

# SmartLine Temperature Transmitter for Power Plant Operations

## Solution Note

Accurate and reliable temperature measurements – key to maintaining plant reliability.

Process and power plant owners need to operate their plant in a safe, economical and efficient manner. To do this, assets have to be monitored for safety, reliability and efficiency. Temperature measurement plays a crucial role in proper process measurement and control as it affects the safe and economical operation of the power plant.

### Challenge

Any power generating station – irrespective of its size and type – has key rotating equipment such as turbines and generators, where temperature measurement is critical. In these applications the temperature is continuously monitored to ensure that it does not cross the ranges recommended by the manufacturer. In addition to continuous monitoring, the associated temperature sensors require proper maintenance to ensure reliable measurement.

### Solution – Reliable Measurements

The Honeywell SmartLine® Temperature Transmitter meets the above challenges head-on, due to the following:

- Availability of burnout feature in the hardware/software form. This notifies maintenance personnel about any sensor that has failed, or any sensor displaying a problem, thereby reducing plant downtime.



*SmartLine STT850 Temperature Transmitter with Advanced Display showing PV and PV Trend for a RTD sensor. The full set of display screens are easily advanced using the local three buttons on the top of the transmitter. Configuration of the transmitter using the three buttons is also fully supported; thereby, avoiding the need of a handheld device.*

## FEATURES & BENEFITS

- Hardware or software burnout feature notifies maintenance personnel about any sensor that has failed or sensor issues, thereby reducing plant downtime.
- Process temperature high and low tracking allows monitoring the asset temperature of the plant hardware.
- SIL 3 capable. Safety certification complying with IEC 61508, making it compatible with safety systems, thereby enhancing the overall safety of the plant and reducing risk.
- Industry leading stability with drift at 0.01% of URL for 10 years, ensuring that the temperature measurement is accurate and reliable with less maintenance.
- Flexible mounting options giving flexibility to the user depending on the location of the measurement.

- Tracks the high and low limits of the process temperature, thereby monitoring the asset temperature in the field.
- Flexible mounting options giving flexibility to the user depending on the location of the measurement.
- Safety certification complying with IEC 61508, making it compatible with safety systems, thereby enhancing the overall safety of the plant and reducing risk.

### A Range of Key Applications

The Honeywell SmartLine Temperature Transmitter is the ideal solution for many applications including the following.

#### Turbines

Turbine lube oil temperature and bearing Babbitt metal temperature are two crucial parameters that need to be maintained within ranges recommended by the turbine manufacturer. Turbine operation at bearing temperatures higher than the manufacturer recommended values can result in bearing failure and consequently turbine shutdown. Often the shutdown period needed for a bearing inspection extends to weeks of unit shutdown, and the decline in station availability has an associated economic impact as well. Reliability of temperature measurement is therefore crucial in turbine applications.

#### Generators

Generator hydrogen oil cooling water temperature is of prime importance for plant safety. Even a marginal increase can lead to an increase in the pressure of the casing and the generator hydrogen system itself. Pressure limits associated with the system can fail as a result of the temperature increase, leading to the escape of hydrogen. Plant safety is the key in this temperature measurement application.

Generator seal oil temperature is also an important parameter that needs to be monitored. In the event of an abnormal temperature, a decision should be taken by operations personnel within a few minutes since an abnormal generator seal oil temperature would lead to reduction in seal oil viscosity which in turn leads to oil escaping from the generator seal. Generator seal failure in a hydrogen-cooled

generator can lead to loss of life and property. In this application, accuracy and reliability of temperature measurement are therefore vital.

#### Condensers

Condenser cooling water return temperature has to be monitored for its environmental effect. Higher cooling water temperature at the condenser outlet, particularly for long durations, is ecologically unacceptable as the water is returned to the environment if the cooling cycle adopted is of the open type. Plant operation under such conditions would be a violation of environmental regulations.

Apart from the above applications involving rotating assets, SmartLine Temperature Transmitter can also cater to process temperature measurements in static assets such as boilers, air pre-heaters and de-aerators.

#### The Honeywell Advantage

Honeywell SmartLine Temperature Transmitter is an ideal fit for asset health monitoring and safety in view of its reliability, built-in safety features, flexible mounting options, proven track record in similar applications, and the availability of global application and technical support.



SmartLine STT850 Temperature Transmitter with Advanced Display showing Bad PV for RTD sensor 1. STT850 is available with a dual input option and RTD sensor 2 could serve as a redundant input.

## SmartLine Transmitter Family

The SmartLine Pressure, Temperature, Level and Multivariable Transmitters deliver total value across the entire plant lifecycle, from construction to operations to maintenance.

**Smart Performance:** SmartLine accuracy, stability and response time result in tighter process control, improving product yield and quality.

**Smart Design:** SmartLine's innovative modular design reduces complexity by allowing quick on-field replacement of parts without taking transmitters out of process and thereby reducing downtime, maintenance costs and spares inventory. SmartLine's universal terminals reduce costly wiring errors, troubleshooting and re-work by allowing loop wiring to be reversed. Rich advanced display and local configuration capabilities enable field operators to more efficiently perform tasks, solve problems and avoid errors with no need for a handheld device.

**Smart User Experience:** Smart messaging, maintenance and safety features as well as unique integration with Honeywell's Experion® control system reduce design and operator errors and enable faster intervention to avoid process upsets.

## SmartLine Support Services

This product comes with worldwide, premium Technical Assistance Center (TAC) support services, which are part of the Total Care Field Instrumentation Services. The TAC services, along with the services provided by the local distributor, are designed to help customers improve and extend the usage of their field instrumentation, providing a safer, more reliable and more efficient operation.

Honeywell's Total Care Services bring 30 years of experience in terminals and the expertise of over 1,000 contracted customers around the world. Backed by the Honeywell Operating System, our support teams deliver greater in-depth domain and product expertise. We'll provide the right solution to critical issues—the first time—for a safer, more reliable and more efficient operation.

## For More Information

To learn more about how Honeywell's SmartLine Temperature Transmitter can improve your process plant operations, visit [www.honeywellprocess.com/smartline](http://www.honeywellprocess.com/smartline) or contact your Honeywell Account Manager, Authorized Distributor or System Integrator.

## Honeywell Process Solutions

1250 West Sam Houston Parkway South  
Houston, TX 77042

Honeywell House, Arlington Business Park  
Bracknell, Berkshire, England RG12 1EB UK

Shanghai City Centre, 100 Zunyi Road  
Shanghai, China 200051

[www.honeywellprocess.com](http://www.honeywellprocess.com)

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