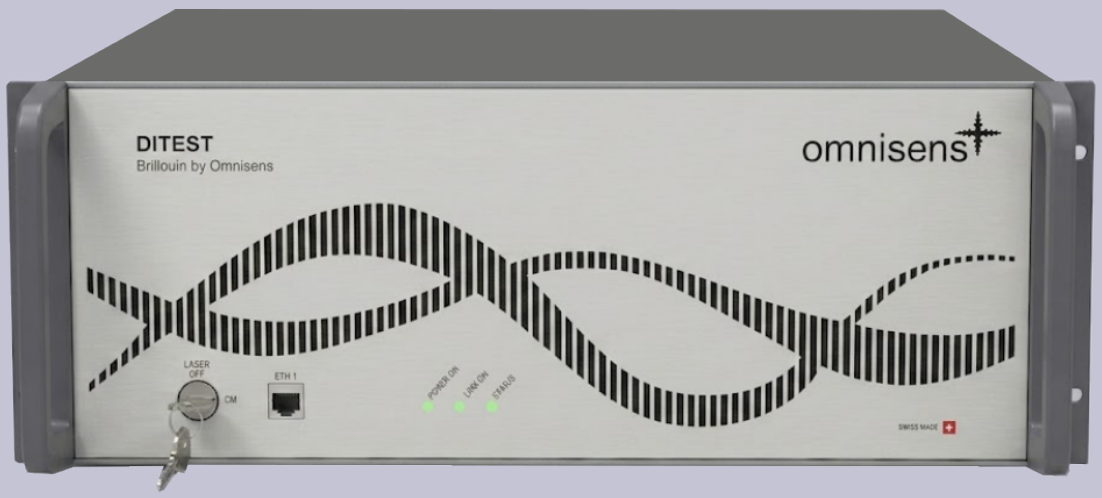
DITEST

Distributed Temperature and Strain Interrogator



The DTSS for Long-Range Critical Asset Monitoring

PRODUCT DESCRIPTION

DITEST is a distributed sensing interrogator designed to perform temperature (DTS) and strain (DSS) measurements over distances beyond 100 km using standard telecommunication grade single mode optical fibers. It is based on Stimulated Brillouin Scattering (SBS) and supports BOTDA/BOTDR measurement modes (*BOTDA = Brillouin Optical Time Domain Analysis; BOTDR = Brillouin Optical Time Domain Reflectometry*).

The DITEST is engineered for measurement stability over time, constant spatial resolution along the sensing distance, and automated functions that support continuous monitoring.

APPLICATIONS

- Power cable (offshore / onshore)
- Pipeline monitoring
- Subsea oil & gas infrastructure monitoring
- Geohazard monitoring
- Structural Health Monitoring

KEY FEATURES

- Automatic detection of temperature hotspots, coldspots, fast gradients, and fiber break
- Measurement range of 80 km (extendable beyond 240 km with external DITEST Repeater)
- Compatible with standard SM (ITU-T G.652/654/655/657)
- Based on Stimulated Brilluoin Scattering (BOTDA/BOTDR modes)
- 4 built-in measurement channels (extendable to 20 via external DITEST Optical Switch)
- Robust design for demanding environments with Linux operating system, proprietary database storage and solid-state drive (SSD)
- Integrated with EOSS Monitoring Platform

DITEST INTERROGATOR'S FEATURES AND TECHNICAL SPECIFICATIONS

Sensing Performance	Technology/architecture	BOTDA & BOTDR modes
	Measured variables	Temperature; strain; Brillouin frequency shift; Brillouin gain; Brillouin width (per distance point)
	Distance range (per channel)	BOTDA: 80 km (160 km max total fiber loop); BOTDR: 45 km (optical budget @1550 nm: 16 dB sensing (32 dB total loop))
	Optical channels (built-in)	4 channels (default, loop configuration); extendable via external switches
	Sensor configuration	Loop (2 fibers/channel) or Single-ended
	Compatible sensing fiber	Single-mode: ITU-T G.652 / G.654 / G.655 / G.657
	Spatial resolution (setting)	1-20 m (0.25 m increments)
	Spatial sampling interval (setting)	0.25-10 m (0.25 m increments)
	Measurement time (setting)	1s to 30 minutes
	Temperature and Strain Repeatability, 1σ (typical)	< 2 °C or < 40 $\mu\varepsilon$ for 80 km, G652 fiber, 5 m spatial resoluition and 20 minutes measurement time. Parameter to be specified on a project basis by EOSS.
Interfaces & Data	Communication Port	2 × Ethernet (RJ45)
	Digital I/O	External module to be specified on a project basis.
	Protocols (options)*	Modbus; DNP3; IEC 60870-5-104; IEC 61850
	Data format	txt files; csv files*
	Data storage	Internal SSD > 250 GB
Mechanical & Electrical	Optical connectors	SC/APC; optional E2000/APC
	Rack / form factor	19-inch rack, 4HU
	Dimensions	449 × 500 × 177.8 mm (W × D × H)
	Weight	15 kg
	Power supply / consumption	100–240 V; < 150 W (max)
Environmental & Compliance	Operating / Storage temperature	0 °C to +45 °C / –10 °C to +60 °C
	Relative humidity	5-85% (non-condensing)
	Protection rating	IP20 (indoor use)
	Laser classification	Class 1M (EN 60825-1:2014)
	Standards	Laser: IEC 60825-1/-2; safety: IEC/EN 61010-1, UL/CSA 61010-1; EMC: IEC/EN 61326-1
	Sustainaibility	Environmental Product Declaration In accordance with ISO14025:2006 and EN50693:2019

* via EOSS Monitoring Platform

ED_PD009 Datasheet DITEST

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