# Fiber Optic Temperature Sensing System

DTSX™

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

## Intrinsically safe leak detection, industrial process and asset monitoring systems

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

## DTSX200 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 6km (3.7mi) or a 12km (7.5mi) span
  - Optional 2, 4, or 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

**Bulletin 39J06B45-02E**

# Specifications

**Features:**

**== Spatial Specifications**

Measurement distance range: 1 to 6 km
Spatial resolution: 1 m

**== Temperature Specifications**

Measurement temperature range: -200 to 800℃
(depending on the temperature range of the sensor optical fiber used)
Temperature resolution (℃, typical):

| Range | | | |
|---|---|---|---|
| Duration | 1 km | 3 km | 6 km |
| 10 min. (1 sigma) | 0.07 | 0.15 | 0.5 |

**== Optical Specifications**

Optical connector and optical fiber: E2000/APC, 50/125GI optical fiber

**== Communication Interface**

Modbus: Serial and Modbus/TCP
LAN: 10 BASE-T or 100 BASE-T

**== General Specifications**

Operating temperature range: -40 to 65℃ (-40 to 149°F)
Supply voltage: depends on power supply module used
Power consumption: 10 W (in operating mode)
2 W (in power save mode)
Laser safety standards: IEC 60825-1 Class 1M,
FDA 21CFR Part 1040.10
Explosion proof: Nonincendive, Type "n"

## Optical Switch Modules (optional)

Number of channels: 2 ch DTOS2
4 ch DTOS4
16 ch DTOS16

**== General Specifications**

Operating temperature range:
DTOS2 and DTOS4 -40 to 65℃ (-40 to 149°F)
DTOS16 0 to 50℃ ( 32 to 122°F)

# Selection Guide

Choose the required modules to suit your application

| | DTSX200 | DTSBM10 | DTOS2 2ch | DTOS4 4ch | DTOS16 16ch | Power Supply |
|---|---|---|---|---|---|---|
| Outdoor -40 to 65 degree C | ✓ | ✓ | ○ | — | | ✓ NFPW426(10-30V DC) |
| | | | — | ○ | | |
| Indoor 0 to 50 degree C | ✓ | ✓ | ○ | — | — | □ NFPW426 (10-30VDC) NFPW441 (100-120VAC) NPFW442 (220-240VAC) NFPW444 (24VDC) |
| | | | — | ○ | — | |
| | | | — | — | ○ | |

✓ Required ○ Optional — N. A. □ Choose one

The optional DTAP200 software is recommended for easier configuration of the DTSX200.

# Ordering Information

DTSX200 Distributed Temperature Sensor
DTSX200-N0EN E2000/APC

Base module for DTSX200
DTSBM10-N0N Standard type

Optical Switch module
DTOS2-N0EN 2ch, E2000/APC
DTOS4-N0EN 4ch, E2000/APC
DTOS16-N0EN 16ch, E2000/APC

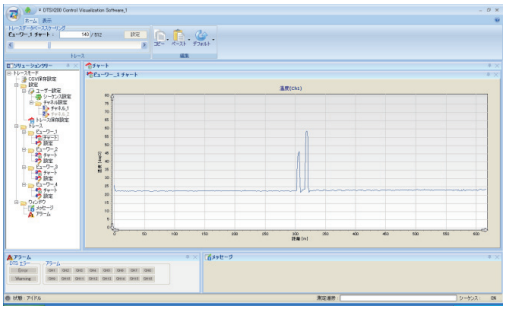
Power Supply
Selected from NFPW426, NFPW441, NFPW442, NFPW444

**Notes:** Please contact us about ISA Standard G3 option.
When DTSX200 is used under the ATEX Type "n" environment, the Instruction Manual, IM 39J06B45-10E "Explosion Protection of DTSX200 Products" is required for safer installation and wiring.



# Application Software

The DTSX200 Control Visualization Software (DTAP200) PC application can be used to control the DTSX200 and visualize DTS data.



Using the DTAP200 application, you can configure and control the DTSX200, display measured temperature data and generate LAS format data, and remotely perform control, monitoring and analysis anywhere via Ethernet.

The Data Conversion Software option (DTAP200D) allows the DTSX200 to generate data files in WITSML format. When the DTSX200 is configured for WITSML conversion using DTAP200D, the DTSX200 will generate data files in WITSML format.

# Ordering Information

DTSX200 Control Visualization Software
DTAP200-N0E Standard type, One license per PC
Data Conversion Software
DTAP200D-N1E WITSML 1.3.1.1, One license per DTSX

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