

PRODUCT INTRODUCTION

Fibre Optic Sensing Device

Distributed Optical Fibre Temperature Measurement System YOSC-DTS-04

YOSC-DTS-04 distributed fibre temperature measurement system is a real-time, on-line, continuous temperature monitoring system based on the principle of backward Raman scattering and optical time domain reflectometry (OTDR).

The system uses the special temperature sensing cable as the temperature sensor, which can accurately measure the temperature at each position in the laying direction of the temperature sensing cable and locate the temperature anomaly, and has good performance indicators and system stability. It can be widely used in power, oil, coal, transportation and other fields.



+ Features

- Distributed: can continuously measure temperature and location information along the detection fibre optic cable for tens of kilometers
- High precision: The highest temperature measurement accuracy is $\pm 0.5^{\circ}\text{C}$, and the highest positioning accuracy is 0.5m
- Compatibility: Supports multiple communication methods such as Ethernet, RS232, relay output, etc, and can communicate with other platform platforms
- Long lifespan: Temperature sensing optical cables can last up to 25 years
- Intrinsic safety: sensing optical cables are inherently safe, explosion-proof, resistant to electromagnetic interference, and lightning resistant

+ Applications

- Petroleum and Petrochemical
- Pipe gallery
- Rail transit
- Electricity, coal mines

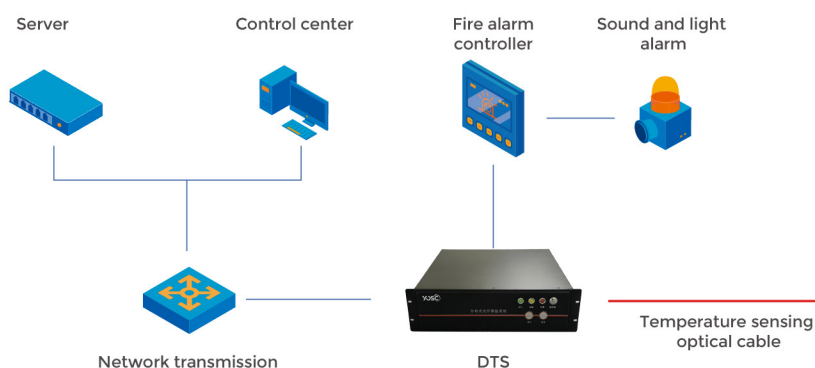
+ Function

- Alarm function: constant temperature alarm; Temperature difference alarm; Temperature rise alarm; Fibre breakage alarm
- Visual display function: Visualize the display of partition maps; Temperature distribution curve display
- Query function: Historical temperature and alarm information query and display
- Networking function: The system supports multiple communication protocols and can communicate with fire alarm controllers and integrated software platforms

+ Parameters

Items	YOSC-DTS-04-10	YOSC-DTS-04-04S
Temperature measurement distance	10km	4km
Number of supported channels	4/8	4/8
Temperature measurement accuracy	$\pm 1^{\circ}\text{C}$	$\pm 0.5^{\circ}\text{C}$
Spatial resolution	3m	0.5m
Temperature resolution	$\pm 0.1^{\circ}\text{C}$	
Alarm response time	< 30s	
Communication interface	RJ45, RS232, relay output	
Dimension	490*135*480mm(3U)	

+ System Composition



Application site

Distributed Optical Fibre Acoustic Monitoring System

YOSC-DAS-M

YOSC-DAS-M distributed optical Fibre acoustic wave monitoring system is a highly reliable, industrial-grade optical fibre vibration sensing product developed by YOSC for industrial applications.

DAS fibre distributed acoustic monitoring system uses the spatial interference phenomenon of backscattered Rayleigh light, and realizes real-time demodulation of frequency, phase, amplitude and position of fast variable acoustic waves through high-speed signal acquisition and data processing technology. It can be widely used in distributed measurement of seismic wave and micro-vibration.



