LUCIOL INSTRUMENTS

LDT-100

High Resolution Distributed Temperature Sensor

- **Fully portable format**
- **250 m measurement range with cm spatial resolution**
- **Integrated calibration**
- **OTDR testing capability**
- **Desktop format option**

Luciol's LDT-100 high resolution optical temperature sensor measures the temperature profile across standard optical fibers. The measurement technique is based on Raman scattering. Due to the temperature dependence of the Raman scattering signal (Anti-Stokes) temperature variations along the sensing optical fiber are transformed in a variation of the backscattered signal. The LDT-100 uses photon-counting technology to achieve a high detection efficiency and very high spatial resolution. An internal temperature calibration reference makes the system ready for testing and minimizes time consuming user re-calibration.

The LDT-100 also integrates OTDR testing capability which allows integrity and condition testing of the sensing optical fiber.

The LDT-100 is a fully portable, simple and easy-to-use instrument, with user-friendly GUI software.

A desktop version with USB interface is available as an option.

APPLICATIONS

- Distributed temperature monitoring with cm spatial resolution
- High resolution temperature profile measurement
- Temperature surveillance
- And more

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PRELIMINARY SPECIFICATIONS

Optical DTS

Operating Wavelength: 780nm

Fiber Type: MMF 62.5/125 µm

Optical connector[1]: E-2000 APC

Optical pulse width: 1 ns

Measurement range: 250 m

Distance units: meter, feet, time (ns)

Sampling resolution: 2 cm (200 ps)

Temperature spatial resolution[2]: 10 cm

Temperature accuracy: 1.5 °C

Optical OTDR

Dynamic range OTDR: > 15 dB

Event deadzone OTDR: 10 cm

Attenuation deadzone OTDR[3]: 40 cm

Distance accuracy:
± (10 mm + $5x10^{-5}$ x [fiber length])

Return loss accuracy: ± 1.5 dB

Insertion loss accuracy: ± 0.05 dB ± 0.01 dB/dB

PC Module

OS: Windows 10 Home 32-bit

Processor: AMD G T40E, 2x 1 GHz

RAM: DDR3, 4 GB

Storage: SSD, 120 GB (more optional)

Display: Touchscreen TFT 10.4”; 800x600

Interfaces: 1x Ethernet RG45, 2x USB Type 2, 1x VGA, 1x Serial port

Power rating: 15V; 3.2 A

Power input: AC operation with 100 to 240 VAC; 50/60 Hz universal adapter; DC operation on batteries (Li Ion, 6.2 Ah)

Battery operating time: 5 h

Battery charging time: 3.5 h

Size: 320 x 240 x 90 mm; Weight: 3.1 kg

Environmental

Operating temperature: 0˚ to +40˚C (32° to 104° F)

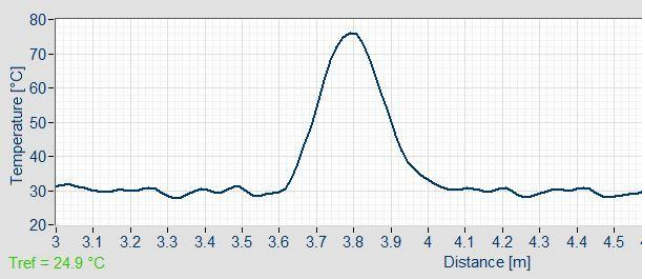
Storage temperature: -20˚ to +60˚ (-4° to 140°F)

Humidity: 0% to 90%; noncondensing

Options

Desktop options without tablet PC. Please contact Luciol Instruments.

DTS point heating response



Notes

1: Others on request
2: 10% to 90% of rising or falling edge
3: For ORL = 45 dB

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