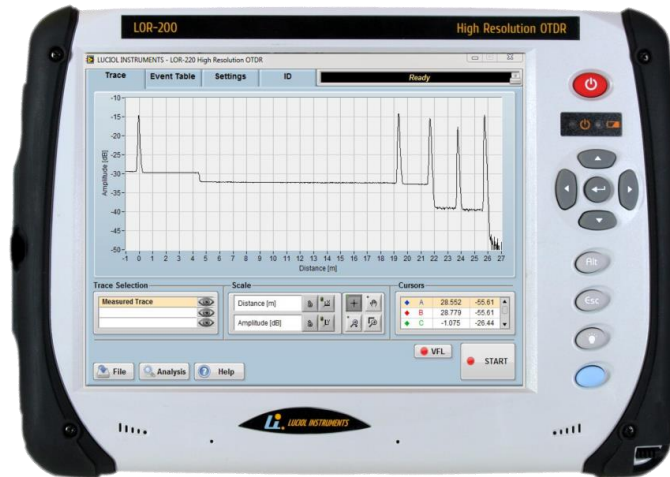# LUCIOL INSTRUMENTS

LOR-200

High Resolution Optical Time-Domain Reflectometer

Wavelength range 1000-1650 nm

Single or dual output (SMF/ MMF)

Industry-leading resolution (2 ns pulses)

Fully portable OTDR format

High dynamic range with short pulses

Measures IL and ORL for all types of connectors

1625 nm option with matched filter for live PON applications

Up to four wavelengths

Custom systems for most fiber types and wavelengths

Patented design; US patent # 7,593,098

The LOR-200 from Luciol Instruments is a fully portable high resolution OTDR. It is similar in shape and feel to a standard OTDR but achieves unprecedented resolution.

The pulse width of the LOR-200 is variable from 2 ns to 1000 ns. With a pulse-width of 2 ns the LOR-220 distinguishes events with 20 cm separation and has a 50 cm attenuation dead-zone. Its unique dynamic range for short pulse lengths (> 15 dB for 2 ns pulses) enables testing optical assemblies with high insertion losses, even over very short distances.

The LOR-200 can **characterize** the original assembly, **monitor** possible evolution for preventive maintenance purposes and **troubleshoot** in case of a fault in the optical link.

The LOR-200 is available for up to four wavelengths in the range of 1000-1650 nm and for several fiber types. Even two different fiber types can be combined in a single instrument when choosing the dual output option.

APPLICATIONS

- See and localize events, which no other OTDR can show, such as weak reflections or attenuations immediately after a larger reflection or an optical splitter.
- Installation and maintenance of PONs and other of optical networks where the conjunction of high resolution and high dynamic range is a must
- Fiber optic sensors and fiber assemblies.
- Fiber manufacturing and verification.
- Loss and optical return loss testing for optical components.
- Aviation, aerospace, defense, telecommunication and more

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Optical

Standard wavelength options* (±20 nm):
   1310 nm, 1480 nm, 1490 nm, 1550 nm, 1625 nm or 1650 nm

Standard fiber types*:
   Single Mode (9/125 µm)
   Multimode (50 or 62.5/125 µm)

Optical connector:
   Universal, APC or PC type, with FC, SC or ST adapter

Optical pulse width:
   2, 5, 10, 30, 100, 300, 1000 ns

Measurement range:
   0.5, 1.2, 2.5, 5, 10, 20, 40, 80, 160 km

Distance units:
   kilometer, meter, feet, miles, time(ns)

Sampling resolution:
   any multiple of 2.5 cm (250 ps)

Dynamic range[1]:
   Rayleigh backscattering[2]:
      >30 dB (pulse width = 1000 ns, S/N =1)
      > 15 dB (pulse width = 2 ns, S/N =1)

Dead-zones (2 ns pulse width)[1]:
   Event dead-zone: 20 cm
   Attenuation dead-zone[3]: 50 cm

Distance accuracy:
   $\pm$ (15 mm + 5×10^{-5} x [fiber length])

Reflectance accuracy[1]: ± 1.5 dB

Loss accuracy[4]: ± 0.1 dB ± 0.02 dB/dB

Hardware

OS: Windows 11 (Windows 10 on request)
Processor: Intel N4200
RAM: DDR3L, 4 GB
Storage: SSD, 120 GB (more optional)
Display: Touchscreen TFT 10.4" (800x600)

Interfaces: 2x Ethernet RJ45
            4x USB 3.0
            1x HDMI
            1x Headphone/Microphone
            WIFI/Bluetooth (optional)

Power rating: 15V/4 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)
Relative humidity: ≤80% (0 to 30°C), decreasing linearly to 50% at 40 °C
Maximum operation altitude: 2000 m
Pollution degree: 2

Options:

-FSV
   Fiber microscope
   End-face verification of connectors, USB connection, Video displayed on LOR screen.

-DOP
   Dual output with two different fiber types. **

-OSW
   Optical switch for semi-automatic multi fiber testing. Internal (up to 12 channels) or external switch with USB connection. **

Ordering information

LOR-20X-FFF-W1(/W2/W3/W4)-CC;
X= # of wavelengths;
FFF= fiber type: SMF, MMF62, MMF50;
W1, W2…: wavelengths with source type (FP lasers, LED), add -F for filtered wavelength;
CC= connector type: ASC, AFC, SC, FC, ST.

Ordering example:
LOR-203-SMF-1310FP/1480FP/1625FP-F-FC
LOR-200 SMF, with 3 wavelengths, one FP laser at 1310 nm, one FP laser at 1550 nm, and one FP laser with optical filter at 1625 nm, FC connector.

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*Other wavelengths and configurations are available on a custom basis. Please contact Luciol Instruments with your special requirements.

** Please contact Luciol Instruments for details

Notes:
1: Typical
2: At a wavelength of 1310 nm
3: For ORL = 45 dB
4: For a LED source (or FP under specific conditions)

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