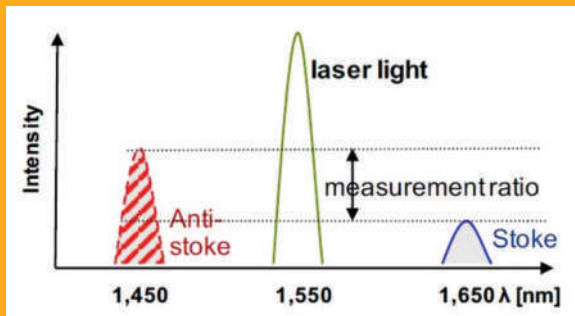


Working Principle

When light source (laser) is incident on the optical fiber, it is scattered by the fiber glass molecules as it propagates down the fiber and exchange molecules with lattice vibration. As the light scattered down the fiber optical cable nearly all the scattered light has a wavelength identical to the incident light, called Rayleigh scattering.

A small amount of the scattered light has a different wavelength called Raman scattering which produce stokes signal and anti-stokes signal, is reflected back to transmitted end where it is analyzed. The difference between intensities of backscattered anti stokes and stokes signals gives the measure of temperature at point. Measurement of arriving time at transmitting end is used to get position of temperature reading, known as Optical time domain reflectometry.



Features

- **Intrinsically Safe**
Widely used for petrochemical, nuclear & electric power
- **Fiber Sensor**
Use existing fiber as continuous sensors; Easy to install and maintenance free
- **Linear Monitoring**
Suitable for monitoring large linear assets, such as tunnels, metros, cables, conveyer belts etc.
- **Chemically Stable**
Good for well monitoring, chemical process etc.

DTSenz

Optical Fiber Distributed Temperature Sensor



Introduction

Optical fiber distributed temperature sensor enable to monitor continuous temperature profile along the length of a fiber. Fiber itself is used as a sensing material. Distributed temperature sensing (DTS) can provide thousands of temperature measurements over a long distance, a few kilometers. Our DTS system works on the principle of Raman light scattering combined with OTDR (optical time domain reflectometry).

Optical Specifications

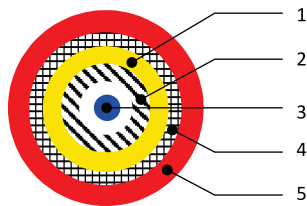
Parameter	Remarks
Sensing Range	10 km
Measurement Time	1 sec per channel
Temperature Accuracy	±1°C
Temperature Resolution	0.1°C
Sampling Resolution	0.4 m
Spatial Resolution	1 m
Position Accuracy	±0.5 m
Sensing Temperature Range	-20 to 120°C standard cable
Number of Channels	4
Sensing Fiber Detail	Multi mode fiber, FC/APC
Working Temperature	-10 to +50°C
Storage Temperature	-40 to +70°C
Relative Humidity	5 to 90%
Power Supply	100 - 230 V AC, 50 - 60 Hz
Power Consumption	15 W

Interface

Interface	Specifications
Outputs	RS485 (Modbus)
	RJ45(UDP/TCP-IP)
POWER	3PIN (GND, NC, 12V)

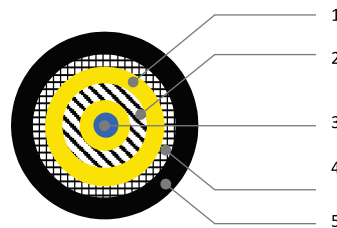
Sensing Cables Offered

CAB-MM3-62.5-LSZH Fire Detecting Sensor Cable



1. Kevlar
2. SUS Spring Tube
3. Tight Buffer. Fiber
4. SUS Braiding
5. LSZH Outer Jacket

CAB-MM3-62.5-PTFE Heat Resisting Sensor Cable



1. Kevlar
2. SUS Spring Tube
3. High Temp. Fiber
4. SUS Braiding
5. PTFE Outer Jacket

Item	Specifications
Fiber Type	62.5/125 μ m MMF, 3 mm O.D.
Measurement Range	Long term (-20 to 85°C)
	Short term (120°C)

Item	Specifications
Fiber Type	62.5/125 μ m MMF, 3 mm O.D.
Measurement Range	Long term (-45 to 150°C)
	Short term (200°C)

Applications

- Linear temperature sensing along pipelines and tunnels
- Fire detection
- Leakage detection in oil and gas pipelines
- Conveyor belt monitoring
- Power transmission lines
- Reactor skin temperature monitoring
- Cable tray monitoring



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