VIAVI

T-BERD/MTS-8000 DTSS

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

With over 30 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.

Based on Brillouin scattering technology, VIAVI BOTDR module measures the temperature and strain along an optical fiber cable. Forget heavy devices and generators … the BOTDR module can be set up in portable platform (T-BERD®/MTS-8000) for cable commissioning and routine auditing or in rackable platform (OTU-8000) for permanent monitoring through the most widely deployed fiber monitoring system, the ONMSi.
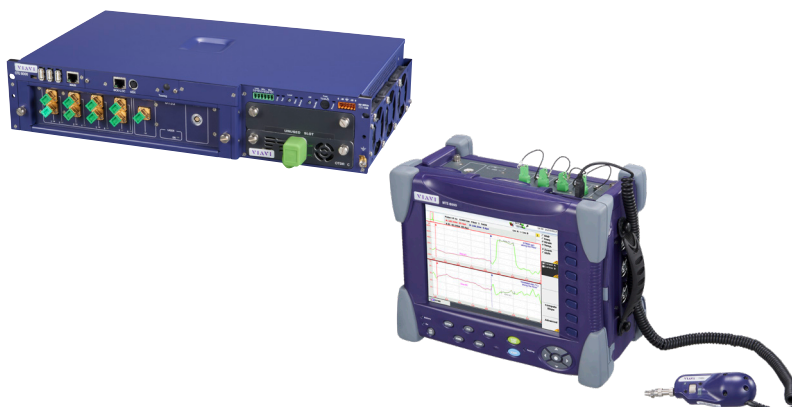

Key Benefits

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

Key Features

- BOTDR solution (Brillouin OTDR)
- Temperature and strain threshold 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)
- Cost-effective, 3 years standard warranty and global support included

Applications

- Pipeline Monitoring
- Telecommunication
- Power cable monitoring
- 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

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

General Description (base unit with DTSS module)		
Base Unit	**Portable**	**Rackable**
Height	267 mm	2U
Width	326 mm	19", 21" (ETSI), 23"
Depth	93 mm	260 mm (ETSI) / 280 mm (19" and 23")
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	< 50 W
Operating Temperature	-10°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	SATA hard disk 250 GB	Solid State Disk 4 GB (32 GB option)
Screen	Yes (10.4" TFT color touch screen)	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
Internal 2 by 1 switch	No	Option (SC/APC connector)
DTSS Specifications (Typical at 25°C unless specified)		
Technology	Brillouin Single End DTSS	
Laser Safety	Class 1	
Distance Range	100 m to 200 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	-200°C to +700°C[2]; (relative to frequency range 9-13GHz)	
Temperature Repeatability (IEC 61757)	0.8°C[3]	
Strain Range	- 30 000 µε to +40 000 µε; (relative to frequency range 9-13 GHz)	
Strain Repeatability (IEC 61757)[4]	17 µε[3]	
Combo Temperature and Strain repeatability (IEC 61757)[4]	1.25°C AND 27 µε[5]	
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

Ordering Information

Portable solution:

Part Number	Description
Hardware package	
PACK-DTSS4-MTS	Fiber Sensing complete package including T-BERD/MTS-8000 platform and BOTDR with 4 ports E2000APC Switch
EM8000E	T-BERD/MTS-8000 V2 Tester for Standard Power
E80HCASE1	Hard Carrying Case for Multiple Module Configuration
E80EWIFIBLUE	WiFi and Bluetooth Option for 8000E Platform
EDFOS-MTS-TS4	OTDR Module 4 ports (T-BERD/MTS)
EDFOS-MTS-PT100	PT100 Temperature sensor 5 meters long (T-BERD/MTS)
Base unit Software options	
EDFOS-MTS-DECSW	Decorrelation of temperature and strain
Services options	
EDFOS-Wk-Rate	Renting DTSS pack during one week
EDFOS-Mo-Rate	Renting DTSS pack during one month
E9STRAINING	One day of training
E9SSUPPORT	One day of support

Rackable solution:

Part Number	Description
Base unit	
E98OTU-FP-RF	OTU-8000 BASE UNIT 48VDC - 2U – Front power input - FAN
EDFOS-OTU-SW	OTU software license for ONMSI and Fiber Sensing
Base unit options	
E98KIT19	19 inches rack-mounting kit for OTU-8000
E98KIT21	21 inches rack-mounting kit for OTU-8000
E98KIT23	23 inches rack-mounting kit for OTU-8000
E98RELAYS	Relay for external alarm reporting device
E98SSDHC	High capacity SSD for OTU-8000 (Fiber Sensing)
E98LEFTFAN	Left Fan
E98ACDC	AC/DC converter (external unit)
Base unit Software options	
EDFOS-OTU-DECSW	Decorrelation of temperature and strain
BOTDR module	
EDFOS-OTU-TS8	BOTDR Module 8 ports switch (DTSS/OTU)
EDFOS-OTU-PT100	PT100 Temperature sensor 5 meters long (OTU)
EDFOS-OTU-TS8A	BOTDR Module 2 by 8 ports switch (DTSS/OTU)
ONMSi Software options	
EDFOS-ONMSI-SW	Temperature and strain monitoring under ONMSi

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.

Contact your local representative for more information on VIAVI Care Support Plan options 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	✓	✓	✓	✓*	✓	✓	✓

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