

Distributed Temperature and Strain Sensing (DTS & DTSS) System

Linear heat/fire detection system for tunnels, power line and pipeline, etc

Description

Distributed sensing takes advantages of the fact that reflection characteristics of laser light traveling down an optical fiber vary with temperature and strain along its length. By using an optical fibre as a sensor, distributed sensing makes it possible to take real time readings of temperatures and strain every meter, or less, along the fibre which can be *up to 30 km long*.

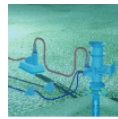
Advantages

The flexibility and speed at measurements offered by distributed sensing systems offer great potential in a wide range of applications. For example, the cable installed in MRT/expressway tunnel or power cable duct can serve as a very effective fire detection system capable of detecting the location of a fire very precisely. Because temperature changes as small as 0.01°C can be detected, distributed sensing systems can highlight an overheating problem before it becomes a fire.

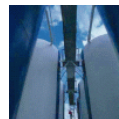
Applications



Oil and Gas Monitoring
Monitor flow of production well, injection in water injection well, motors and sand screen integrity



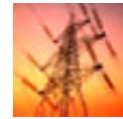
Subsea Flowline Flow Assurance
Achieve real flow assurance - react to real problems instead of theoretical prediction



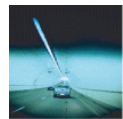
Process monitoring
Optimise production and reduce chemical injection by understanding platform process in detail



Dam safety
Monitor temperature and strain to evaluate integrity of dam structure



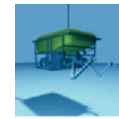
Power line integrity
Optimise current loading of power cables, detect hotspots and monitor cable sag



Fire detection
Real-time monitor and precisely detect location of a fire in buildings, tunnels and other high-risk locations



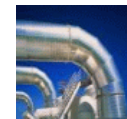
Structural monitoring
Real-time monitor all parts of a structure for early detection of overloading or failure



Umbilical monitoring
Monitor overheating in coiled umbilicals, know strain in umbilical and avoid breakages




Building temperature control
Monitor and optimise temperature of all parts of building and hence energy use.



Pipeline integrity
Detect leaks and blockages quickly

Specifications

	Distributed Temperature Sensing (DTS) System DTS-Lite 0-4 km DTS-SR 0-5 km DTS-MR 0-8 m DTS-LR 0-10 km DTS-XR 0-30 km DTS-FR Spatial Resolution 30 cm	Distributed Temperature & Strain Sensing (DTSS) System DTSS-LR 0-10 km DTSS-XR 0-30 km 
Mass Range	30 km	
Spatial Resolution	30cm~100 m	1 m
Temperature Resolution	0.01~1 °C	0.5 °C
Strain Resolution	-	10 µstrain
Measurement Time	1~5 minutes	
Suitability of Cable	Can be customised, ranging from subsea to stay cable of bridge	
Operating Temperature	5 ~ 40 °C	
Power Supply	240 VAC or 24 VDC	
Dimensions	175H x 483W x 445D (mm)	
Weight	21 kg	

Specifications subjected to change