

ABB pressure and temperature transmitters

Reliable solution for power plant output increase



ABB wins 141k USD contract for pressure and temperature transmitters installed at Saudi Arabian power plant.

Measurement made easy

Picture for reference only

General project scope and details

In mid-2015, ABB delivered 180 ABB pressure transmitters, 200 ABB temperature transmitters, associated spares and equipment to customer for a Power plant in Saudi Arabia, located about 600 km north of Riyadh.

The transmitters are key components for the conversion of the original power plant from simple cycle to combined cycle.

The original plant consisted of four existing combustion turbines that fired Arabian light oil. The customer retrofitted the plant with four VHRSG (Vertical Heat Recovery Steam Generators) - one for each of the four combustion turbines - plus one steam turbine.

The customer designed and supplied the vertical design VHRSGs as well as provided advisory services for erection and start-up of the units.

VHRSGs take advantage of the hot waste gases from the plant's combustion turbines. In this case the hot gases rise vertically across horizontal evaporator tubes in boilers to produce steam. Steam produced by the four VHRSGs drive the newly installed steam turbine to generate electricity, converting the plant from simple to combined cycle operation. With this conversion the power output of the increased by 147 MW with no increase in fuel consumption.

The customer notes that the power project features the company's improved state-of-the-art design for dual-pressure vertical VHRSGs. These units have a hot casing and vertical gas flow to allow online and offline soot blowing and water cleaning.

Instrumentation

The ABB transmitters supplied for this project were the following:

Model 266DSH (92 units)

These are differential pressure transmitters commonly used for measuring flow rates and level. Flow rates derived from pressures across pipeline orifices require a built-in square root function. Characterized by long stability and high performance, Model 266DSH transmitters also offer Plugged Impulse Line Detection that alerts the operators to need for maintenance to assure accuracy.

Model 266HSH (88 units)

These are gauge pressure transmitters suitable for measuring liquid, gas or steam pressure in a pipe or tank.

Model TTF300 (196 units)

These are field-mounted temperature transmitters equipped with either thermocouples or resistance thermometers, depending on the application. They offer continuous sensor self-monitoring of supply voltage, wire break, and corrosion.

Winning tactics

Sandra Blanco, Javier Martínez and Heriberto Ferrándiz, members of the LSU Spanish Team, collaborated to create the final bid for the project.

Sandra and Javier dealt with the customer's business and technical staff. Heriberto worked with the ABB factories. All agree that the competition pushed hard, but the fact that the customer greatly appreciated our technical solution put us over the top.

"In communicating this solution," says Sandra, "we exchanged several e-mails and held multiple meetings with the customer for six months to make changes in our quotation and to comply with requirements."

"Additionally," says Heriberto, "we enjoyed good and fast communication with quick responses from our factories ABB Italy (Ossuccio) and ABB Germany (Minden). Two special requirements that the factories fulfilled were to supply instruments with a Safety Integrity Level of SIL2 and TAG plates in two languages: Arabic Indic and English."

"The customer," adds Heriberto, "knows our instruments from several other ABB projects and trusts them to be accurate, reliable, and of high quality".

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