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## PHOTOMETRIC CALIBRATOR

### KF-10

high-stability light source for periodical metrological control  
of luxmeters between calibrations



## INSTRUCTION MANUAL

CONTENTS:

1.Characteristics of instrument..... 2

2.Technical data..... 2

3.Front panel..... 3

4.Back panel..... 4

5.Operation..... 5

6.Adjustment..... 5

7.Power supply..... 5

8.Accessories..... 6

9.Recommendations for use of instrument..... 6

10. Warranty and repairs..... 7

11. CE marking and WEEE directive..... 7

## 1. Characteristics of instrument

The KF-10 photometric calibrator is a source of luminous exitance (the radiated surface density of the luminous flux) of about  $100\text{lm/m}^2$ . It is designed for periodical control of luxmeters made by SONOPAN. The device generates illuminance of about  $100\text{lx}$  in the reception field of the photometric probe. The optical system and electronic control of light source parameters guarantee high stability of the luminous flux density in the output diaphragm of the calibrator. Owing to a very long life of the used light source, there is no need to change it throughout the intended life of the calibrator. The instrument is equipped with the automatic switch-off function. The time of a single operating cycle of the device amounts to approximately 1min. The photometric calibrator is an indispensable tool for every laboratory where the quality management system is implemented.

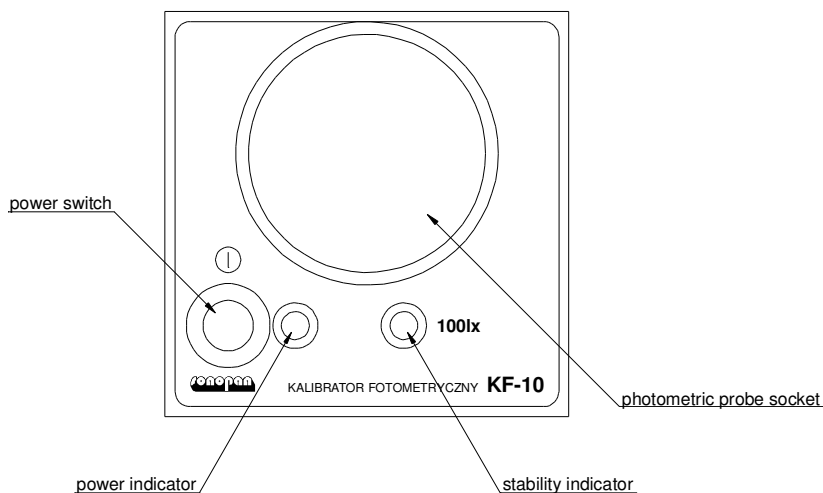
**ATTENTION:** The control of the luxmeters with the use of the KF-10 photometric calibrator does not replace periodical calibration confirmed with a calibration certificate issued in an accredited laboratory.

## 2. Technical data

- Luminous exitance:  $M \approx 100\text{lm/m}^2$
- Illuminance in the reception field of photometric probe:  $E \approx 100\text{lx}$
- Light source colour temperature:  $T_{cp} \approx 3000\text{K}$
- Illuminance stability:
  - for single operating period: typically  $\pm 0,1\%$  (max.  $\pm 0.3\%$ )
  - after 3000 periods or 1 year  $\pm 1\%$
- Operating temperature:  $0 \div 40^\circ\text{C}$   
recommended operating temperature:  $23 \pm 3^\circ\text{C}$
- Temperature coefficient:  $< 0.02\%/K$
- Operating humidity:  $\leq 80\%$
- Power supply: AC adapter +  $12\text{V } 0.6\text{A}$

The spectral distribution of the light source of the KF-10 calibrator is different from the illuminant used during luxmeter calibration (typically illuminant A). It causes deviations in indications which depend on the quality of the matching of the photometric probe spectral response to the spectral luminous efficiency of CIE standard photometric observer. For luxmeters made by SONOPAN the deviations do not exceed 0.03% for class A luxmeters and 0.15% for class B luxmeters. The influence of the colour temperature of the light source of the calibrator is negligible for photometric probes made by SONOPAN.

### 3. Front panel



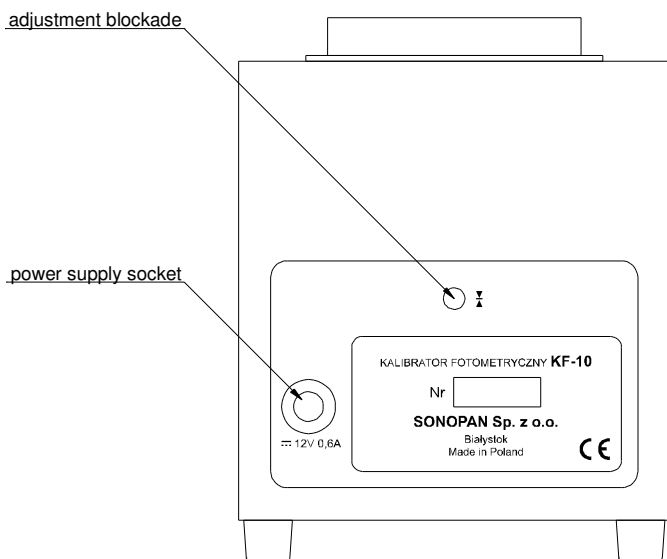
**Fig. 1. Front panel view.**

- **Power switch** is used to turn on / off the instrument.
- **Power indicator** if the voltage of the power source is in the operating range, it lights green. If the voltage is too low, it lights red – the calibrator should not be used in such a case.
- **Stability indicator** should blink during normal operation. It means that the system of the electronic control of light

source works properly and the illuminance in the reception field of the probe is the same as the one set by the manufacturer. Otherwise, the illuminance value is not specified.

