABB are safe, tough and reliable. This applies to all products: from laser-welded sensors to specially designed thermowells. For custody transfer metering ABB also provides transmitters with MID certificates in accordance with 2014/32/EU directive for the types TTH300 and TTF300.

Standard qualification
- ISO 9001
- ISO 14001
- OHAS 18001
- PED

Product qualification
- X-ray PMI (positive material identification)
- Dye penetration test
- Weld seam inspection by X-ray
- Weld seam inspection by ultrasonics
- Seamless traceability of materials
- Thermowell concentricity and dimensional reporting
- Welding proof for third parties
- Fully forged flanges to ANSI standards
- RTD and TC calibration traceable to NAMAS
- NACE approval
- NORSOK approval

Types of protection for use in a hazardous area
- Flameproof (enclosure)
- Intrinsic safety
- Non-sparking
- Non-incendive

Temperature sensor
Components

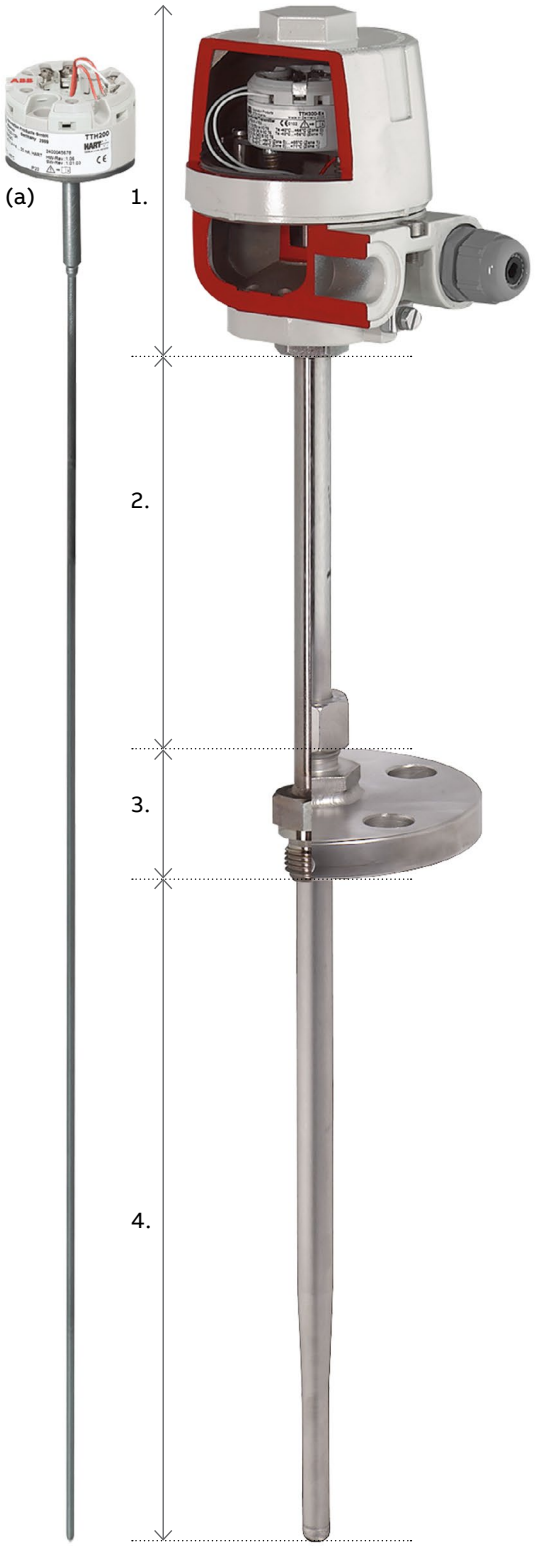
1. Connection head
Connection heads for temperature sensors are in accordance with EN 50446 industry standard, which sets the electric and mechanical connection requirements for thermowells, measuring insets, transmitters and connection cables. For decades, ABB has been continuously improving the design of connection heads for one and two transmitters.

2. Extension tube
The extension tube protects the electronics from high process temperatures. When process lagging is used, the extension tube enables accessibility of the connections above the lagging.

3. Process connection
Measuring elements can be connected directly into the process using compression fittings. When a thermowell is used it can be connected to the process via a screwed connector or a flange to any of a number of international standards. Additionally a thermowell may also be provided in a design suitable for welding into position.

4. Thermowell
A conventional thermowell consists of a seamless tube, to which a base is welded on process-side. A solid drilled thermowell is manufactured from a single piece of bar material with a hole drilled to within a few millimeters of the tip. A hole is cut in the rod, ending a few millimeters below the top. Both of these thermowell types provide protection for the temperature sensor.

(a) Measuring inset
The measuring inset protects the temperature sensor and increases the measuring accuracy. The measuring inset can always be replaced (for example for calibration) at any time, without opening the process or shutting down the plant. This allows for easy calibration of the measuring inset.



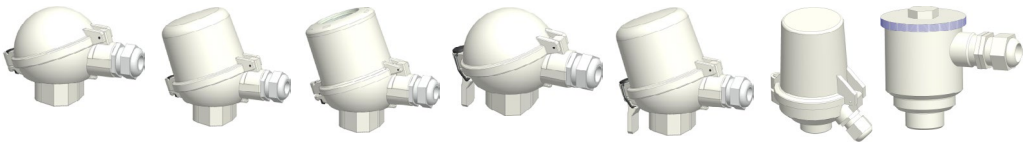
SensyTemp temperature sensors
Overview

	Process measurement	High-temperature measurement
Product series	**SensyTemp TSP100 and TSP300**	**SensyTemp TSH200**
		
Applications	• Oil and gas • Petrochemical industry • Chemical industry • Power generation • Process engineering • Plant construction	• Power generation • Metal processing • Cement industry • Glass industry • Garbage incineration • Basic industry
Process connections	• Insertion in existing thermowells • Thermowells with cylindrical or conical thread connections • Thermowells with flanges in accordance with international standards • Surface mounting for non-invasive temperature measurement (TSP341-N*)	• Threaded socket • Stop flange with counterflange • Welded standard flange • Ceramic thermowell • Metal thermowell
Measuring ranges	• Resistance thermometers: –196 to 800 °C (–320.8 to 1472 °F) • Thermocouples: –40 to 1600 °C (–40 to 2912 °F)	Thermocouples up to 1800 °C
Functional safety	Up to SIL2 / SIL3 in accordance with IEC 61508 with integrated transmitters	
Approvals	IECEx, ATEX, GOST / EAC-Ex, further approvals in preparation	
Data sheet	DS/TSP1xx, DS/TSP3xx, DS/TSP341-N	DS/TSH2xx

Process industry head thermometer
SensyTemp TSP series sensors allow for measuring inset replacement during operation. With designs for short response time and high vibration resistance, these devices meet the most demanding process requirements.

High temperature thermometer
SensyTemp TSH series temperature sensors have been designed to meet the requirements of temperature applications from 600 to 1800 °C (1112 to 3272 °F). ABB supports a selection of thermowells appropriate for temperature measurements at high temperatures in combustion, annealing and smelting processes.

