

## Safety Instructions



**Any claims for guarantee will become invalid in the event of damage that results from the non-observance of the operating manual. We do not accept responsibility for such damage. Nor do we accept responsibility for damage to property or for personal injuries caused by improper use or non-observance of safety instructions. Guarantees will not be accepted in any such case.**

The unauthorized conversion and/or modification of the product is inadmissible because of safety and approval reasons (CE).

This device is not a toy. Keep the device out of reach of children!

Do not expose the device to mechanical stress, to moisture or liquids. Only use the device outdoors under appropriate weather condition or with appropriate protection.

The light sensor or the device must not be heated by the light source. Keep sufficient distance to light sources with strong heat development.

## Information on the Correct Illuminance

The illuminance is measured in lux. The adaptability of the human eye is almost unlimited. This easily leads to demanding of the eye visual performance even if the illumination is not sufficient. If there is no light or the illumination is not sufficient, the eye can fulfill its visual performance only with great effort or even cannot see. Very often, this involves eye injuries the number of accidents increases.

With the Digital Luxmeter MS-1300 you acquired a product by means of which you can verify everywhere if the illuminance is sufficient for the normal visual performance (i.e. everyday tasks).

Eyesight means the detection of brightness and colour differences, form, motion as well as distance. Only with the correct illuminance, the eye can fulfil its visual performance. Therefore, sufficient illumination is so important. Concerning light, we often save at the wrong end. Dark zones give an unfriendly atmosphere. Allow yourself more light.

The kind of illumination influences the information that is transmitted by the eye to the brain. Increase the illumination where precise seeing is necessary. In rooms with an illuminance inferior to 30 lux, the danger of accidents increases!

Older people need more light, because their visual performance decreased. A 60-year old needs approx. twice the light of a 30-year old.

## **Description of the Device**

(for figure see fold-out page)

1. Low-Bat indication: symbol for an empty battery. If this symbol appears on the display, the battery has to be replaced.
2. Indicated value of the measured illuminance. If the display indicates "1", the selected measuring range is exceeded; switch to the next measuring range.
3. Light sensor with built-in long-life photodiode and protective cap
4. 12V alkaline battery of type A23
5. On/Off and measuring range selector switch
6. Screw for opening of the housing in case of battery replacement

## Carrying out Measurements



**Before commissioning, please observe the instructions concerning the Prescribed Use as well as the Safety Instructions and the Technical Data.**

- Turn the On/Off switch (5) to the desired measuring range.
- Remove the protective cap from the light sensor and hold it horizontally ensuring that the light hits the light sensor vertically. Avoid shadows of your own body in direction of the sensor.
- Read the value (2) indicated on the display. In the measuring ranges of 200 and 2000 lux, the indicated value corresponds to the intensity of light in lux. In the measuring range of 20000 lux, you have to multiply the indicated value on the display by 10; in the measuring range of 50000 lux, you have to multiply it by 100 to determine the correct light intensity.
- In case of overflow indication ( "1" is indicated on the display), please switch to the next measuring range to determine the correct light intensity.
- After the measuring process, please switch off the device (On/Off switch to "OFF") and put the protective cap back onto the sensor.

## Replacing the Batteries

The device is already equipped with a built-in 12V alkaline battery of the type A23 when being delivered. As soon as the Low-Bat indication (1) appears on the display, please replace the battery because otherwise, the precision of the indication is no longer guaranteed. To replace the battery, proceed as follows.

- Remove the housing screw (6) on the back of the device with an appropriate screwdriver for recessed-head screws and carefully remove the back of the device.
- Remove the empty battery and replace it by a new one of the same type. Ensure correct and secure position of the battery.
- Put the back of the housing back onto the device and close the device by fastening the housing screw (6).



The user is legally obliged (old battery regulation) to return all used batteries (from round cells to lead storage batteries) to a specialist dealer's shop where there are special facilities (collecting boxes). It is forbidden to dispose of batteries in the garbage bin or litter.



You can return your used batteries and storage batteries free of charge either to our subsidiaries or to our central office in Hirschau or reusable-waste facilities which are obliged to take back old batteries.

Make your contribution to environmental protection!

## Standard Values for Illuminance

Stairs, basement, loft	30 lux
Garage, hall, lumber rooms	60 lux
Kitchen, hobby workshops, living rooms, housework rooms, waiting rooms	250 lux
Meals, kitchen work and hobbies, office and laboratory work	500 lux
Hall, cloakroom, toilet, bathroom, children's room, storeroom	720 lux
Reading, writing, homework or handicrafts, painting, cosmetics	750 lux
technical drawing, precision work, precise testing, judging colours	7000 lux

# Disposal

Dispose of the unserviceable device according to the relevant statutory requirements.

# Technical Data

- Measuring range . . . . . : 0.01 up to 50,000 lux
- Accuracy . . . . . :  $\pm 5\% + 10$  digits  
( $< 10,000$  lux)  
. . . . . :  $\pm 10\% + 10$  digits  
( $> 10,000$  lux)
- Repeatability . . . . . :  $\pm 2\%$
- Measuring rate . . . . . : 1.5 times per second, nominal
- Voltage supply . . . . . : 12V alkaline batteries of  
type A23
- Overflow indication . . . . . : 1 (highest digit)
- Temperature characteristic . . . . . :  $\pm 0,1\%$  per  $^{\circ}\text{C}$
- Display . . . . . :  $3\frac{1}{2}$ -digit LCD
- Dimensions photoelectric sensor : (115 x 60 x 27) mm
- Dimensions main device . . . . . : (188 x 64.5 x 24.5)
- Weight . . . . . : 160g

The permanently installed light sensor with the integrated photodiode and the filter show the following spectral sensitivity:

