



Operating Manual

KE8000

Optical power meter

Version 1.3

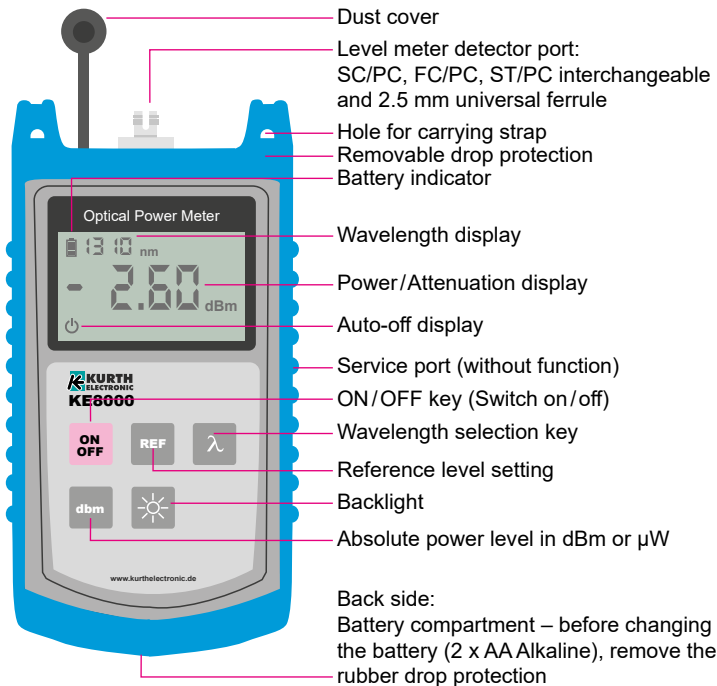
© KURTH ELECTRONIC GmbH
All rights reserved, including translations.

All reprints and electronic copies, including excerpts, require prior written approval of Kurth Electronic GmbH.

All of the brand names and trademarks cited herein are the property of their registered owners.

Preparation

Insert two AA alkaline batteries into the battery compartment on the back of the device. To do this, remove the drop protection.



Warning

The laser could injure your eyes, never look directly at the laser output or the connected optical fibre. Do not install fibres while the light source is active and make sure that your eyes are protected at all times.

Usage

The optical level meter KE8000 is part of the new generation of high-performance measuring devices for optical network testing and offers fast testing of fibre performance and attenuation. It features the latest photodiode technology and is suitable for power measurement in optical network operation, maintenance, installation, research and development.

The KE8000 is used to determine the optical power in the range of 800 to 1700 nm wavelength and displays measured values in μW /dB or dBm. It has six calibrated wavelengths (850 nm, 1300 nm, 1310 nm, 1490 nm, 1550 nm, 1625 nm) and can perform both absolute and relative power measurements. The device is small, lightweight and easy to use and is equipped with a large backlit LCD screen. The KE8000 is ideal for optical network installations, troubleshooting and maintenance in LAN/WAN, Enterprise, Carrier Ethernet, FTTx, PON and telecom wide area networks.

At a glance

- Multi-wavelength selection and precise measurements
- Absolute power measurement in dBm or μW
- Relative power measurement in dB
- Auto-off function
- Battery status indicator
- Adapter: FC, SC, ST and 2.5 mm universal ferrule
- Handy tester with large, backlit LCD display and simple operation

Meas. cable SM 2 m, Simplex	Meas. cable MM 2 m, Simplex	Coupling LWL, Simplex	Plug-in adapter LWL, Metall
SC/PC – SC/PC Art. 0.57130	SC/PC – SC/PC Art. 0.57134	SC – SC (Plastic) Art. 0.57138	2.5 mm – 1.25 mm Art. 1400070
SC/PC – LC/PC Art. 0.57131	SC/PC – LC/PC Art. 0.57135	LC – LC (Plastic) Art. 0.57139	2.5 mm – POF Art. 1400078
SC/PC – ST/PC Art. 0.57132	SC/PC – ST/PC Art. 0.57136	ST – ST (Metal) Art. 0.57128	
SC/PC – FC/PC Art. 0.57133	SC/PC – FC/PC Art. 0.57137	FC – FC (Metal) Art. 0.57127	

Operation

1. ON/OFF

Press the **ON/OFF** button for 3 seconds to turn on the power meter. Briefly press the **ON/OFF** button to turn it off. The ☺ symbol displayed in the lower left corner of the LCD indicates that the *auto-off* function is active and that the unit switches off 10 minutes after the last key was pressed. A long press of the ☺ key switches the *auto-off* function off, another long press of the ☺ key switches it on again.

2. dBm

The absolute power level measurement determines the strength of the light signal received by the power meter. This mode is indicated on the LCD display by *dBm* (decibel milliwatt). Absolute power level measurement is used when testing the outputs of optical instruments to determine whether the instrument is complying with the specified operating values. Switch to μW mode by pressing the key again.

3. Wavelength

Press the λ button to select one of the calibrated wavelengths 850, 1300, 1310, 1490, 1550, and 1625 nm. After being switched on, 1310 nm appears as the default value in the upper left corner of the display.


