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PHOTOMETRIC CALIBRATOR

KF-10

stable light source for periodic test of illuminance meters
between calibrations



INSTRUCTION MANUAL

CONTENTS:

1.Instrument characteristic	2
2.Technical specification.....	2
3.Front panel.....	3
4.Back panel.....	4
5.Operation.....	4
6.Adjustment	5
7.Power supply	5
8.Accessories.....	5
9.Recommendations for instruments use	6
10. Warranty and repairs	6
11. CE marking and conformance to EU Council directives	7

1. Instrument characteristic

KF-10 photometric calibrator is a source of luminous exitance (radiated surface density of luminous flux) about $100\text{lm}/\text{m}^2$. It is designed to periodic tests luxmeters made by SONOPAN. The device generating illuminance about 100lx in reception field of photometric probe. Optical system and electronically controlled light source guarantee high stability of luminous flux. Very long life of used light source makes not expected to change it during the life of the device. Instrument is equipped with automatic switch off function. Time of single period is about 1 min.

Photometric calibrator is an indispensable tool for any laboratory having implemented a quality system.

WARNING: Checking luxmeters using KF-10 photometric calibrator can not replace periodic calibration in accredited laboratory.

2. Technical specification

- Luminous exitance: $M \approx 100\text{lm}/\text{m}^2$
Illuminance in the reception field of photometric probe: $E \approx 100\text{lx}$
- Light source color temperature: $T_{\text{cp}} \approx 3000\text{K}$
- Illuminance stability:
for single working 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 +12V 0.6A

Spectral distribution of KF-10 calibrator's light source is different than illuminant used during luxmeter calibration (typically illuminant A). That causes indication deviation, which depends on quality of the match of photometric probe spectral response to spectral luminous efficiency of CIE standard photometric observer. For luxmeters made by SONOPAN that deviation not exceed 0.03% for class A luxmeters and 0.15% for class B

luxmeters. The influence of the color temperature of calibrator's light source is negligible for luxmeters made by SONOPAN.

3. Front panel

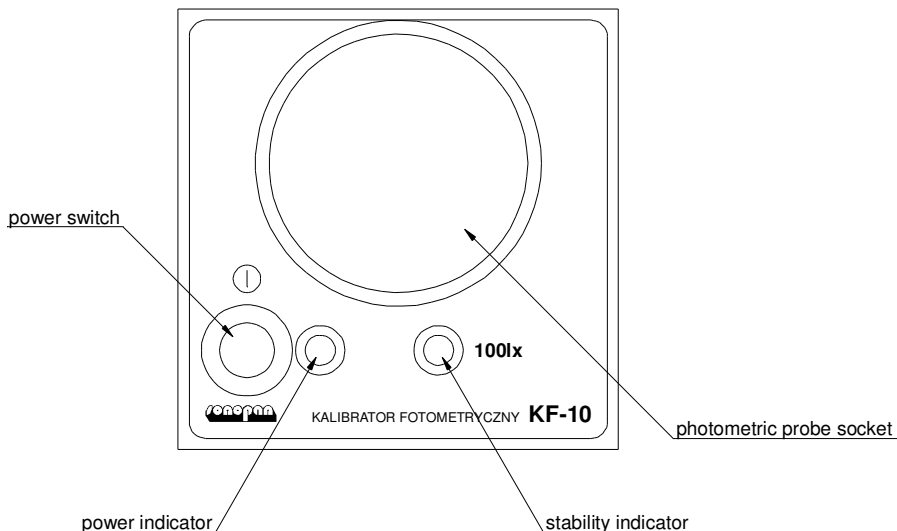


Fig. 1. Front panel view.

- **Power switch** is used to turning on / on 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 (calibrator should not be used in that case).
- **Stability indicator** should blink in normal operation. It means that electronic control of light source works properly and illuminance is as described in technical specification. Otherwise illuminance is unspecified.
- **Photometric probe socket** is used to place photometric probe which is being checked. Photometric probes made by SONOPAN have standard diameter $\varnothing 44\text{mm}$ and reception field $\varnothing 12.5\text{mm}$.

4. Back panel



Fig. 2. Back panel view.

- **Power supply socket** is used to connect AC adapter +12V 0.6A (see p. 7. Power supply).
- **Adjustment blockade** is secured against accidental use and it is needed during calibrator's calibration and adjustment made by manufacturer or accredited laboratory (see p. 6. Adjustment).

5. Operation

- Turn on luxmeter under test then check and eventually correct the zero with photometric probe covered.
- Connect AC adapter to KF-10 photometric calibrator (Fig. 2).
- Turn on the calibrator using key \odot (Fig. 1), power indicator should lights green.
- Wait till stability indicator starts blinking (Fig. 1).
- Place luxmeter probe in photometric probe socket.

- Measure the illuminance. The time in which the photometric probe is being held in calibrator's socket should not exceeded several seconds (max. 1 single working period of the calibrator), see also p. 9. Recommendations for instruments use.
- Turn off the calibrator using key ①.

6. Adjustment

KF-10 photometric calibrator has been initially adjusted by manufacturer in reference to factory standard (calibrated class A luxmeter) and adjustment blockade (*Fig. 2*) was sealed. Adjustment is possible but should be conducted only if the user have technical capabilities to do that.

For that purpose remove the seal and loosen the screw blocking photometric probe socket. The screw is accessible by hole marked ▼ , located on the back panel (*Fig. 2*). Turn photometric probe socket to change luminous exitance of the calibrator. After finishing adjustment firmly fasten the blocking screw.

7. Power supply

KF-10 photometric calibrator is powered by a stabilized AC adaptor with +12V output voltage and 0.6A max current.

Only AC adaptor supplied by the manufacturer should be used to powering the instrument

WARNING: AC adaptor has capability to reverse the polarity. Positive polarity should be set according to marking on back panel of the calibrator. Reversing the polarity will not damage the calibrator but instrument will not be working properly.

8. Accessories

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

9. Recommendations for instruments use

- KF-10 photometric calibrator contains sensitive optical elements and requires careful handling. It is forbidden to expose instrument on falls, shakes neither any other factors which can cause mechanical damages.
- Photometric probe socket cover should be removed only on measuring time. Photometric probe should be clean before placing it in socket.
- To prevent photometric probe heating, the time in which the photometric probe is being held in calibrator's socket should not exceeded several seconds (recommended time is 15 seconds, max. 1 single working period of the calibrator).
- In case of needing clean the lens use clean (degreased and devoid of impregnates) and soft brush holding the calibrator in an inverted position (photometric probe socket head down)
- It is necessary to protect instrument from wet and aggressive chemical factors that can damage instrument elements.
- Only AC adaptor supplied by the manufacturer should be used to powering the instrument.
- Adjustment should be conducted only if the user have technical capabilities to do that.
- The instrument should be stored and transported only in original packaging.

10. Warranty and repairs

KF-10 photometric calibrator is shipped with one year warranty. It does not require any special maintenance treatment.

All repairs of the instruments are performed by the manufacturer.

11. CE marking and conformance to EU Council directives

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



The conformance to 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 local Municipal Bureau or 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

.....
(place and date of issue)

.....
(stamp and signature of authorized person)