SensyTemp TSP series 100
Process industry head thermometer

Product types	TSP111	TSP121	TSP131
			
Process connections	• Without thermowell Insertion in existing thermowells	• With welded tubular thermowell - Screw-in thread - Flange - Compression fitting	• With drilled barstock thermowell - Screw-in thread - Flange - Weld-in socket
Design	• Modular construction, flexible - Measuring inset, thermowell, extension tube, connection head, transmitter - Exchangeable measuring inset • Connection heads - UZ, BUZH, BUZHD: Aluminum, with hinged cover, integrated LCD indicator optional - BUS, BUSH: Aluminum, with hinged cover with snap fastener - BUKH: Plastic, with upper hinged cover - BEG: Stainless steel, with screw-on cover - Other heads in various designs and materials • Transmitter in connection head (4 to 20 mA / HART, FF, PA) • Suited for types of protection: intrinsic safety and non-sparking		
Measuring ranges	• Resistance thermometer: –196 to 800 °C (–320.8 to 1472 °F) • Thermocouple: –40 to 1600 °C (–40 to 2912 °F)		
Measuring insets	Exchangeable, in accordance with DIN 43735		
Displays (optional)	Transmitter-controlled, graphic (alphanumeric) LCD indicator for process, sensor and actual values display		
Functional safety	Up to SIL2 / SIL3 in accordance with IEC 61508 with integrated transmitters		
Approvals	IECEx, ATEX, GOST / EAC-Ex, further approvals in preparation		
Connection heads	 BUZ BUZH BUZHD BUS BUSH BUKH BEG		
Data sheet	DS/TSP1x1		

SensyTemp TSP series 300

Meeting most demanding requirements

Product types	TSP311	TSP321	TSP331
			
Process connections	• Without thermowell, insertion in existing thermowells	• With welded tubular thermowell - Screw-in thread - Flange - Compression fitting	• With drilled barstock thermowell - Screw-in thread - Flange - Weld-in socket
Design	• Modular design, sturdy and versatile - Measuring inset, thermowell, extension tube, connection head, transmitter - Exchangeable measuring inset • Connection heads - AGL: Aluminum, with screw-on cover - AGLH: Aluminum, with upper screw-on cover - AGLD: Aluminum, with screw-on cover and LCD indicator - AGS: Stainless steel, with screw-on cover - AGSH: Stainless steel, with upper screw-on cover - AGSD: Stainless steel, with screw-on cover and LCD indicator • Transmitter in connection head (4 to 20 mA / HART, FF, PA) • Suited for types of protection: intrinsic safety, non-sparking, flameproof and dust explosion		
Measuring ranges	• Resistance thermometer: –196 to 800 °C (–320.8 to 1472 °F) • Thermocouple: –40 to 1600 °C (–40 to 2912 °F)		
Measuring insets	In accordance with DIN 43735, exchangeable		
Displays (optional)	Transmitter-controlled, graphical (alphanumeric) LCD indicator, also with dual function - Configuration of the transmitter via buttons - Process, sensor and actual values display		
Functional safety	Up to SIL2 / SIL3 in accordance with IEC 61508 with integrated transmitters		
Approvals	IECEx, ATEX, GOST / EAC-Ex, further approvals in preparation		
Connection heads	 AGL / AGS	 AGLH / AGSH (not TSP341-N)	 AGLD / AGSD	
Data sheet	DS/TSP3x1		

SensyTemp TSH series 200

For temperatures up to 1800 °C (3272 °F)

Product types	**TSH210**	**TSH220**
		
Process connections	Metal thermowell	Ceramic thermowell
	Stop flange with counterflange, threaded socket, welded standard flange	
Structure	• Modular design, versatile - In accordance with EN 50446 and ABB standard • Connection heads - AUZ: Aluminum, with hinged cover - AUZH: Aluminum, with upper hinged cover - BUZ: Aluminum, with hinged cover - BUZH: Aluminium, with upper hinged cover - Other heads in various designs and materials • Transmitter in connection head (4 to 20 mA / HART, FF, PA)	
Max. Operating temperature	1300 °C (2372 °F)	1800 °C (3272 °F)
Connection head (selection)	 AUZ  AUZH  BUZ  BUZH	
Data sheet	DS/TSH2x0	

