



# Operating Manual

# KE8100

# KE8200

## *Optical light source*

### Version 1.3

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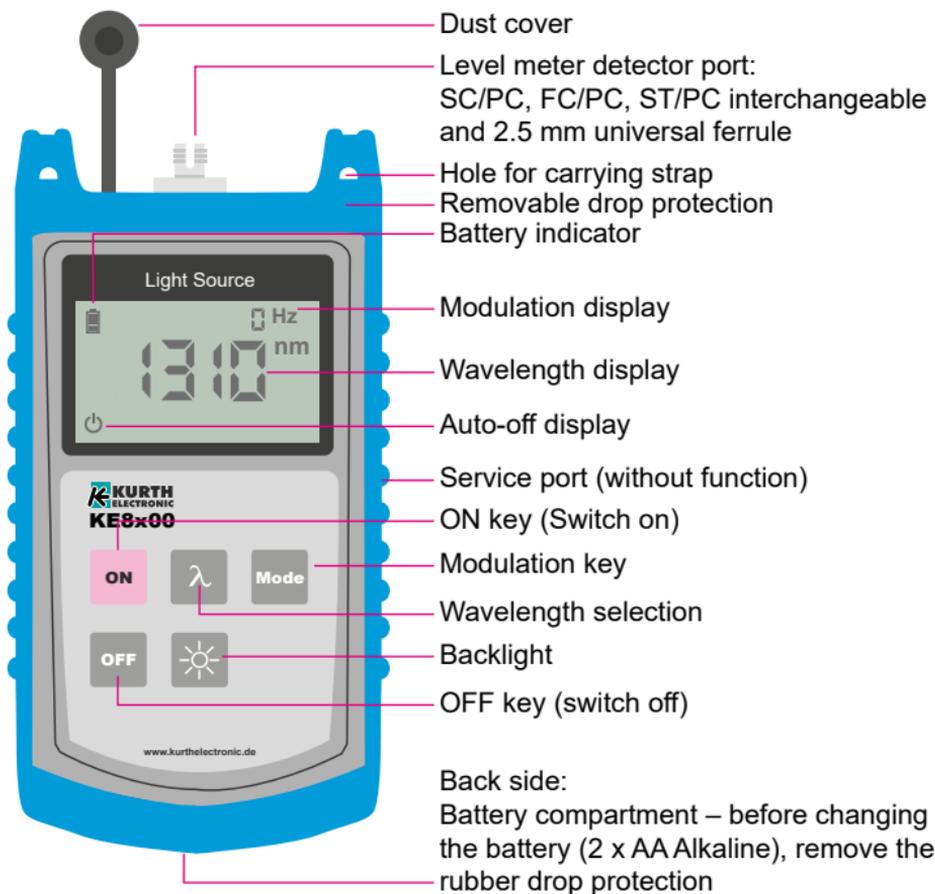
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## Preparation

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 two light sources KE8100 and KE8200 with their stabilized laser diodes support different wavelengths (KE8100: 850 and 1300 nm; KE8200: 1310, 1490 and 1550 nm), the precise identification of fibres, the determination of fibre attenuation and thus the assurance of sufficient transmission quality. They provide high-quality laser light for testing in field and laboratory applications. The robust casing, the large LCD display with backlight and the simple operation make the handy KE8100 and KE8200 light sources ideal tools for your daily testing tasks. Due to the stabilization of the output power and the different wavelengths, the laser light sources are indispensable for optical network installations as well as for troubleshooting and maintenance in LAN/WAN, Enterprise, Carrier Ethernet, FTTx, PON and telecom wide area networks. In combination with the KE8000 optical level meter, optical losses can be easily determined and the attenuation behavior of optical fibres evaluated.

## At a glance

- Handy and easy to use
- For multimode or singlemode fibres
- Continuous light and pulsating mode
- High stability
- Automatic switch-off function after 10 minutes
- Large LCD shows all values at a glance
- Battery charge indicator

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

## Operation

### 1. ON/OFF

Press the **ON** button for 2 seconds to turn on the light source. The display will show the wavelength, battery level and modulation frequency. By default, the device is set to the wavelengths 1310 nm (KE8200), 850 nm (KE8100) and DC light (0 Hz). Press the **OFF** button for 2 seconds to turn off the unit.