4. REF

Pressing the **REF** key displays the relative power value in dB based on the last measured value (shown in the upper right corner). Relative level measurement is often used when installing fibre optic cables to determine the end-to-end attenuation of the fibre path. In this mode, the power meter is first connected to a stabilized light source and then the measured power level is stored in the power meter. All further measurements are then compared to the stored reference value, the difference calculated and displayed in dB. To switch between absolute measurements, press the **dBm** key.

5. Backlight on/off

Press the ☺ button to turn the LCD backlight on/off (*auto-off* on/off see position 1).

6. Battery charge status

When the inserted batteries reach the lower state of charge, the battery indicator changes to .

Performing optical power measurements

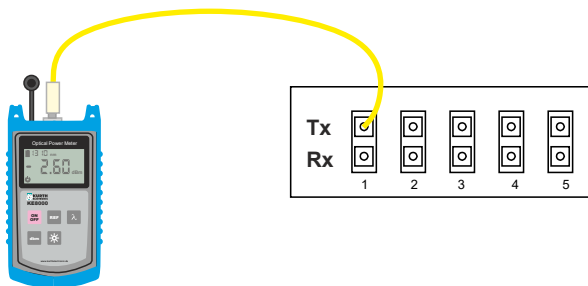
Screw the appropriate SC, FC or ST interchangeable measuring adapter onto the measuring connection of the KE8000. Among the measuring adapters there is a built-in 2.5 mm universal measuring adapter ferrule, which can also be used for measurements without an additional measuring adapter.

Switch on the level meter with the **ON/OFF** button. If the input of the power meter is covered by the dust cap, 'L0' appears in the display. The power meter is now ready to measure and there is currently no signal level.

Now use the wavelength button (λ) to select the desired wavelength. Remove the dust protection cap and connect the power meter to the object to be measured.

By default, the power Meter displays the dBm value of the optical signal level.

System power level or absolute power level measurement



Connect the KE8000 level meter directly or via an optical measuring cable to your test object.

For system power level measurements, the absolute power level is measured in dBm. System power levels can, for example, be measured directly at the transmitter output Tx of an optical transmission system. Likewise, all types of optical connections can be checked to see whether an optical signal level is emitted.

Attenuation or relative power level measurement

The relative power level is measured in dB for attenuation measurements of fibre lines or optical components (e.g. connectors).

This measurement is carried out in two steps and is performed with at least one additional optical measuring cable and a stabilized light source, e.g. KE8100 or KE8200.

Measuring step 1 – Reference measurement

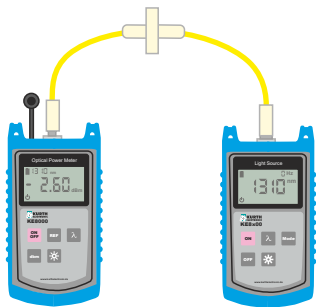


Connect the light source and the level meter KE8000 with a high-quality optical measuring cable.

The power meter now displays a measured value in dBm, which corresponds to the level of the light source (level transmitter) minus the attenuation of the measuring cable and the insertion loss of the plug at the light source itself.

Now press the **REF** key to set this level value as the reference value.

Measuring step 2 – Attenuation measurement



Now disconnect the measuring cable from the power meter and connect the open end via a coupling, e.g. to the fibre section to be measured. The other end of the fibre path is now connected to the level meter. Make sure that the connection at the power level transmitter is not detached or altered.

The power meter now displays a relative power level in dB. This value corresponds to the attenuation of the fibre path plus the insertion loss of the connector (coupling).

General data

Model	KE8000 Optical power meter
Article number	0.49110
Fibre type	Multimode, singlemode
Wavelength range	50 to 1700 nm
Calibr. Wavelengths	850, 1300, 1310, 1490, 1550, 1625 nm
Measurement adapters	SC/PC, FC/PC, ST/PC, 2.5 mm universal
Detector	INGaAs
Measurement range	-70 to + 3 dBm
Measurement accuracy	± 5 %
Power/attenuation meas.	In dBm or μ W/dB
Modulation	Automatic detection

Scope of delivery

Measuring device with drop protection, batteries, measuring adapters and operating manual

General data

Measurements	160 x 76 x 28 mm
Weight	210 g
Casing	Impact resistant ABS, with rubber protection
Display	2.4" LCD
Language	English

Power supply and running time

Power supply	2 x AA alkaline batteries
Running time	> 70 hours with auto-off function

Environmental condition

Operation temperature	0–+50°C
Storing temperature	-20–+60°C
Humidity	up to 93%, non-condensing

Maintenance

This device does not contain any parts that require maintenance. However, it contains sensitive electronic and optical components and should be handled with care. When not in use, it should always be stored in the designated transport container.

To ensure trouble-free operation:

- Always check the fibre optic connector before use and clean it if necessary.
- Keep the unit free of dust and other contaminants.
- Store the device at room temperature in a clean and dry place. Avoid prolonged exposure to direct sunlight.
- Do not expose the device to high humidity or strong temperature fluctuations.
- Avoid unnecessary shocks and vibrations.
- Clean the casing and front panel of the unit with a slightly damp cloth.
- If liquid gets on or into the device, switch off the device immediately, remove the batteries and let the device dry completely.
- The device is protected from splash water and dust by the front foil. However, it is not waterproof.