Wireless made easy
Eliminating the need for field wiring

Product types	**TSP3xx-W**	**TTF300-W**
		
Communication protocol	WirelessHART	
Device type	Battery supply without Energy Harvester	Battery supply without Energy Harvester
Input	Two sensors inputs - Resistance thermometers, resistance-type remote sensor (0 to 5000 Ohm) - Thermocouples, voltages, mV-voltages (–125 to 1100 mV)	
Sensor connection	• Pt100, two-wire, three-wire, four-wire, thermocouple with internal reference junction • 2x Pt100 two-wire and three-wire, 2x thermocouple or 1x Pt100 two-wire, three-wire, four-wire and 1x thermocouple	
Features	• Continuous sensor monitoring and self-monitoring - Supply voltage, wire break and corrosion monitoring • Sensor error adjustment • Electrical isolation • Specific linearization - Callendar-Van Dusen coefficients, table of value pairs / 32 points • Innovative energy management	
Indicator (optional)	Transmitter-controlled, graphical (alphanumeric) LCD indicator with dual function: - Configuration of the transmitter via buttons - Process, sensor and actual values display	
Configuration	Via HART handheld terminal (DTM, EDD, HMI), FIM	
Approvals	IECEx, ATEX, further approvals in preparation	
Data sheet	DS/TSP3x1-W	DS/TTF300-W

ABB NINVA™ - Non-invasive temperature measurement solution

NINVA™ TSP341-N
Non-invasive temperature sensor

— 01 TSP341-N clamp on installation
— 02 TSP341-N with and without LCD indicator

NINVA™ stands as the innovative non-invasive temperature sensor, which is 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.

Our solution is the technology proven by hundreds of global customers.

By consistently improving our non-invasive temperature monitoring solution, we have expanded its capabilities to tackle a wider range of measurement challenges faced by plants from the chemical and oil & gas sectors.

The safest non-invasive temperature measurement sensor in the world

NINVA™ is the first clamp-on non-invasive temperature sensor that has been fully assessed to the IEC61508 standard and meets the requirements for SIL2. This means our sensor has undergone rigorous testing and meets international safety standards for reliability and risk reduction in safety-critical applications.

Embrace the new customer-driven innovations
- SIL certification
- Easy calibration and maintenance
- Designed for challenging environments
- Enabling steam and energy measurements
- Suitable for smaller piping
- Built on proven TTH300 electronics
- Easy setup
- Skin temperature of uninsulated assets

Key NINVA™ benefits

Safer
No process penetration
No threat of undetected welding defects

Simpler
Single device for all piping diameters
An accurate measurement point in minutes

Lower Cost of Ownership
No need for turnaround thermowell checks
Eliminate hundreds of thermowell variants

High Performance
Using time-tested and proven sensors
Keep your measurement performance

* The temperature sensor TSP341-N belongs to ABB's product series SensyTemp TSP. It is listed in the type examination certificates for explosion protection as SensyTemp TSP341-N.

—
01

—
02

Product types	**TSP341-N**
	
Comm Protocol	HART7, 4-20 mA
Device Type	Integral head mounted Transmitter TTH300-N and Sensor OR without head mounted temperature transmitter for use with TTF300-N Field transmitter.
Sensor	RTD – 2 x Thin film resistor Pt100, three-wire circuit; nickel tip
Sensor Accuracy	2 x Class A, IEC60751 Insets
Response Time	T90 < 45s on liquid media, turbulent flow (Reynolds number >10000), Metal Piping
Indicator	Transmitter-controlled, graphical 2 line (alphanumeric) LCD indicator for process value, sensor value and actual value
Measuring Range (surface temperature	-40 to 400 °C (-40 to 752 °F) -
Functional Safety	Sil2/3
Piping Diameters	DN40 – DN2500 (1,5” – 88”)2
Approvals	IECEx, ATEX, FM, Kosha, NEPSI, PESO
Process connection	Surface mounting to piping (Clamp-on concept)
Additional Features	"Easy setup" - ABB guided device and sensor commissioning Diagnosis active alerts and mapping NAMUR status selection Event and configuration Monitor EMC Filter
Datasheet links	TSP341-N DS

1. Temperatures up to 550°C available with remote sensor apparatus with field mount TTF300-N as special orders

2. Measurements down to piping diameters of DN15 (1/2") available as special orders

ABB AG
Measurement & Analytics
Schillerstr. 72
32425 Minden
Germany
Tel: +49 571 830-0
Fax: +49 571 830-1806

abb.com/measurement

PB_TEMPERATURE-EN_REV_H