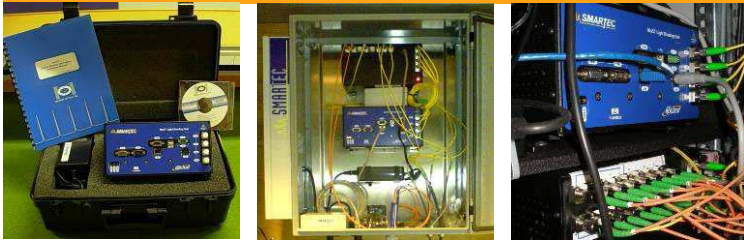


# 12.2020 MUST-LIGHT READING UNIT



## GENERAL DESCRIPTION

The MuST Light (Multiplexed Strain and Temperature Monitoring System) Reading Unit is a Fiber Bragg Grating (FBG) demodulator designed for permanent installation in any structure that requires static continuous monitoring. The standard configuration allows to simultaneously measure up to 4 sensor strings several sensors per string (5 deformation sensors or 12 strain sensors or 24 temperature sensors or 12 mono-axial accelerometers or 6 mono-axial tiltmeters), with a typical acquisition rate of 1 Hz.

## TECHNICAL DESCRIPTION

Through the use of an optional optical switch, it is possible to monitor up to 16 sensors strings sequentially, extending the number of FBG sensors to 160 (with standard configuration) or more (with customized wavelengths distribution).

The optional MuST Reading Unit housing has been designed for surface installation and for specific project requirements. The optional MuST Light ruggedized housing (IP 65, housing and door: e-coat primer, powder painted) grants protection from water, rodents, accidental crashes and a key lock grants protection against vandalism.

The MuST Light Reading Unit is fully compatible with the SDB software suite including SDB Pro, View, SPADS and Real-Time (see separate datasheets). The results can be stored in a standard SDB database and can be integrated with measurements from other sensors (e.g. static SOFO<sup>®</sup>, ADAM, DiTeSt, 3DeMoN ...). The user can therefore view and analyze all its data with a single interface

The MuST Light reading unit provides a high optical power, from 1, 2, 5 or 10 Hz measurement rate for all connected sensors. It has been designed with an advanced tunable laser capable of a 80 nm range. The data is transmitted to the PC running the SDB software via a standard Ethernet connection. Remote connection is possible via modem or wireless LAN.



## FEATURES

- Static measurements
- Permanent instrumentation
- Compatible with all FBG sensors
- High resolution and precision
- Full-spectrum information
- Optional watertight steel housing
- Modular design
- Automatic and remote control
- TCP/IP connectivity
- Compatible with SDB software

## OPTIONS

- 1 to 4 channels for simultaneous FBG string measurements
- 8 or 16 channels switch for sequential FBG strings measurements.
- Internet connection
- Heating and thermal isolation option for use in harsh climates

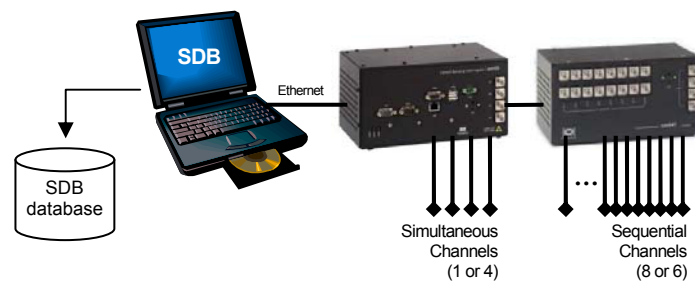
## PERFORMANCES

MuST Light Model	700	500	200
Repeatability, resolution	0.5 pm, (0.5 $\mu\text{E}$ / 0.05 $^{\circ}\text{C}$ ) at 1 Hz	0.5 pm, (0.5 $\mu\text{E}$ / 0.05 $^{\circ}\text{C}$ ) at 1 Hz	0.5 pm, (0.5 $\mu\text{E}$ / 0.05 $^{\circ}\text{C}$ ) at 1 Hz
Stability	2.5 pm, (2.5 $\mu\text{E}$ / 0.25 $^{\circ}\text{C}$ )	1 pm, (1 $\mu\text{E}$ / 0.1 $^{\circ}\text{C}$ )	5 pm, (5 $\mu\text{E}$ / 0.5 $^{\circ}\text{C}$ )
Wavelength range	1510 to 1590 nm	1510 to 1590 nm	1520 to 1570 nm
Number of channels	4 (8 or 16 optional)	4 (8 or 16 optional)	1
Power dynamic range	30dB	50dB	40dB
Measurement frequency	5Hz	1Hz	1Hz
Increase measurement frequency (option) <sup>1</sup>	10Hz	2,5,10Hz	2,5,10Hz

<sup>1</sup> 10 Hz scan rate available only with 40 nm wavelength range (1525-1565 nm)

## TECHNICAL CHARACTERISTICS

Input voltage	+5 VDC
Power supply	AC/DC converter included (100~240 VAC, 47~63 Hz)
Power consumption	18 W typical (30 W max)
External connectors	Ethernet RJ data connection, 1 to 16 optical ports (depending on model and channel switch), power supply
Dimensions	L x W x H: ~135 mm x 235 mm x 120 mm, Weight: ~2 kg L x W x H: ~500 mm x 500 mm x 210 mm, Weight: ~15 kg (with protection housing)
Operating temperature	0 $^{\circ}\text{C}$ to 50 $^{\circ}\text{C}$ , -20 $^{\circ}\text{C}$ to 50 $^{\circ}\text{C}$ (with heating option)



## ORDERING INFORMATION

Number of needed channels  
 Option: Rugged transport metallic casing (yes or no).