SSF-TKITE-100 / SSF-TKITE-1SM /SSF-TKITE-1MM
SSF™ Fiber Test Kit

Manual

CLEERLINE SSF™

Warning

To avoid risk of eye damage, do not look into the laser beam when unit is on.

Contents

SSF-LS100SM: Single Mode Optical Light Source

SSF-LS100MM: Multimode Optical Light Source

WARNING

1. *Do not look into the laser beam when unit is on.*
2. To prevent damage to the instrument, do not use under high temperature, high pressure, wet, or other prohibited conditions.
3. Do not attempt to take apart or repair the instrument.

Quality Assurance

Each unit meets the declared specification.

Note:

Technical parameters are subject to change without notice.

Overview

The SSF-LS100SM Single Mode optical light source provides single to tri wavelength output, including 1310/1550nm wavelengths for single mode fiber.

The SSF-LS100MM Multimode optical light source provides single to tri wavelength output, including 850/1300nm wavelengths for multimode fiber.

Together with the SSF-PM100 power meter, the optical light source provides an accurate test solution for single mode and/or multimode optical fiber networks.

Model: SSF-LS100SM Single Mode

Wavelength: 1310/1550nm
Output Power: ≥ -7dBm

Model: SSF-LS100MM Multimode

Wavelength: 850/1300nm
Output Power: ≥ -7dBm

Features

- Single to tri-wavelength combination
- Continuous and modulated signal
- Real time display of battery level and low power indication
- Back light function
- Auto shut-off function
- Alkaline battery operation

Handheld Optical Light Source

Specifications

Type	SSF-LS100SM Light Source
Wavelength (nm)	1310 / 1550
Emitter Type	FP-LD
Output Power (dBm)	≥-7dBM @1310 / 1550nm
Output Power	±0.04 @ 20°C @ 15 min
Modulation	CW/270Hz/1KHz/2KHz @ others
Fiber Type	SM
Connector	SC
Power Supply	AAA 1.5V (3pcs batteries)
Operating Temperature (°C)	-10 - +50, 0 to 95% RH (no condensation)
Storage Temperature (°C)	-25 - +70, 0 to 95% RH (no condensation)
Battery Life (h)	40
Dimension (mm/in)	125x65x29 / 4.92x2.56x1.14
Weight (g/oz)	160 / 3.74

Type	SSF-LS100MM Light Source
Wavelength (nm)	850 / 1300
Emitter Type	FP-LD
Output Power (dBm)	≥-7dBM @850/ 1300nm
Output Power	±0.04 @ 20°C @ 15 min
Modulation	CW/270Hz/1KHz/2KHz @ others
Fiber Type	MM
Connector	SC
Power Supply	AAA 1.5V (3pcs batteries)
Operating Temperature (°C)	-10 - +50, 0 to 95% RH (no condensation)
Storage Temperature (°C)	-25 - +70, 0 to 95% RH (no condensation)
Battery Life (h)	40
Dimension (mm/in)	125x65x29 / 4.92x2.56x1.14
Weight (g/oz)	160 / 3.74

Handheld Optical Light Source

Functions

1	**SM/ MM**	**Label Area**: Light Source will read SM (Single Mode) or MM (Multimode) depending on model. Choose SM for single mode testing (1310/1550nm) or MM for multimode testing (850/1300nm).
2	⏻	**Power On/Off**: Press and hold for 1 second to turn the unit on or off. **Auto Shut-Off Selection**: While unit is on, press this key quickly to turn the auto shut-off function on or off. When auto shut-off is active the unit will automatically shut off after ten minutes idle.
3	λ	**Wavelength Selection**: Press this key to change the wavelength, shown in top left corner of screen.
4	CW ⊓⊓⊓	**Modulation**: Press this key to switch modulation between continuous and modulated light. Modulated light frequency: 0.27, 1.00, 2.00 KHZ. Continuous light mode displays --- KHz (0 KHz).

