

Give you a feel'
When every point of the optical fiber is a sensor

Neural Optical Fiber Scope

Distributed Temperature Sensing

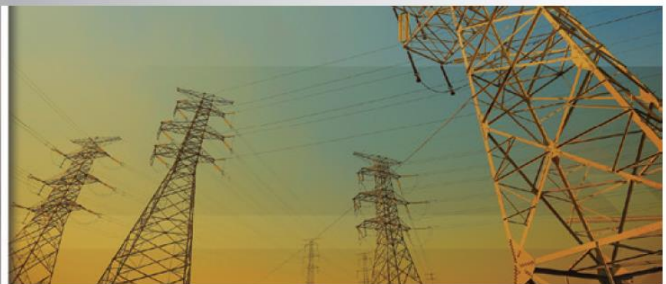
DTSX3000 series

Optical Fiber Distributed Temperature Sensing and Acquisition System





Distributed Temperature Sensing Enhances Site Safety, Asset Monitoring and Facilities Maintenance Function



Intrinsically safe systems for leak detection, industrial process, and asset monitoring.

Ruggedized fiber optic sensor cable is deployed on the monitored area for continuous temperature monitoring along the entire cable length – no discrete sensors are required.

Areas of temperature change indicating leakage or other process abnormalities can be detected for corrective action.

Principal monitoring applications:

- Heat build-up along industrial conveyor systems
- Cable tunnels, ducts, trays or rack systems where heat build-up could become a fire hazard
- Power cable operating temperatures for real-time thermal capacity rating and smart grid optimization
- Furnace chamber deterioration diagnosis via external wall surface temperature profiling

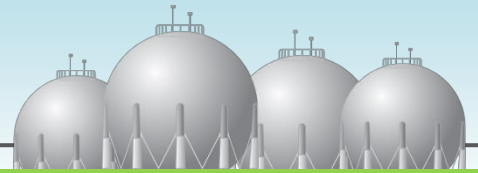
DTSX Fiber Optic Distributed Temperature Sensing System

Features:

- Easy process control system integration
- Wide operating environment range
- Compact and ultra-low power consumption
 - Measure up to 50 km
 - Optional 2-, 4-, 16-channel modular optical switch
- Ethernet and Serial Modbus Communications
- LAS 2.0 and WITSML 1.3.1.1 data formatting option
- STARDOM Field Controller (NFCP050) option
- Field enclosure with solar panels, batteries, and wireless communications available

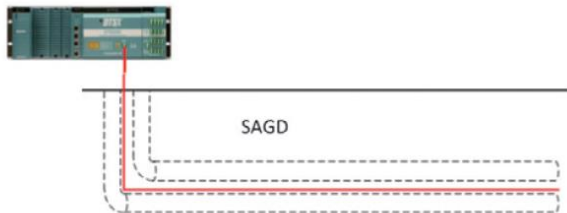
= LAS is Log ASCII Standard

= WITSML is Well-site Information Transfer Standard Markup Language



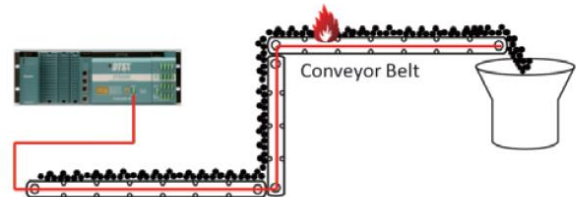
Application Examples

Wellbore Dynamics / Geophysical Monitoring



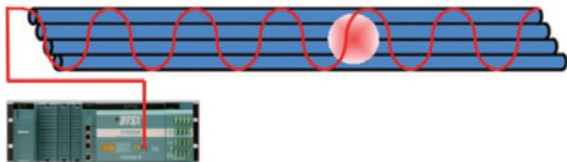
Wellbore temperature distribution profile can be used to detect thermal events related to steam breakthrough and oil & gas intake position, or other geophysical conditions.

Conveyor System Safety Monitoring



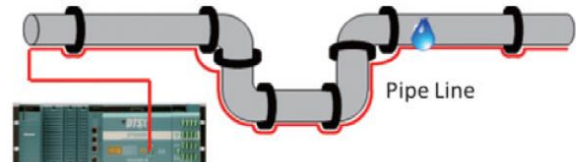
DTSX can be used to detect heat build-up along conveyor systems indicating mechanical component failure or potential combustion conditions.

Cable Rack Monitoring



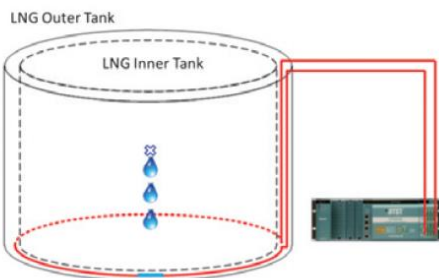
DTSX can be easily deployed along cable tunnels, ducts, trays or rack systems where heat build-up could indicate the potential for a fire hazard, or conductor over-temperature condition.

Pipeline Leak Detection System



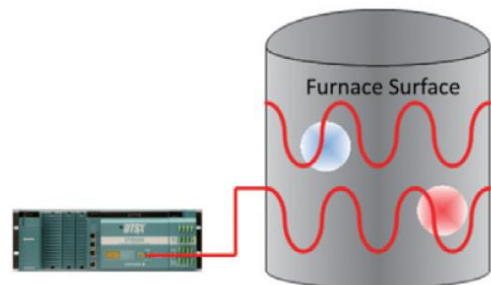
DTSX thermal profiles can be used to detect leak locations along LNG, liquid ammonia and other compressed gas pipelines where escaping content creates a thermal variance from normal background temperatures.

LNG Storage Tank



DTSX is commonly used for LNG tank leak detection by monitoring the expected differential in temperatures between the inner and outer liners comprising the tank system.

Furnace Chamber Skin Temperature Monitoring



Furnace chamber or reactor vessel liner deterioration diagnosis via external wall surface temperature profiling.

Specifications DTSX3000 series

Function	Property
General Function	Optical Fiber Distributed Temperature Acquisition System
Laser Safety	IEC 60825-1 Class 1M, FDA 21CFR Part 1040.10
Interrogation Distance Range *1	10km
Finest Spatial Resolution	1.0 m (10 to 90%) *2
Measurement Temperature	-220° to + 800° C *3
Temperature resolution	0.03° C
Optical fiber	50/125μm GI
Optical connector	E2000 / APC
Power supply	100~120 V or 220~250V AC 50/60 Hz 16W (power safe: 2.1W)
Network Interface Ethernet	10/100 Mbps (100BASE-TX, 10BASE-T)
Network protocol	Modbus TCP Server, SSH-Server (SFTP client, SCP client connectable)
Serial Interface	RS-232-C: 2 ports + 1 maintenance port
Serial protocol	Modbus (ASCII / RTU) master
Operating temperature	-40 ~ +65 ° C, Humidity below 85 % (no dew condensation)
Dimensions	197,8 x 132,0 x 162,2 mm (width: 6 Slots)
Place of production	Japan

*1 Indicated nominal values vary with the refractive index of the optical fiber.

*2 Distance between the 10% and 90% points on the DTS response to step temperature change in the near and part of the optical fiber.

*3 Depend on temperature range of the optical fiber sensor.

* Specifications are subject to change without notice.

Contact Address

Neubrex Co., Ltd.

Sakae-machi-dori 1-1-24, Chuo-ku, Kobe, Hyogo 650-0023, Japan
Tel: +81-78-335-3510 Fax: +81-78-335-3515

www.neubrex.com

(2023.02.20)