

PRESS RELEASE

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Date: October 27, 2011

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Release #: 1008

Yokogawa Releases DTSX200 Distributed Temperature Sensor – The First Ever Distributed Temperature Sensor for Oil/Gas and Industrial Production Operations Developed by a Production Control System Manufacturer –

Yokogawa Electric Corporation announces the DTSX200 Distributed Temperature Sensor (DTS) was released to the global market on October 19 and the Japan market in April 2012. The DTSX200 is used to monitor temperature and flow in Oil/Gas Upstream unconventional and conventional in-well applications, LNG and Refinery Tank and Pipeline leak detection, Fire Detection, and other thermal monitoring applications.

With the DTSX200, Yokogawa has developed a product for control applications that uses the optical measurement technologies it acquired over the years in the measurement field. This product can be used at extreme temperature environments like the desert and arctic locations, and in on-shore and offshore applications. The DTSX200 helps improve production efficiency by working together with production control systems.

Yokogawa is the first production control system manufacturer to develop such a distributed temperature sensor for use in Oil/Gas Upstream production and other Industrial applications. The DTSX200 is already being evaluated for use in Oil/Gas in-well production by some of our

customers, and more on-site testing is planned. With the DTSX200 distributed temperature sensor, Yokogawa can offer an even more comprehensive set of solutions ranging from temperature monitoring to production control that help improve production operation efficiency.

Development Background

The development of unconventional Oil/Gas resources and enhance oil recovery (EOR) technologies has attracted attention as alternatives to oil and gas production. When heavy oil is extracted from oil sands by using steam or some other means, it is necessary to monitor the underground temperature to ensure efficient collection.

To monitor temperature changes in underground formations that contain heavy oil, an optical fiber is fed into a well and the acquired data are used for controlling production. Although Yokogawa previously offered the AQ8920 distributed temperature sensor, this was designed for indoor use and was not suitable for production sites that typically are located in harsh environments. Therefore, Oil and Gas developers need a robust fiber-optic temperature sensor that can withstand harsh environments.

To meet this need, Yokogawa has developed the DTSX200 rugged distributed temperature sensor for Oil/Gas production sites. In doing so, Yokogawa has applied its optical measurement technologies for the first time ever in a control application.

Product Features

1. Works together with production control systems

Unlike all other distributed temperature sensors on the market, this product is optimized to work smoothly with the production control systems that oil and gas developers use in their operations. The DTSX200 thus helps improve the efficiency of production processes, from temperature measurement to production control.

2. Suitable for use in extreme temperatures

With the ability to have stable operation in temperatures ranging from -40°C to $+65^{\circ}\text{C}$, the DTSX200 is ideal for use in harsh environments. Moreover, with its low power consumption of 16 watts or less, it can be easily powered by a solar panel and battery if no other power source is available.

3. The most compact sensor on the market*

The DTSX200 is just one quarter the size of the AQ8920, making it the smallest such product available today. A compact optical switch module for selecting monitoring points (up to 16 channels) is available for rack mounting with the sensor.

Main Target Markets

Unconventional and conventional oil and gas onshore and offshore in-well monitoring, LNG and Refinery Tank and Pipeline Leak Detection, Fire Detection, and other thermal monitoring applications

Applications

Oil/Gas temperature and flow in-well monitoring, Pipeline and Tank leak detection, Hot and Cold Spot LNG and Refinery Vessel Reactor monitoring, and Fire Detection.

*Based on a Yokogawa market survey

About Yokogawa Corporation of America

Yokogawa Corporation of America is the North American division of \$3 billion Yokogawa Electric Corporation, a global leader in the manufacture and supply of instrumentation, process control, automation services and solutions. Headquartered in Sugar Land, Texas, Yokogawa Corporation of America offers a variety of clients with leading products on the market such as process analyzers, flowmeters, transmitters, controllers, recorders, data acquisition products, measuring instruments, distributed control systems, and more. For more information about Yokogawa, please visit our website www.yokogawa.com/us.

About Yokogawa Electric Corporation

Yokogawa's global network of 25 manufacturing facilities and 80 companies spans 54 countries. Since its founding in 1915, the US \$3 billion company has been engaged in cutting-edge research and innovation, securing more than 7,200 patents and registrations, including the world's first digital sensors for flow and pressure measurement. Industrial automation and control, test and measurement, information systems and industry support are the core businesses of Yokogawa. For more information about Yokogawa, please visit the website www.yokogawa.com.