

Gas compressor monitoring goes wireless with ABB HART solution



A wireless data solution allows an oil and gas production company to monitor its gas compressors remotely while saving 75 percent on the installation time of the monitoring system.

Measurement made easy

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01 TSP341 W mounted

Keeping a close eye on well head compressors

Fossil fuel industries are increasingly under pressure to prove that they are producing fuels in a responsible way that cause minimum damage to the environment. Measuring pressure and flow rates at production sites is a good way to spot potential leaks or breaches of pipework, ensuring spillages are kept to a minimum and avoiding pollution incidents.

Basic data

Industry: Oil and gas
 Customer: Cómputo y Electrónica de Coatzacoalcos, S.A. de C.V. (CECSA S.A de C.V.)
 Country: Mexico

Monitoring offers real-time view of gas production

Oil and gas production companies need to keep a close eye on the flow, temperature and pressure of pumped hydrocarbons to ensure that production rates are maintained and that there are no leaks in the pipework that could lead to environmental damage. Building a monitoring network that can

damage. Building a monitoring network that can provide easily accessible data to automation and control systems is therefore essential. Pipeline facilities are also often sited in remote and difficult to access areas, so the network needs to be easy to install, monitor and maintain.

This was the challenge facing Mexican systems integrator Autocontrol del Golfo S.A. de C.V. when it was asked by the client CECSA S.A. de C.V. to install a system to monitor motor compressors at well heads. Because the production fields are located in rural areas, the management of electrical energy and the sending of information is a challenge for the automation of the process and the maintenance of operations.

The system therefore needed to offer high availability and reliability to ensure continuous monitoring of motor compressor variables, present them visually in real time in the client's control center and offer a real calculation of the flow rate of the natural gas flow.



02 Well Head Compressor

The client already had HART based systems, so any solution needed to demonstrate that it was compatible with these.

Wired and wireless system working hand-in-hand

Working with its channel partner, Autocontrol del Golfo S.A. de C.V, ABB provided instrumentation for the compressors with connectivity provided by a WirelessHART wireless network. This was combined with wired instrumentation in a point-to-point 4-20 mA HART connection together with non-invasive sensor technology.

The wireless network consists of a WirelessHART Gateway, model GW100, three model 266HSH WirelessHART gauge pressure transmitters and a WirelessHART non-invasive temperature transmitter sensor, model TSP341.

The wired network uses a single HART gauge pressure transmitter, model 266HSH, and a HART temperature transmitter sensor, model TSP331.

The solution offers a number of benefits. Using ABB's innovative non-invasive sensor technology and wireless equipment allows a data acquisition network to be set up in a few hours, saving 75 percent on implementation time, while also having a low demand for electrical power. This

low power demand means that ABB's WirelessHART transmitter needs less frequent battery replacement.

Non-invasive sensors also reduce the risks of leaks and accidents that can result from the vibration and high pressures experienced in the processes.

Keeps production constant

Wireless infrastructure also avoids disrupting production from the wells, while also cutting installation costs.

The ABB HART technology can readily be connected to systems and equipment from different brands. Easy to diagnose and update remotely, it offers straightforward configuration and maintenance from the control room display, cutting costs. The gateway allows self-construction and self-management of the network in a simple, reliable and secure way - access is protected by AES 128-bit authentication and encryption.

The solution can automate and concentrate asset data in both large and small pumping and production facilities, and due to its modular construction, it can easily be expanded to cope with growing production.

03 Wireless HART Non
invasive Temperature
Transmitter TSP341.

04 Wireless HART
Gauge Pressure
Transmitter 266 HSH.

Compatible with installed base

Working with its channel partner, ABB was able to demonstrate that its solution was compatible with the installed base from another brand, which the customer had been using since the beginning of the project more than three years previously. Implementation time and security were both improved, while ABB could also demonstrate a 99% availability rate. Compatibility and performance tests were conducted to guarantee the start-up and implementation of the system.

The fact that wireless connectivity facilitates configuration and allows interconnection with different existing third-party equipment, combined with ABB's latest generation non-invasive technology, ensured the project was both successful and profitable.

The reduced start-up time, low installation cost and the rapid and specialized service provided by Autocontrol del Golfo were key factors in the successful execution of the project.



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Technical Information

Industry: Oil and gas

Customer: Cómputo y Electrónica de Coatzacoalcos, S.A. de C.V. (CECSA S.A de C.V.)

Country: Mexico

ABB Solution: Wireless network: WirelessHART Gateway, model GW100, three model 266HSH WirelessHART gauge pressure transmitters and a WirelessHART non-invasive temperature transmitter sensor, model TSP341.

Wired network: A single HART gauge pressure transmitter, model 266HSH, and a HART temperature transmitter sensor, model TSP331.

ABB Wireless gateways connects WirelessHART instruments to automation networks or the ABB Ability™ platform. The gateways can aggregate process and other types of measurements from field instruments and sensors to improve insights into plant processes and asset conditions.

The GW100 is an entry model WirelessHART gateway to support process measurements and integration into automation systems through ModbusTCP.



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Easy route to wireless connectivity

ABB Wireless HART Gateways offers a number of benefits:

- Cost efficient hardware
- Simple and intuitive setup
- No need for special training
- Easy configuration of WirelessHART networks
- As-built, self-documentation functionality
- Network performance tracking, logging and reporting
- WirelessHART devices easily connected to ABB AWIN Gateways
- Simple connectivity to Totalflow RTUs and System 800xA

Intelligent transmitter offers precise measurement

The 266HSH is a high overload gauge pressure transmitter with a maximum working pressure up to 105 MPa, 15225 psi, suitable for measuring liquid, gas or steam pressure in a pipe or on an open tank. Communication options include Modbus®, along with 4-20mA HART, low-power 1-5V HART, Wireless HART, Profibus, and Foundation Fieldbus.

Its WirelessHART communication protocol allows a shorter installation time by eliminating complex wired infrastructures, and lower overall implementation costs of process measurement.

Offering long-term stability, the 266HSH achieves lasting performance even in extreme ambient and process conditions.

Easy installation anywhere

The TSP300-W series WirelessHART temperature sensor allows easy addition of temperature measuring points throughout operations. Installation times are reduced through the elimination of complex wired infrastructure and lower overall implementation costs of process measurement with ABB's wireless devices featuring WirelessHART communications.

Temperature sensors for heavy duty applications

The TSP 331 is a heavy duty RTD or thermocouple temperature sensors. Its main application is pipe and tank engineering in high process requirements (e.g. offshore). Communication options include FOUNDATION Fieldbus, PROFIBUS PA, HART, 4 ... 20 mA or direct sensor output.

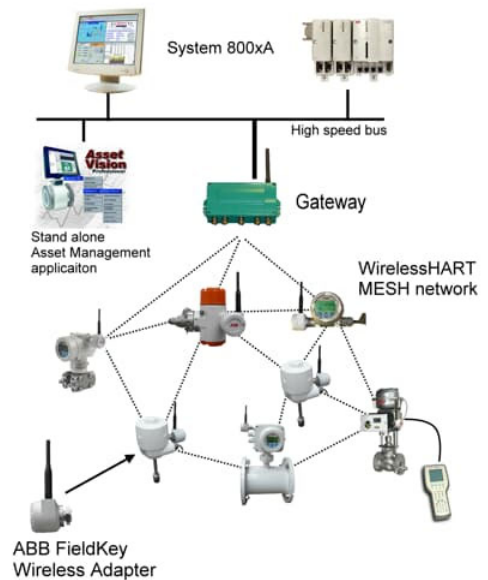


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