

Solution Note

Temperature Measurements – Key to Maintaining Power Plant Reliability



Challenge

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.

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 has to be continuously monitored, to ensure that it does not cross the ranges recommended by the manufacturer. The associated temperature sensors have to be properly maintained, to ensure reliable measurement.

Solution – Reliable Measurements

The Honeywell STT3000 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.
- **Tracks** the high and low limits of the process temperature, thereby monitoring the asset temperature in the field.
- Flexible **mounting options** (e.g. field, wall, head, DIN rail) 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

Here are just some of the applications where the Honeywell STT3000 is the ideal solution:

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. **Reliability** of temperature measurement is therefore crucial in turbine applications.

Generators

Generator seal oil temperature is 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. The reason is that an abnormal generator seal oil temperature leads 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.

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 even 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.

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, STT3000 can also cater to process temperature measurements in static assets such as boilers, air pre-heaters and de-aerators.

The Honeywell Advantage

Honeywell STT3000 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.



It Matters. [Learn more](#) how Honeywell solutions help solve what matters.

For More Information

To learn more about Honeywell's STT3000 Temperature Transmitter, visit our website www.honeywellprocess.com or call your local HPS Account Manager.

Honeywell Process Solutions

Honeywell
1250 West Sam Houston Parkway South
Houston, TX 77042

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

Shanghai City Centre, 100 Junyi Road
Shanghai, China 20051

www.honeywellprocess.com

SO-13-24-ENG
March 2013
© 2013 Honeywell International Inc.

Honeywell