+ Features

- Measurement of phase, frequency, and amplitude of sound waves at each point within the entire fibre optic range
- Low level parallel computing, fast demodulation speed, and good realtime performance
- Periodic enhancement of scattering loss and high signal-to-noise ratio
- High precision, high stability, and high reliability

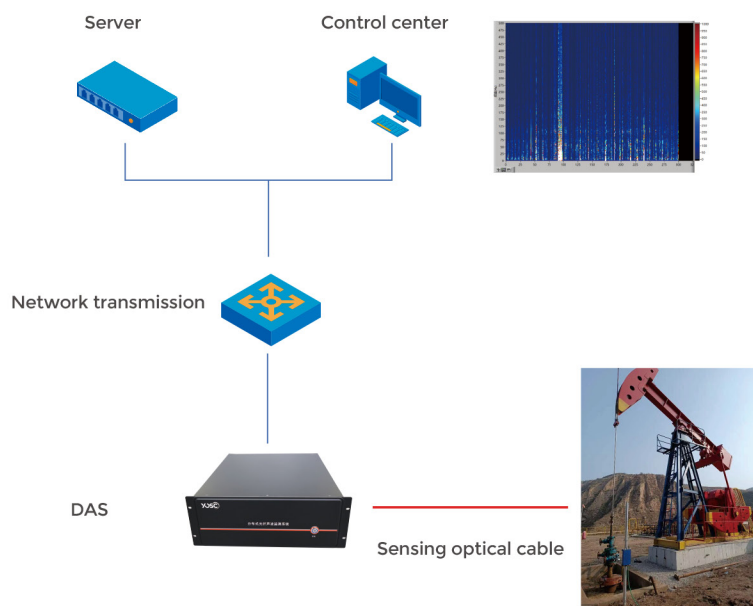
+ Applications

- Exploration of oil and gas ell resources
- Engineering structural health monitoring
- Earthquake disaster monitoring and early warning
- Underwater detection and security defense
- Cable dancing monitoring

Parameters

Items	YOSC-DAS-M
Passageway	1/2 channel
Working wavelength	1550nm
Fibre type	Single mode fibre/self-designed scattering periodic enhanced fibre
Measure distance	10km/20km/40km
Spatial resolution	1m/5m/10m
Sound wave frequency response range	0.5Hz~20kHz
Strain resolution	$87.6\text{p}\epsilon/\sqrt{\text{Hz}}$
Minimum measurable strain	300p ϵ
Dynamic range	90dB
Working temperature	-10~45°C
Communication interface	Ethernet, USB, RS232 optional
Working voltage	220V
Power dissipation	150w
Dimension	3U rack type, integrated (dimension customizable)

System Composition



Optical Fibre Sensing Demodulator YOSC-FD-M

YOSC-FD-M optical fibre sensing demodulator is a highly reliable industrial fibre grating sensor developed by YOSC for industrial applications.

The product is based on the principle of holographic phase grating detection technology, the product can achieve high-speed dynamic measurement of up to 8000Hz in a single channel.

It can be widely used in bridge tunnel, petroleum and petrochemical industry, power industry and other fields of temperature, strain, displacement, vibration and other physical quantities of long-term high-precision monitoring.



+ Features

- Array detection, no mechanical moving parts, good anti-vibration performance
- Each channel can connect 20 fibre optic sensors
- Single channel measurement frequency up to 8KHz
- High precision, high stability, and high reliability
- Real time acquisition of high-speed dynamic physical quantities

+ Applications

- Structural health monitoring in civil engineering
- Online temperature monitoring of power transmission and transformation equipment such as switchgear and cables
- Monitoring of geological hazards such as slopes and dangerous rocks
- Fibre optic sensing monitoring

Parameters

Items	YOSC-FD-M
Working wavelength	1528~1568nm(1525~1605nm optional)
Number of supported channels	4, 8, 16 optional
Number of sensors supported per channel	20
Detection distance	40km(without considering additional losses)
Collection frequency	1~1000Hz(8000Hz optional)
Wavelength resolution	0.1pm
Wavelength repeatability	±1pm
Optical interface	FC/APC
Power supply characteristics	220V/50Hz
Power dissipation	<50W
Communication protocol	UDP, Modbus-TCP, etc.
Communication interface	RJ45, USB
Dimension	1.5U rack mounted, integrated, ultra small portable (dimension customizable)

System Composition

