



FIBER OPTIC TECHNOLOGY
CALIBRATION LABORATORY

LS-240-MTP

Multifiber Optical Light Source

INSTRUCTION MANUAL



Revision:1.0



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1 Introduction

The LS-240-MTP multifiber optical Light Source is designed for testing of patchcords and cables terminated with multifiber MTP/MPO connectors. The portable testing device fulfils all necessary technical field equipment requirements.

LS-240-MTP can send light one by one into all 12/24¹ fibers of MTP/MPO connectors, the switching process can be made manually or automatically. Together with PM-240-MTP power meter can measure Insertion loss in all 12 fibers at same time, in addition it is able to check the polarity status of fibers interconnection between both MTP connectors. It is possible to define polishing style angled/flat and male/female (with alignment pins or without pins)

The rechargeable battery ensures long term working with a minimum life time of 2 years. Batteries can be charged via a USB port. The microprocessor controlled charging process ensures optimal battery status and extended operation time.

2 Features

- Hand held, light weight
- Multifiber MTP/MPO connectors testing
- No Fanout patchcords required
- Single or dual wavelength
- Manual switching through all fibers or Cycle mode
- Can be controlled remotely via USB
- Large display with backlight
- Powered by Li-Pol battery with status indication
- Battery charging via USB port

3 Application

- Optical network testing
- Fiber continuity testing
- Measurement attenuation in fiber cabling and connection with PM-240-MTP
Optical power meter
- Polarity test
- Easy and fast identification of failure points in fiber networks
- Suitable for SM and MM applications

4 Accessories

4.1 Standard

- Power charging AC/DC adaptor
- USB cable
- Calibration certificate
- Hard carrying case
- Rubber cover

4.2 Optional

- Master MTP/MPO connector patchcord



Figure 1: Standard accessories

5 Specifications

| Specifications: | | Note: |
|------------------------------|--|-------|
| Number of fibers | 12/24 | |
| Wavelength: single λ | 850, 1310, 1550 nm | |
| dual λ | 850/1300 or 1310/1550 nm | |
| Output power | > -10 dBm | |
| Stability (1 hour, delta/2): | Tested after 20 min warm up, temperature 23 ± 1 °C | |
| 850, 1300 nm | ± 0.1 dB | |
| 1310, 1550 nm | ± 0.05 dB | |
| Dimensions | 200 x 100 x 50 mm | |
| Weight | 340 g | |
| Temperature operating | -10 to +50 °C | |
| storage | -40 to +70 °C | |
| Humidity (non condensing) | 0 to 95% | |
| Battery working time | > 100 hrs | |
| Battery life time | > 2 years | |

Compliant with RoHS-requirements (2002/95/EG, 27.01.2003)

6 Safety information

This equipment complies with the following safety classifications: IEC825-1 and 21CFR1040: Class1

This applies to laser and LED options up to 1 mW, above 700 nm. Devices in this category are classified as safe for use by technicians under normal viewing, provided that magnifying devices are not used.

It is the responsibility of the user to acquire adequate training and familiarity with relevant safety issues and work practices before using this equipment.

WARNING!

- Never use magnifying devices to inspect optical fiber ends unless you are certain that no optical power is being emitted.
- Only use magnifying devices with a built-in infra-red filter to ensure safety.
- During operation, testing or maintenance of a fiber optic system, never look into an active fiber optic cable. Infrared radiation may be present and this can result in permanent eye damage.
- Avoid direct exposure to the beam.
- Do not activate the laser when there is no fiber attached to the optical output connector

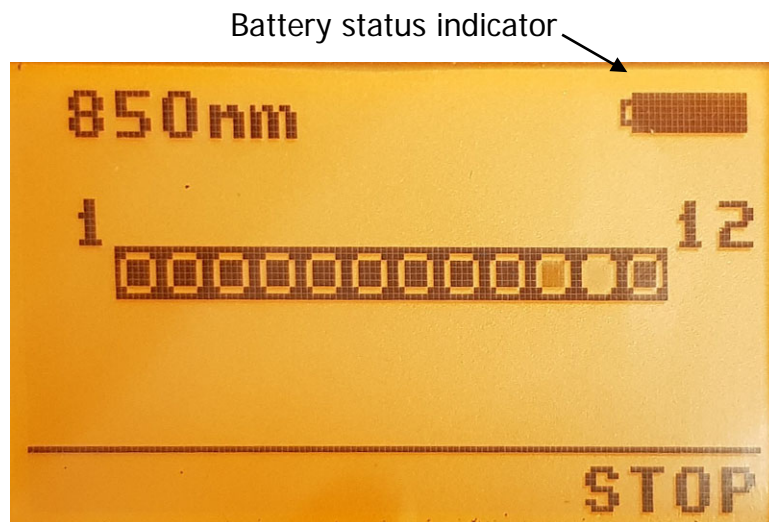
Under no circumstances should you look into the end of an optical cable attached to the optical output when the device is operational. The laser radiation can seriously damage your eyesight.

7 Maintenance

7.1 Battery care

The LS-240-MTP comes equipped with a built-in charger and is powered by Li-Pol rechargeable batteries (standard accessories).