Handheld Optical Light Source

1	**nm**	**Wavelength:** (nm) 1310/1550: Single mode fiber testing (SSF-LS100SM) 850/1300: Multimode fiber testing (SSF-LS100MM)
2		**Battery Indicator**: displays when battery power in use. The capacity shown will decrease with battery power. Replace batteries as needed.
3		**Auto Shut-off**: The light source will automatically shut off when idle for ten minutes. Press power button (⏻) quickly to turn Auto-Off function on or off.
4	**KHz**	**Frequency:** (KHz) 0.27, 1.00, or 2.00 KHz. Dashed line indicates Continuous Wave Mode (CW)
5	**dBm**	**Output Power:** (dBm)

Operation

Warning

1. *Do not look into the laser beam when unit is on. Light emitted is infrared and not visible to the human eye. To avoid the risk of eye damage, do not look into the laser at any time when the unit is active.*

Turning the Unit On/Off

1. Press ⏻ and hold for 1 second to turn on the unit. Press and hold for two seconds to power off the light source.
2. To turn the auto shut-off function on or off, with the light source turned on press ⏻.
3. The unit's automatic backlight will be enabled when the light source is turned on. It will turn off after 1 minute of inactivity. Press any key to reactivate.

Laser Output

1. Press λ to choose wavelength.
2. Press CW to select modulation.
3. The light source will output the desired laser settings.

Battery Replacement

1. If the battery level is low, turn off the unit immediately and replace the batteries.
2. Remove the batteries if light source is not in use for an extended period of time.

Maintenance and Troubleshooting

1. Always keep the connector ports of the light source clean.
2. Use the regulated optical connector for testing.
3. Shut off the power and cover laser with dust-proof cap after use.
4. Plug in/remove adapters carefully.
5. Regularly clean the connector.
6. Remove the batteries when light source not in use for extended periods of time.

Troubleshooting

Issue	Possible Reason	Solution
Faint screen display/ No backlight	Low battery power	Replace the batteries.
Unit fails to turn on	Low battery power or battery inserted incorrectly	(A) Replace the battery (B) Re-insert the battery
Display fails to appear	Low battery	Restart or replace batteries
LCD screen will not change	Low battery	Replace batteries
No laser power	Laser is off	Adjust CW/Hz

Warning

1. Ensure the connector is clean before testing.
2. Do not look into the laser beam when unit is on.
3. Cover with laser with dust-proof cap when not in operation.

Warranty

Caution: Do not attempt to repair as doing so will void warranty. This Optical Light Source is covered by an 18 month warranty

1. We warrant that this power meter will be free from defects in material and workmanship for 18 months. Should the device fail at any time during this warranty period, we will, at our sole discretion, replace and repair or refund the purchase price of the product. The worth of the repair or replacement will not be higher than purchasing price of this unit.
2. If device issues cannot be solved by the troubleshooting methods, please contact us or the local distributor directly.
3. We will repair or replace the unit free of charge in case of defects in production, workmanship or material. This warranty only applies to the unit under normal operation without any damage or misuse/abuse.
4. The shipping costs incurred by repair or replacement for the unit under warranty will be shared by both parties.

SSF-PM100
Optical Power Meter

Warning

1. *When using light source with power meter, do not look into the laser beam when unit is on. Light emitted is infrared and not visible to the human eye. To avoid the risk of eye damage, do not look into the laser at any time when the unit is active.*

Overview

The SSF-PM100 is a handheld optical power meter which can be used for absolute optical power measurements and relative loss measurements on both single mode and multimode fibers.

Model
Wavelength: 850, 1300, 1310, 1490, 1550, 1625nm
Measurement Range: -70 - +10dBm

Features
- High measurement accuracy and display resolution
- Quick response and measurement; real-time display of output power
- Wide measurement range (80dB)
- Six calibrated wavelengths
- Absolute and relative power measurements
- Real-time monitoring and display of batter level
- Auto shut-off function
- Backlight function
- Alkaline battery operation

Specifications

Wavelength (nm)	800 - 1650nm	
Detector Type	InGaAs	
Measurement Range (dBm)	-70 - +10	-50 - +26
Accuracy	<±3% (-10dBm, 22°C)	
Calibrated Wavelength (nm)	850, 1300, 1310, 1490, 1550, 1625	
Resolution (dB)	Linearity: 0.1%, Non-linearity: 0.01 dBm	
Optical Connector	SC, LC with Adapters	
Power Supply	Alkaline Battery (3 AAA 1.5V batteries)	
Battery Operating Time	120 h (without backlight)	
Operating Temperature (°C)	-10 - +50	
Storage Temperature (°C)	-20 - +70	
Relative Humidity	90% (+30°C)	
Dimension (mm / in)	125x65x29 / 4.92x2.56x1.14	
Weight (g / oz)	160 / 5.64	

