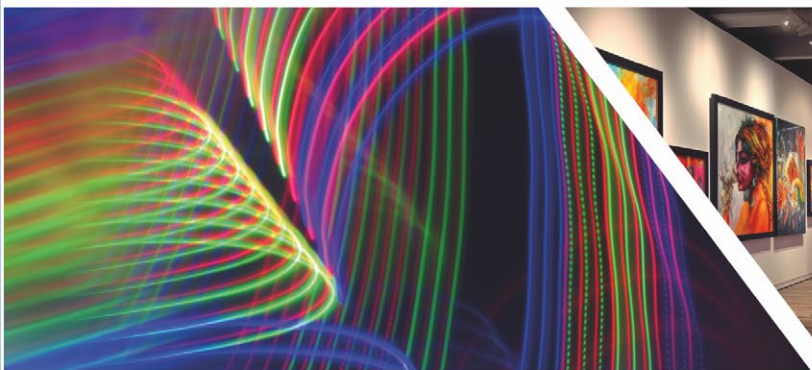




TKA SCIENTIFIC INSTRUMENTS



PRODUCT
CATALOG



Dear colleagues,

TKA Scientific Instruments LLC is one of the major manufacturers of measuring instruments in Russia. For more than 30 years the company has been actively working to improve and expand the range of the measuring instruments manufactured in the Russia. The most popular models of our devices firmly occupy up to 70% of the Russian market of measuring instruments for the Russian State Sanitary and Epidemiological Supervision Centers ensuring control of the most important parameters in the field of life safety and occupational safety.



The company's achievements are the result of daily improvement of technological processes, the result of work of highly qualified specialists dedicated to their work.

It is impossible to imagine the life of the enterprise without constant interaction with our friends and partners, their versatile support. We express our heartfelt appreciation to all of them for many years of fruitful cooperation.

General Director of TKA Scientific Instruments LLC,
Doctor of Technology,
Professor K.A. Tomsy

A handwritten signature in black ink, consisting of stylized, flowing letters and a long horizontal stroke at the end.

About the enterprise

TKA Scientific Instruments was registered in January 1991 and is a limited liability company (LLC).

TKA Scientific Instruments develops and manufactures measuring instruments and industrial standards:

- for measurement of optical radiation parameters;
- spectral measuring devices;
- microclimate parameters meters;
- medical devices.

Instrument complexes of TKA-PKM allow monitoring of photometric parameters of radiation sources, the illumination of workplaces, production facilities and offices, as well as measuring atmospheric pressure, temperature, humidity and air velocity.

The company produces Dataloggers TKA-PKL - measuring devices for control of microclimate parameters. Autonomous loggers have embedded memory, compact size, various communication interfaces.

TKA Scientific Instruments has its own production and research base and is equipped with modern technology. Specialists with academic titles of doctors and candidates of sciences and extensive practical experience take part in the development of new devices.

TKA Scientific Instruments is officially included in the register of participants of the project for the creation and operation of the Innovation Center Skolkovo.

The company has developed and implemented a quality management system ISO 9001:2015 (ISO 9001:2015) and ISO 13485:2016.

The company with a number of Russian and international standards:

- GOST R ISO 9001-2015 – quality management system;
- GOST R ISO 45001-2020 – occupational health and safety management system;
- GOST R ISO 50001-2012 –energy management systems;
- ISO 13485:2016 –quality management system for the design and production of medical devices .

We carry out research and development for own needs and to orders.

Since 2015, the company has been included the Register of Reliable Partners.

The team of authors of TKA Scientific Instruments is the winner of the Contest "Best Entrepreneur of St. Petersburg 2019", the winner of the Contest "Best Innovative Projects in the Field of Science and Higher Education of St. Petersburg in 2021".

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Devices for measuring photometric quantities

Luxmeter	TKA-LUX
Luxmeter	TKA-PKM(31)
Luxmeter with PC output	TKA-PKM(05)
Luxmeter + Luminance Meter	TKA-PKM(02)
Luxmeter + Ultraviolet Radiometer (measurement of illuminance and UVR (A+B))	TKA-PKM(06)
Luxmeter + Flicker Meter	TKA-PKM(08)
Luxmeter + Flicker Meter + Luminance Meter	TKA-PKM(09)
Ultraviolet Radiometer (for separate measurement of UVR – A, B, C)	TKA-PKM(12)
Ultraviolet Radiometer (for measurement of high UVR values – A, B, C)	TKA-PKM(13)
Spectrocolorimeter	TKA-VD
Luminance Meter	TKA-KINO
Luminous flux meter	TKA-KK1
Spectrophotometer	TKA-SPECTR(PAR)
Spectroradiometer	TKA-SPECTR
Optical sensors	TKA-DOTS

Color coordinates – quantities of three basic colors necessary to obtain colorimetric equality with the measured color. Color coordinates can be obtained by multiplying the ordinates of the curve of relative spectral distribution of radiation $\varphi(\lambda)$ by the ordinates of the addition curves and integrating these products over the entire spectral region of visible radiation.