- **Photometric probe socket** is used to place the photometric probe inside it when it is checked. The photometric probes made by SONOPAN have the standard diameter of Ø44mm and the reception field of Ø12.5mm.

#### 4. Back panel



**Fig. 2. Back panel view.**


- **Power supply socket** is used to connect the AC adapter +12V 0.6A (see p. 5. Power supply).
- **Adjustment blockade** is secured against accidental use. It is intended for calibration and adjustment performed by the manufacturer or accredited laboratory (see p. 5. Adjustment).

## 5. Operation

- Turn on the tested luxmeter and check, and eventually correct the zero indication with the photometric probe covered.
- Connect the AC adapter to the KF-10 photometric calibrator (Fig. 2).
- Turn on the calibrator using the key ① (Fig. 1), the power indicator should light green.
- Wait till the stability indicator starts blinking (Fig. 1).
- Place the luxmeter probe in the photometric probe socket.
- Measure the illuminance. The photometric probe should be kept in the socket of calibrator only for several seconds (max. 1 single operating period of the calibrator), see: also p. 6. Recommendations for use of instrument .
- Turn off the calibrator using the key ①.

## 6. Adjustment

The KF-10 photometric calibrator is initially adjusted by the manufacturer in accordance with the reference device, i.e. calibrated class A luxmeter and the security label is placed on it to prevent unauthorized adjustment (*Fig. 2*) The adjustment is possible, but it should be conducted only if the user has technical skills and knowledge.

In order to do that, remove the seal and loosen the screw blocking the photometric probe socket. The screw is accessible through the hole marked with , which is placed on the back panel (*Fig. 2*). Turn around the photometric probe socket to perform adjustment. After setting the proper luminous exitance of the calibrator, tighten firmly the screw.

## 7. Power supply

The KF-10 photometric calibrator is powered by a stabilized AC adapter with +12V output voltage and 0.6A max current. **Only the AC adapter provided by the manufacturer should be used to power the instrument**

**ATTENTION:** The AC adapter can change the polarity of the output voltage. The positive polarity should be set according to the marking placed on the back panel of the calibrator. The improper polarity will not damage the calibrator, but the instrument will not work properly.

## **8. Accessories**

- AC Adapter: MASCOT 5015
- Instruction manual
- Warranty card

## **9. Recommendations for use of instrument**

- The KF-10 photometric calibrator contains sensitive optical elements, so it needs to be used with caution and care. The device should not be exposed to falls, shocks or any other factors which can cause mechanical damage.
- The photometric probe socket cover should be removed only when measurement is conducted. The lens of the calibrator should be protected from dirt. The photometric probe should be clean before it is placed in the socket.
- To prevent the photometric probe from heating, keep it in the socket of the calibrator for several seconds (the recommended time amounts to 15 seconds, max. 1 single operating period of the calibrator).
- If it is necessary to clean the lens, use a clean (degreased and with no impregnates) and soft brush, holding the calibrator in an inverted position (with the photometric probe socket turned down).
- It is vital to protect the instrument from excessive dampness and aggressive chemical factors that can damage the elements of the calibrator.
- Only the AC adapter provided by the manufacturer should be used to power the instrument.
- Adjustment should be conducted only if the user has the technical skills and knowledge to do that.

- The instrument should be stored and transported only in the original packaging.

## **10. Warranty and repairs**

The KF-10 photometric calibrator is provided with one year warranty. It does not require any special maintenance treatments if you comply with all the manufacturer's recommendations.

**All repairs of the instruments are performed by the manufacturer.**

## **11. CE marking and WEEE directive**

The product described in the instruction manual conforms to the following EU Council directives: 2004/108/EC  
Electromagnetic compatibility.



The conformance to the above-mentioned requirements is confirmed by CE mark.



This product cannot be thrown away with household waste. Deposit the product in an authorized electrical and electronic waste collection area for recycling. Contact the local authorities or the nearest waste disposal company to get more detailed information.



**DECLARATION OF CONFORMITY** **CE**  
**no 1/2012**

Manufacturer: PPUH „SONOPAN” sp. z o. o.  
Address: ul. Ciołkowskiego 2/2, 15-950 Białystok, Poland  
Product: Photometric calibrator  
Type: KF-10

The product described above, is in conformity with following directives:  
2004/108/WE

Additional documents:

1. EMC test report no: EMC-KF10/1/2005
2. EMC test report no: EMC-KF10/2/2012
3. Declaration of conformity issued by Mascot Electronic A/S for 5015  
AC adapter.

PREZES ZARZĄDU  
SONOPAN sp. z o.o.  
*[Signature]*  
mgr inż. Stanisław Antoni Więcko

Białystok, 2012.02.07

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(place and date of issue)

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(stamp and signature of authorized person)