Handheld Optical Power Meter

Functions

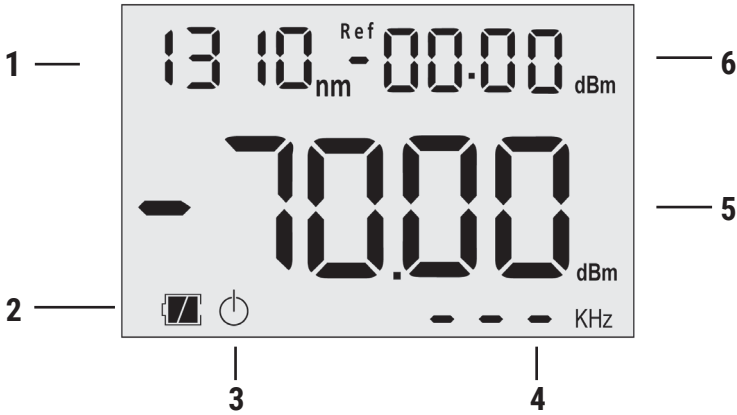|		
1	$\circlearrowleft$	**Power On/Off**: Press and hold for 2 seconds to turn the unit on or off. **Auto Shut-Off Selection**: Press this key quickly to turn the auto shut-off function on or off. When auto shut-off is active the unit will automatically shut off after ten minutes idle.
2	REF	**REF**: Press and hold this key to store current power value as the reference value. Quickly press this key to enter the relative measurement mode. This mode compares the current power with the reference power and shows the relative power value in dB.
3	$\frac{dBm}{W}$	**Measurement Setting**: Press this key to switch between the absolute measurement (dBm) and relative measurement (nW) of the optical power.
4	λ	**Wavelength Selection**: Press this key to select one of the 6 calibrated wavelengths

Handheld Optical Power Meter

1	**nm**	**Wavelength:** (nm) 850/1300: Multimode fiber testing 1310/1550: Single mode fiber testing
2		**Battery Indicator**: displays when battery power in use. The capacity shown will decrease with battery power. Replace batteries as needed.
3		**Auto-off**: the power meter will automatically shut off when idle for ten minutes. Press power button ( ) quickly to turn Auto-Off function on or off.
4	**KHz**	**Frequency:** (KHz) 0.27, 1.00, or 2.00 KHz.
5		**Power Value:** (dBm, nW, dB)
6	REF	**Reference Power Value:** (dbm)

Operation

Turning the Unit On/Off

1. Press ⏻ and hold for 1 second to turn on the unit. Press and hold for two seconds to power off the power meter.
2. To turn the auto shut-off function on or off, with the light source turned on press the ⏻.
3. The unit's automatic backlight will be enabled when the light source is turned on. It will turn off after 1 minute of inactivity. Press any key to reactivate.

Absolute Power Measurement (Setting Reference Value)

1. Place appropriate reference cable (LC or SC and either single mode or multimode) between units. If using an LC reference cable, install appropriate adapters and then connect cable.
2. Turn on both devices. Allow power meter to stabilize for 1-2 minutes.
3. Match the wavelength on the power meter to the light source by pressing λ. For multimode, 850nm is recommended. For single mode, 1310nm is recommended.
4. Press $\frac{dBm}{W}$ to choose the power display unit (dBm or nW). Set to dBM.
5. The power meter will then display the tested power value on the center of the screen. Set this as the reference value by pressing and holding REF for two seconds. The screen will then read 0.00dBM

Relative Power Testing (Finding Loss Value)

1. Perform steps above to set reference value.
2. Unplug reference cable from power meter side only.
3. Attach female to female adapter for connector type under test to reference cable.
4. Plug cable to be tested between female adapter and power meter.
5. The screen will display the loss in dB for cable under test. Optical loss will appear as a negative value (i.e. -0.57 dB).
6. Press $\frac{dBm}{W}$ to review to review the current reference power value.

Maintenance and Troubleshooting

1. Always keep the connector ports of the power meter clean.
2. Use the regulated optical connector for testing.
3. Shut off the power and cover laser with dust-proof cap after use.
4. When using AC adapter, ensure power supply is within the required voltage range.
5. Remove the batteries when power meter not in use for extended periods of time

Battery Replacement

1. If the battery level is low, turn off the unit immediately and replace the batteries.
2. Remove the batteries if light source is not in use for an extended period of time.

Troubleshooting

Issue	Possible Reason	Solution
Faint screen display/ No backlight	Low battery power	Replace the batteries.
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Warning

1. Ensure the connector is clean before testing.
2. Do not look into the laser beam when unit is on.
3. Cover laser with dust-proof cap when not in operation.