Fiber Optic Heat Detector
DTSX 1
Measuring temperature and detecting heat with fiber optic cable
Detecting heat with fiber optic cable

DTSX1 protects your equipment and devices against abnormal heat

The DTSX1 measures temperature and detects heat with fiber optic cable. It detects high heat over a wide area quickly and precisely. Also, the ability to configure the alarm display and sound individually to suit your applications enables rapid detection, localization, and identification of abnormalities. This prevents heat-induced equipment failures and abnormalities, as well as large fire incidents that may result from them, in order to maintain operations in plants and other places, and protect your assets.

Compact and easy to deploy

Pursuit of functionality and simplicity
The heat sensing function is utilized and the parts and equipment configuration are standardized as much as possible. The pursuit of simplicity has produced an easy-to-handle heat detector in a single box. Visibility is increased by placing the alarm display for each channel on the front display panel area.

Simple solution by laying a cable in an ingenious way
The laying of a single optical fiber cable in an ingenious way enables rapid detection of high heat without fail. This enables wide range precise fire detection and hot spot monitoring to be implemented simply.

User-friendly
Minimizing initial trouble and time and effort, including engineering and complex operations needed for installation and configuration processes, helps reduce total system cost. Once the system is up and running, it reduces the cost of maintenance including daily maintenance of equipment and devices.

Interaction with integrated system products
By seamlessly interacting with Yokogawa’s integrated system products, the DTSX1 provides safety and security as a core component of equipment abnormality detection in the fire risk management of plant operations. It is useful in promoting optimization of the equipment maintenance plan.

Time and effort reduction by heat detection system

The DTSX1, which incorporates a heat detection function in a single box, can be used as a heat detector right away by simply connecting the fiber optic cable supplied as standard. The use of a DTSX1 and optical fiber cable package eliminates the time and effort needed to select the necessary accessories. Since the DTSX1 can be used as a standard system in conjunction with the GA10, which is capable of displaying temperature in graphical format, it is possible to reduce the time and effort needed in processes, such as deployment, configuration, and operation.

Overview

- Rapid detection of fire over a wide area
- Human error reduction
- Time and effort reduction for building your system, etc.
- Running cost and warranty cost reduction

Detail

- User-friendly
- Equipment abnormality (unloader, etc.)
- Belt conveyor transporting hot coal
- Coal dust deposition
- Spontaneous combustion in coal stockpiles
- Equipment abnormality (motor, etc.)
- Hot coal in bunker
- Packaging

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Applications

- **Abnormal temperature monitoring in cable racks**
  Rapid detection of abnormal heat generation, leading to a fire hazard, such as an abnormal temperature rise in a cable rack or power line.

- **Fire detection in cable tunnels**
  Utility tunnels are accessible, but people do not normally pass through them. The detection of abnormal temperature and heat generation there can avoid fire risks associated with a temperature rise, etc.

- **Furnace health**
  Hot spot monitoring with a heat detector ensures detection of the deterioration and abnormal state of a furnace and enables identification of the location.

Specifications

**DTSX1 Fiber Optic Heat Detector**

- **Measurement distance range**: 2, 4, 6, 8, 10, 16 km
- **Number of channels**: 1, 2, 4
- **Sampling resolution**: Measuring temperature at 1-meter intervals
- **Minimum temperature measurement time**: 5 sec
- **Relay output**: 64 ports, max. 35 V / 1 A DC
- **Relay input**: 4 ports, 12 to 30 V / 5 mA DC
- **Power supply voltage**: 10 to 30 V DC
- **Power consumption**: 39 W (normally 15 W at an ambient temperature of 23°C)
- **External dimensions**: 500 (W) × 500 (H) × 250 (D) mm (Note)
- **Weight**: 28 kg

Note: External dimensions exclude protrusions (for details, see the external dimensions drawing)

**Related Products**

<table>
<thead>
<tr>
<th>Item</th>
<th>DTSX3000 Distributed Temperature Sensor</th>
<th>DTSX200 Distributed Temperature Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement distance range (10-minute measurement)</td>
<td>0.02°C</td>
<td>0.03°C</td>
</tr>
<tr>
<td>Spatial resolution</td>
<td>1 m or less</td>
<td>1 m or less</td>
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<tr>
<td>Power consumption</td>
<td>16 W (in measurement mode)</td>
<td>10 W (in measurement mode)</td>
</tr>
<tr>
<td>External dimensions</td>
<td>197.8 (W) × 132.0 (H) × 162.2 (D) mm (Note)</td>
<td>197.8 (W) × 132.0 (H) × 162.2 (D) mm (Note)</td>
</tr>
<tr>
<td>Weight</td>
<td>2.5 kg</td>
<td>2.5 kg</td>
</tr>
<tr>
<td>Optical switch module</td>
<td>Number of channels</td>
<td>2, 4, 16</td>
</tr>
</tbody>
</table>

*1: The temperature resolution varies depending on the circumstances. Note: External dimensions exclude protrusions (for details, see the external dimensions drawing)

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