

VIAVI

Distributed Temperature Sensing (DTS)

Distributed Fiber Optic Sensing solution for measuring Temperature using single ended Raman OTDR

With over 40 years of experience in fiber optic test equipment for field measurements and monitoring systems, VIAVI migrates its knowledge and technology to Distributed Fiber Sensing Applications.

The VIAVI Distributed Temperature Sensing (DTS) solution is based on Raman scattering technology. Measure the temperature along a fiber optic cable or optical loss/attenuation, bend detection and integrity monitoring (Patent pending) with the integrated dual wavelength Rayleigh OTDR.

It can be configured in a portable platform for cable commissioning and routine auditing or in rackable platform for permanent monitoring through the most widely deployed remote fiber test system, the ONMSi.



OneAdvisor 800 DTS



FTH-DTS

Key Benefits

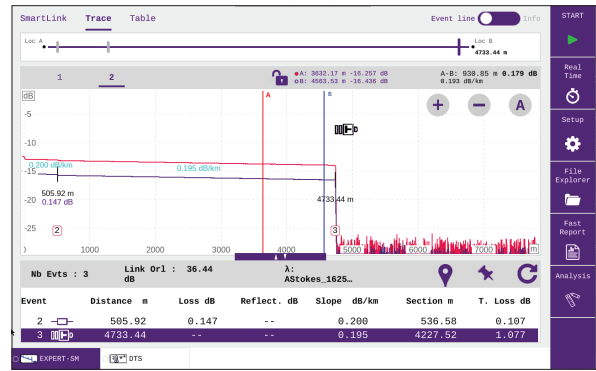
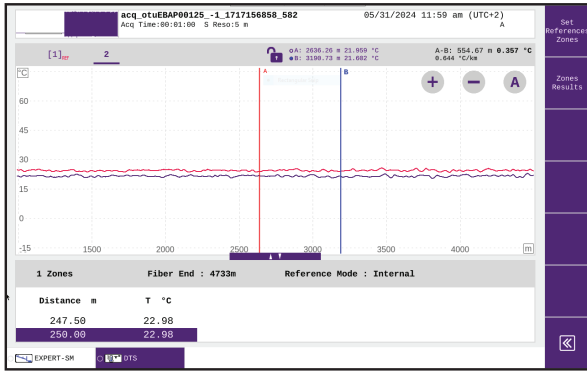
- Dual wavelength source measurement for automated temperature calibration
- Single-ended solution requiring only one fiber for both DTS and OTDR
- Efficient remote operation, minimal training required
- Portable: compact, battery-operated, lightweight (no power generators needed)
- Rackable: Fully compatible with VIAVI Fiber Monitoring solution (ONMSi), offering multi-port measurement (up to 192 ports, and more)

Key Features

- Dual wavelength single mode Raman and Rayleigh OTDR in one package
- Intuitive, modern, user interface with large touchscreen
- Multi-port measurements
- Low power consumption – rackable version
- Battery operated – portable version
- Connected product (Bluetooth, WiFi and remote control operation with Smart Access Anywhere (SAA))

Applications

- Pipeline monitoring (leak detection)
- Power cable monitoring (hot spots, RTTR, burial depth)
- Geotechnical monitoring
- Linear heat detection for fire detection and safety
- Geothermal wells, oil and gas downhole monitoring



Applications



Radiation and temperature monitoring

- Harsh environment



Structural Health Monitoring

- Dam, Dike and Pile monitoring



Pipeline monitoring

- Leak detection



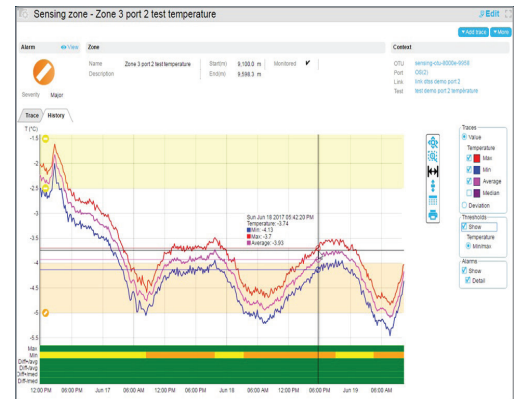
Power Cable Monitoring

- Hot spot detection and localization, RTTR and Burial Depth

Compatible VIAVI application software expands your capabilities:

Remote Access Application: SmartAccessAnywhere (SAA), App enables Workforce support in real time; Remote control of VIAVI Interrogator; data files, reports transfer, or firmware upgrades

Optical Network Monitoring System (ONMSi): The ONMSi platform enables permanent, proactive monitoring of the fiber integrity, as well as temperature for a complete analysis of the fiber health.



