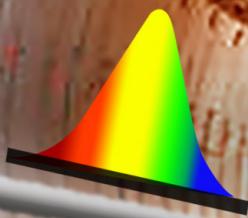


AgilFenceTM

Fibre Optic Temperature Sensing System for Smart Infrastructure



- On-condition monitoring of pipe leak and hot spot
- Cost-effective and easy deployment, with no power required
- Locate the event instantly and accurately
- No blind zone along entire length of the area covered by the optic fibre cable



Inability to detect abnormal temperature change of tunnels, cables and pipelines can always cause problems such as fire and economic loss, and the current temperature detection technology is facing problems of long acquisition time and low event locating accuracy. The early warning to the abnormal temperature change is recommended for preventing furthermore damage and the continuous real-time monitoring can provide more efficient property management and maintenance.

Benefits

AgilFence⁷ is a distributed temperature sensing system for smart infrastructure. It records real-time temperature along the entire length of the area covered by the optic fibre cable continuously without any blind points and interference. It can monitor every point of the length of the area and locate the abnormal temperature change accurately either caused by system faults or third-party intrusion. After analysing the temperature received from the optical fibre, an alarm will be triggered if the event is a threat to the property.

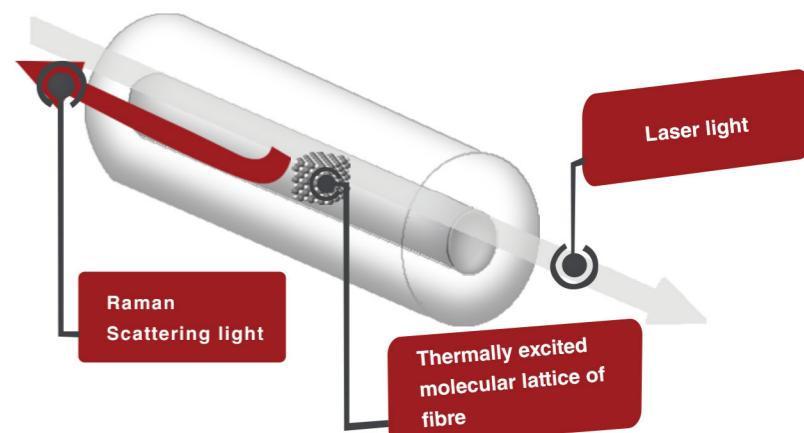
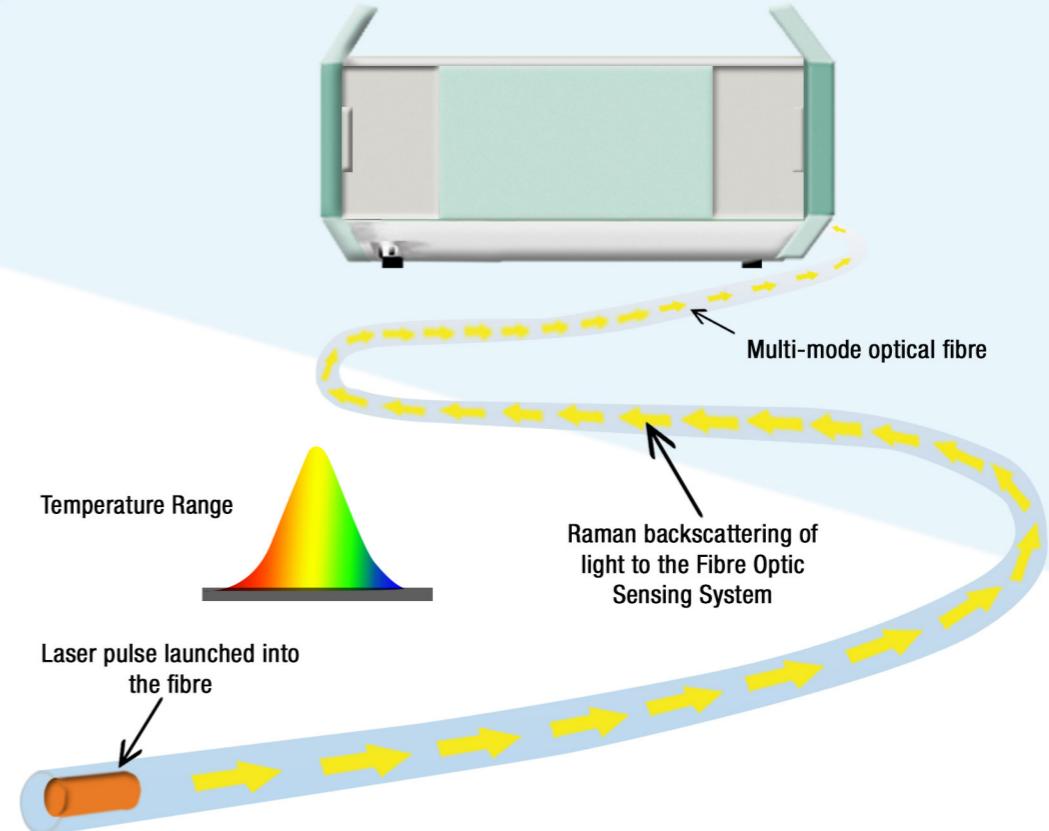
Key Features

- No blind zone along entire length of the area covered by the optic fibre cable
- Continuous interference-free monitoring
- Early warning to the threat
- No maintenance required
- Easy deployment
- Oil and gas pipeline leakage detection
- Fire detection in the tunnel
- Power cable and transmission line monitoring
- In-building electrical system fault
- Water pipeline monitoring in cold environment

Applications

How it works

The AgilFence⁷ uses Raman-effect and Optical Time Domain Reflectometer (OTDR) technology for distributed temperature sensing along an optical fibre. When a light pulse is launched into the fibre and falls on the thermally excited molecular lattice, the light scatters called Raman Scattering will occur, being received and analysed by the interrogation unit and processing unit. The amplitude of the scattered light is directly related to the intensity of thermal excitation. If the amplitude is higher than the threshold set, the alarm will be triggered. Furthermore, because of the constant speed of light in the fibre, the travel distance of the light can be easily calculated from the time of travelling, therefore, the event can be located accurately.



Performance Specifications

Monitoring Distance	4 km - 10 km
Measurement Accuracy	$\pm 1^\circ\text{C}$
Measurement Interval	From 0.2 m to 1.0 m
No. of Measurement Channels	Max. 4 channels
Update Cycle Time Per Channel	8 seconds per cycle
Measurement Temperature Range	-30 °C to 105 °C

Technical Specifications

Interrogator System	
Input Voltage	24 VDC $\pm 0.5\%$ (240 VAC $\pm 6\%$)
Communication Interface	Ethernet, RS232, RS485, USB, HDMI
Operating Temperature	15 °C ~ 40 °C
Operating Humidity	25% ~ 75%

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