- Charging – via USB port (PC) or by an external USB power charging adaptor (standard accessories)
- Only use the supplied USB power charging adapter.
- Charge the batteries for 75% before storing the LS-240 for long periods (100 % is not recommended). The batteries will lose the charge during storage.
- The batteries are consumable. Repeated charging and discharging decreases the lifetime of the batteries.



7.2 Instrument care

- During storage and transport keep the instrument in its carry case to protect against crushing, vibration, dust and moisture.
- Where possible keep the instrument away from strong sunlight.
- Clean the instrument housing using alcohol or other cleaning agents. Acetone or other active solvents may damage the case.
- The instrument is resistant to normal dust and moisture, however it is not waterproof. If moisture does get into instrument, dry it out carefully before using it again.

8 Instrument and button function description



[ON/OFF]

Press to turn the unit on. Press to turn the unit off.

After switching on, the type of device, serial number and firmware version will be displayed. Hold 4s ON button for turning on backlight ON.



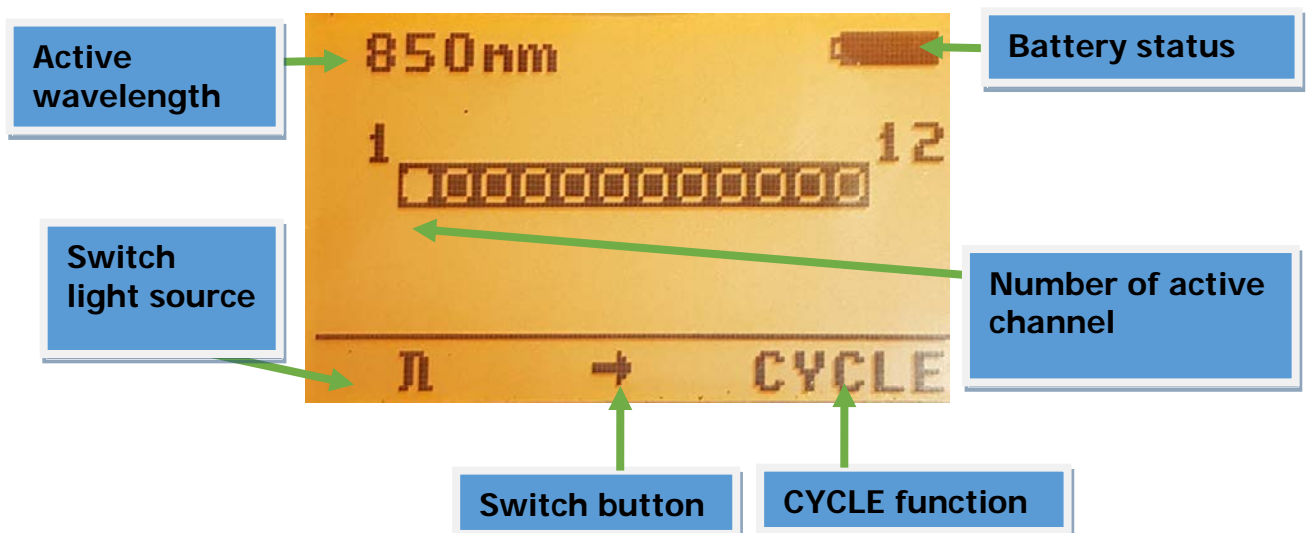
[↑]

Meaning of these keys depends on current menu.

The following screen will appear after the instrument is switched on and information regarding the type of device, serial number and firmware version will display.

On the display is the light source description, battery status and an arrow pointing to the active output port.

Reading the display:



[CYCLE]

Send the active wavelength through each channel one by one continuously.

[→]

Switch light source output to next channel.

[λ]

Selects light source.

[STOP]

Stop CYCLE function.

9 Example of measuring with LS-240 and PM-240



Figure 2: Example of measuring with LS-240-MTP and PM-240-MTP

10 Power loss and decibels

| Loss (dB) | % Loss | dBm | Power (mW) |
|-----------|--------|-----|------------|
| 0 | 0.0 | -50 | 0.00001 |
| 0.1 | 2.3 | -40 | 0.0001 |
| 0.2 | 4.5 | -30 | 0.001 |
| 0.3 | 6.7 | -20 | 0.01 |
| 0.4 | 8.8 | -10 | 0.10 |
| 0.5 | 10.9 | -9 | 0.13 |
| 0.6 | 12.9 | -8 | 0.16 |
| 0.7 | 14.9 | -7 | 0.20 |
| 0.8 | 16.8 | -6 | 0.25 |
| 0.9 | 18.7 | -5 | 0.32 |
| 1 | 20.6 | -4 | 0.40 |
| 2 | 36.9 | -3 | 0.50 |
| 3 | 49.9 | -2 | 0.63 |
| 4 | 60.2 | -1 | 0.79 |
| 5 | 68.4 | 0 | 1.00 |
| 6 | 74.9 | 1 | 1.26 |
| 7 | 80.0 | 3 | 2.00 |
| 8 | 84.2 | 5 | 3.16 |
| 9 | 87.7 | 7 | 5.01 |
| 10 | 90.0 | 10 | 10.00 |
| 12 | 93.7 | 12 | 15.84 |
| 15 | 96.8 | 15 | 31.62 |
| 20 | 99.0 | 17 | 50.12 |
| 30 | 99.9 | 20 | 100.00 |

11 Notes

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12 Calibration, service center

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