Specifications

DTS (Raman Single-end, Portable and Rackable version)

General Description		
Base Unit	Portable	Rackable
Height	170 mm	2U
Width	270 mm	19", 21" (ETSI), or 23"
Depth	60 mm	280 mm
Weight	3 kg with module	Less than 15 kg
Power Supply	AC 110/220 V Battery offering 5 hours min	-48 VDC
Power Consumption	Lower than 15 W	Lower than 50 W
Operating Temperature	+5°C to +45°C	+5°C to +45°C
Storage Temperature	-20°C to +60°C	-20°C to +60°C
Humidity	95% without condensing	95% without condensing
EMI/ESD	CE Compliant	CE Compliant
ROHS	Compliant	Compliant
Interface	RJ-45 1000baseT port	2 RJ45 Ethernet 10/100/1000baseT ports
Media	6.2 GB total, shared by system memory	Solid State Disk 16 GB
Screen	8", 1280 x 800 resolution, color touch screen	No
Temperature Sensor		
Input	Two on front panel	Two on front panel
PT100	Yes (4 wires Platinum, 5 meters long)	Yes (4 wires Platinum, 5 meters long)
Connector and Optical Switch		
Internal Optical Switch	No	4, 8, 12, 16, 24 ports SC/APC 36 and 48 ports LC/APC Possibility to expand with external switches
Connector Type	E2000/APC with cord and caps	SC/APC
Lifetime	N/A	1E09 cycles
DTS Specifications (Typical at 25°C unless specified)		
Technology	Dual laser source, Single Ended OTDR, Singlemode	
Laser Safety	Class1	
Distance Range	Up to 80 km	
Measurement Time	From 15 s to 5 hours	
Spatial Resolution (IEC 61757)	From 1 m	
Spatial Resolution (10%-90% rise time)	From 0.8 m	
Spatial Step (sampling resolution)	8 cm min	
Temperature Range	-200°C to +700°C depending on fiber cable	
Temperature Repeatability (IEC 61757) ¹	0.5°C	
Temperature Measurement Error (IEC 61757)	0.4°C	
Measurement Variables	Temperature, true Rayleigh OTDR measurement	
OTDR Specifications (Typical at 25°C)		
Testing Wavelength	1550/1625 nm	
Dynamic Range ²	36 dB	
Pulse Width	5 ns to 1 μs	
Event Dead Zone ³	0.6 m	
Attenuation Dead Zone ⁴	3 m	

Specifications (Typical at 25°C)

¹ At 2σ, according to the process described in IEC 61757 standard, 2 external references mode, Spatial Resolution: R5M, Measurement time: 10 mn, Distance range: 12 km, including 1 dB test equipment loss.

² The one-way difference between the extrapolated backscattering level at the start of the fiber and the RMS (SNR=1) noise level, after 3 minutes averaging using the largest pulse width.

³ Measured at ±1.5 dB below the peak of an unsaturated reflective event using the shortest pulse width.

⁴ Measured ±0.5 dB from the linear regression using an FC/UPC reflectance and the shortest pulse width.

Learn more about Fiber Sensing with DTSS B-OTDR
and DTS Raman-OTDR:
www.viavisolutions.com/fibersensing

VIAVI Care Support Plans

Increase your productivity for up to 5 years with optional VIAVI Care Support Plans:

- Maximize your time with on-demand training, priority technical application support and rapid service.
- Maintain your equipment for peak performance at a low, predictable cost.

Plan availability depends on product and region. Not all plans are available for each product or in every region. To find out which VIAVI Care Support Plan options are available for this product in your region, contact your local representative or visit: viavisolutions.com/viavicareplan

Features

*5-year plans only

Plan	Objective	Technical Assistance	Factory Repair	Priority Service	Self-paced Training	5 Year Battery and Bag Coverage	Factory Calibration	Accessory Coverage	Express Loaner
 BronzeCare	Technician Efficiency	Premium	✓	✓	✓				
 SilverCare	Maintenance & Measurement Accuracy	Premium	✓	✓	✓	✓*	✓		
 MaxCare	High Availability	Premium	✓	✓	✓	✓*	✓	✓	✓