VIAVI Solutions

Data Sheet

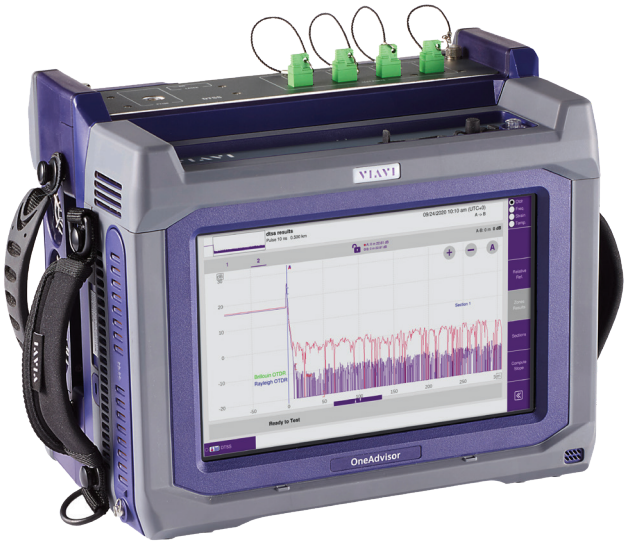
VIAVI

Distributed Temperature and Strain Sensing (DTSS)

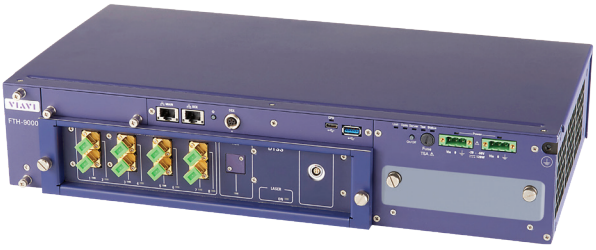
Distributed Fiber Optic Sensing solution for measuring Temperature and Strain using single ended Brillouin OTDR

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 and Strain Sensing (DTSS) solution is based on Brillouin scattering technology. Measure the temperature and strain along a fiber optic cable. 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 1000 DTSS



FTH-DTSS

Key Benefits

- Simultaneous temperature and strain measurement requiring only one fiber (Patented)
- Single-ended solution
- Portable: Compact, modular, lightweight, and battery operated (no power generators needed)
- Rackable: Fully compatible with VIAVI Fiber Monitoring solution (ONMSi)

Key Features

- B-OTDR solution (Brillouin OTDR)
- Temperature and strain monitoring
- Decorrelation of temperature and strain
- 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
- Telecom cable monitoring
- Power cable monitoring
- Geotechnical/Structural Health Monitoring (SHM)

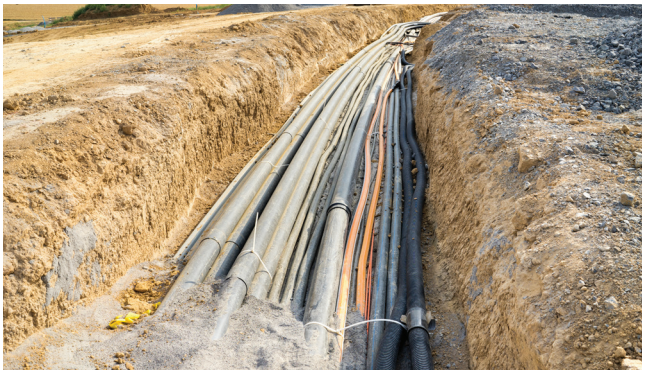
Applications

Pipeline monitoring

- Leak detection
- Ground movement monitoring
- Fatigue detection

Telecommunication

- Buried fiber optic cables monitoring
- Aerial cable monitoring
- Optical cable commissioning for strain measurement following IEC-60794–3–20:2016

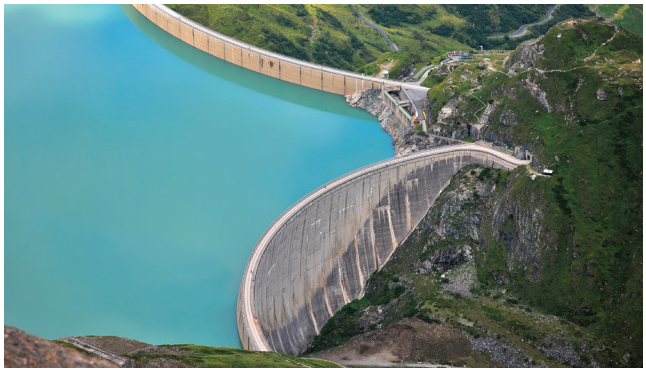


Power Cable Monitoring

- Hot spot detection and localization

Structural Health Monitoring

- Crack detection
- Infrastructure management and design
- Dam, Dike, Tunnel, Bridge monitoring



Compatible VIAVI application software expands your capabilities:

- **Post-Processing PC Software for Fiber Sensing Trace:** Post-Processing PC software for fast and efficient viewing, editing, analyzing and printing of the Fiber Sensing data file
- **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

DTSS (Brillouin Single-end, Portable and rackable version)

General Description		
Base Unit	Portable	Rackable
Height	241 mm	2U
Width	309 mm	19", 21" (ETSI), 23"
Depth	93 mm	280 mm
Weight	Less than 10 kg	Less than 15 kg
Power Supply	AC 110/220 V; Battery offering 3 hours min	-48 V DC; Dual inputs
Consumption	< 50 W	< 70 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	1xRJ45 Ethernet 10/100/1000baseT port	2xRJ45 Ethernet 10/100/1000baseT ports
Media	Solid State Disk 32 GB	Solid State Disk 16 GB
Screen	Yes (10-inch display)	No
Temperature Sensor		
Input	One on front panel	One on front panel
PT100	Yes (4 wires Platinum, 5 meters long)	Yes (4 wires Platinum, 5 meters long)
Optical Switch		
Internal Optical Switch	4 ports	8 ports
Connector Type	E2000/APC with cord and caps	SC/APC
Lifetime	1E09 switches	1E09 switches

DTSS Specifications (Typical at 25°C unless specified)	
Technology	Brillouin Single End DTSS
Laser Safety	Class 1
Distance Range	100 m to 100 km
Measurement time[1]	From 1 min to several hours
Spatial Resolution (IEC 61757)	1 m (up to 10 km); 5 m (up to 60 km)
Spatial Step (sampling resolution)	8 cm min
Temperature Range[2]	-200°C to +700°C; (relative to frequency range 9-13 GHz)
Temperature Repeatability (IEC 61757)[3]	0.8°C
Strain Range	- 30 000 με to +40 000 με; (relative to frequency range 9-13 GHz)
Strain Repeatability (IEC 61757)[3,4]	17 με
Combo Temperature and Strain repeatability (IEC 61757)[4,5]	1.25°C and 27 με
Measurement Variables	Strain, Temperature, Brillouin spectrum and shift, OTDR (loss), Monitoring (for rack-able unit only)

1. Measurement time depends on multiple parameters as mode, range, resolution, average, frequency scan.
2. Depending on Optical Fiber Type.
3. All instruments tested in production are under following conditions:
   - At 2σ; Distance sampling resolution: 0.25 m; Pulse width: 10 ns; Distance range: 13 km; Measurement time: 5 mn
4. Similar method as temperature in strain mode.
5. All instruments tested in production are under following conditions:
   - At 2σ; Distance sampling resolution: 1 m; Pulse width: 50 ns; Distance range: 13 km; Measurement time: 7 mn30

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	✓	✓	✓	✓*	✓	✓	✓

VIAVI Solutions

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