The  $\phi$  symbol in the lower left corner of the display indicates that the *auto-off* function is active and that the unit switches off 10 minutes after the last key was pressed. Briefly pressing the **OFF** key switches off the *auto-off* function, pressing the **OFF** key again reactivates the *auto-off* function.

### 2. Wavelength selection

Pressing the  $\lambda$  button allows you to select the wavelength. The selected wavelength is shown in the centre of the LCD display.

### 3. Modulation output

Pressing the **Mode** button allows the selection of the different laser light modulations. The following options can be selected:

0 Hz ( DC ), 270 Hz, 330 Hz, 1 kHz and 2 kHz. The selected modulation frequency is automatically detected by the *KE8000 Optical Power Meter* and the measured value is displayed correctly. The selected modulation is shown in the upper right corner of the display.

### 4. Backlight on/off

Pressing the  $\odot$  button turns the LCD backlight on or off. However, if the backlight is turned off, it will be turned on for 8 seconds each time the key is pressed.

### 5. Battery charge status

When the inserted batteries reach the lower state of charge, the battery indicator changes to  $\square$ . If the battery voltage falls below the protective voltage, the device switches off automatically.

### 6. Measurement

The measurement is usually carried out in combination with the *KE8000 Optical Power Meter*. Please compare the explanations in the corresponding operating instructions or on the following pages.

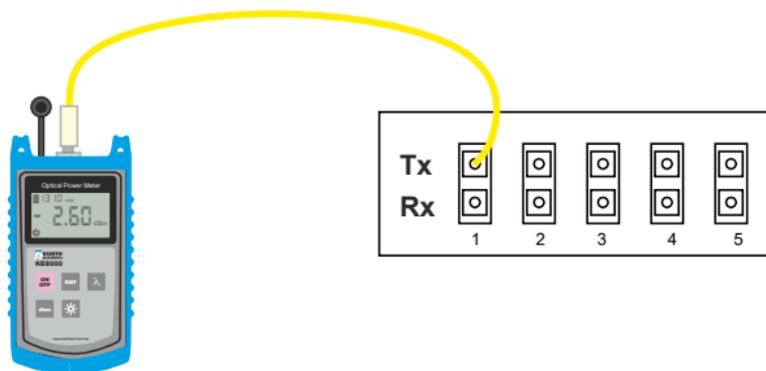
## Performing optical power measurements

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 ( $\lambda$ ) 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).

	<b>KE8100 MM</b> <b>Optical light source</b>	<b>KE8200 SM</b> <b>Optical light source</b>
<b>Fibre type</b>	Multimode (62,5/125 µm)	Singlemode (9/125 µm)
<b>Wavelength range</b>	850, 1300 nm	1310, 1490, 1550 nm
<b>Calibrated wavelengths in nm</b>	–	–
<b>Variable measuring adapter system</b>	SC/PC	SC/PC
<b>Detector / Emitting diode</b>	FP laser diode	DFB laser diode
<b>Measurement range</b>	–	–
<b>Measurement accuracy</b>	–	–
<b>Power / attenuation measurement</b>	–	–
<b>Output level</b>	> -10 dBm (Class I)	> -7 dBm (Class I)
<b>Level stabilization</b>	< 0.1 db/5 h; < 0.05 dB/15 min	
<b>Modulation</b>	CW and modulation: 270 Hz, 330 Hz, 1 kHz, 2 kHz	
<b>Power supply</b>	2x AA alkaline battery	
<b>Operating time</b>	> 15 h with auto-off function	
<b>Display with backlight</b>	2,4" LCD	
<b>Operating range</b>	-10 °C .. +40 °C	
<b>Dimensions</b>	160 x 76 x 28 mm	
<b>Weight</b>	220 g	
<b>Delivery includes</b>	Measuring device with drop protection, batteries and operation manual	
<b>Article number</b>	0.49120	0.49130

## 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.