Chromaticity coordinates – the ratio of each of the three color coordinates to their sum.

Percent flicker (Kp) – criterion for estimating the relative depth of illuminance fluctuations as a result of time variation of the light flux of the radiation source when it is supplied with alternating current. The measurement unit is (%).

Illuminance (E) – physical quantity numerically equal to the light flux falling on a unit surface. The illuminance measurement unit in the SI system is lux ($1 \text{ lux} = 1 \text{ lm/m}^2$). Illuminance is directly proportional to the light intensity of the light source.

Photosynthetic Photon Flux Density (PPFD) – number of photons per second per square meter in the wavelength range from 400 to 700 nm (in $\mu\text{mol/s/m}^2$).

Light flux – total amount of light emitted by a source in the range of visible wavelengths, measured in lumens (lm).

Color temperature (Tc) – temperature of a perfectly black body at which the color of its radiation is the same as the color of the radiation under study at a given (true) temperature. The unit of measurement of color temperature in the SI system is kelvin (K).

PAR (Photosynthetic Active Radiation) – incident quantum flux in the range from 400 to 700 nm without involving any experimental plant reactions.

Surface irradiance (Ee) – the ratio of the radiation flux falling on the radiation receiver area to its area $d\sigma$, expressed in energy units. The unit of measurement in the SI system is (W/m^2).

Luminance (L) – light quantity equal to the ratio of the light intensity I of a surface element to the area of its projection perpendicular to the direction under consideration. The unit of measurement in the SI system is (cd/m^2).



Luxmeter

TKA-LUX

(No. 20040-11 in the State Register of Measuring Instruments of the Russia)

(RB 03 11 3628 22 in the State Register of Measuring Instruments of the Republic of Belarus) (Registration No. KZ.02.03.04359-2021/20040-11 in the State Register of Measuring Instruments of Kazakhstan)

(No. 02.3318-16 in the State Register of Measuring Instruments of the Republic of Uzbekistan)

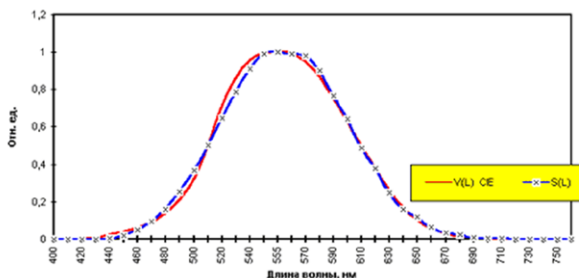
The device is designed to measure illuminance in the visible region of the spectrum created by artificial or natural sources located arbitrarily relative to the receiver.

Basic technical specifications

Illuminance measurement range	$1.0 \div 200\,000\text{ lx}$
Basic relative error of illuminance measurement	$\pm 6\%$
Device operation conditions:	
• ambient temperature	from 0 to +40 °C
• relative air humidity at ambient temperature of 25 °C	up to 85 %
• atmospheric pressure	$84 \div 107\text{ kPa}$
Overall dimensions of the device (NMT):	
• measurement unit	130 x 70 x 30 mm
• photometer head	$\varnothing 36 \times 22\text{ mm}$
Device weight (NMT)	220 g

The device is powered with a 9V battery (Krona battery unit size).

Spectral characteristic



Scope of application of the device

Industrial enterprises and organizations (occupational health and safety services, chief power engineer services), educational institutions, scientific centers, museums, libraries and archives, transport and communication enterprises, metrology and certification centers, medical institutions, Gossanepidnadzor centers, workplace certification, agriculture and many others.

Significant advantages over analogues

The best domestic luxmeter in terms of its characteristics, not inferior to foreign analogues, reliable and easy to use. Affordable price.



Luxmeter

TKA-PKM(31)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

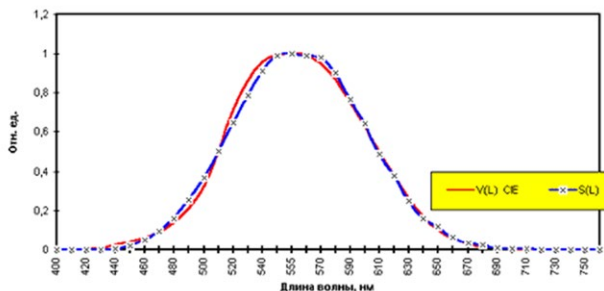
The device is designed to measure illuminance in the visible region of the spectrum (380 ÷ 760) nm created by various sources located arbitrarily relative to the receiver.

Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• measurement unit	130 x 70 x 30 mm
• photometer head	Ø 36 x 22 mm
Device weight (NMT)	220 g

The device is powered with a 9V battery (Krona battery unit size).

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

The luxmeter has proved itself to be good in operation, is reliable and simple to operate. Affordable priceДоступная цена.



Luxmeter with PC output

TKA-ПКМ(05)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed to measure illuminance in the visible spectrum (380 ÷ 760) nm with data output to a PC (via USB). The speed of information update from the device is less than 1 sec.

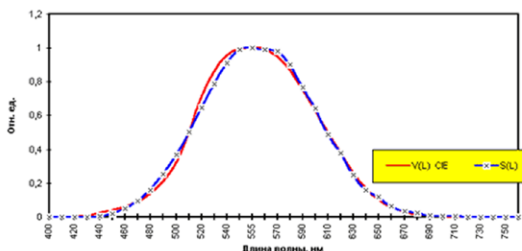
Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• measurement unit	160 x 86 x 31 mm
• photometer head	Ø 36 x 22 mm
Device weight (NMT)	320 g

The device is powered with a 9V battery (Krona battery unit size).

The scope of delivery includes a PC communication cable and a software disk. The data is only transferred from the device to the PC .

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

The device has automatic range change, HOLD function, reduced power consumption. Its equipment with a PC communication interface allows: to expand the capabilities of the device without compromising the time of data acquisition, eliminate the need for paper carriers during the measurement of illuminance parameters.



Luxmeter + Luminance Meter TKA-PKM(02)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

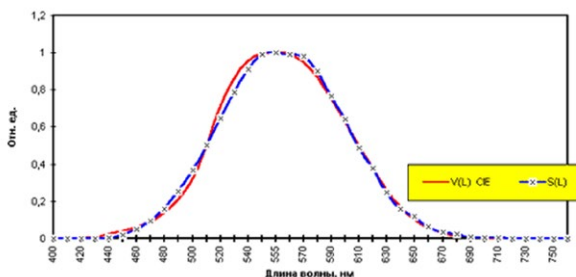
The device is designed to measure the luminance of extended self-luminous objects by overlay method (monitor screens) and illuminance in the visible spectrum (380 ÷ 760) nm.

Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Luminance measurement range	10 ÷ 200 000 cd/m ²
Basic relative error of luminance measurements	± 10 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• information processing unit	130 x 70 x 30 mm
• sensing head	∅ 50 x 30 mm
Device weight (NMT)	260 g

The device is powered with a 9V battery (Krona battery unit size).

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

The combination of a universal luxmeter and a luminance meter in one device allows control of the working conditions of the personnel working with monitors and displays in accordance with the norms.



Luxmeter + Ultraviolet Radiometer

TKA-PKM(06)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

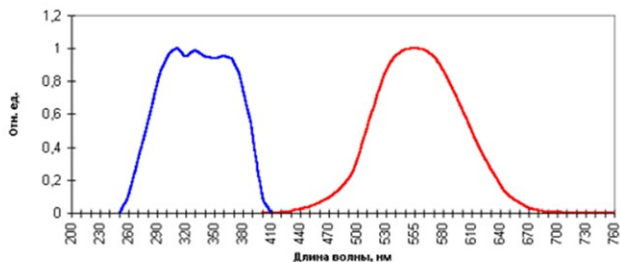
The device is designed to measure illuminance in the visible region of the spectrum (380 ÷ 760) nm and irradiance in the spectrum region (280 ÷ 400) nm – UV-(A+B).

Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Irradiance measurement range	10 ÷ 60 000 mW/m ²
Basic relative error of irradiance measurements	± 10 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• information processing unit	130 x 70 x 30 mm
• sensing head	Ø 50 x 30 mm
Device weight (NMT)	260 g

The device is powered with a 9V battery (Krona battery unit size).

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity

Significant advantages over analogues

Possibility to measure radiation with one instrument in two regions of the spectrum, compactness and ease of operation.



Luxmeter + Flicker Meter

TKA-ПКМ(08)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The instrument is designed to measure the pulsation factor of radiation sources and illuminance in the visible spectrum (380 ÷ 760) nm, with data output to a PC (via USB).

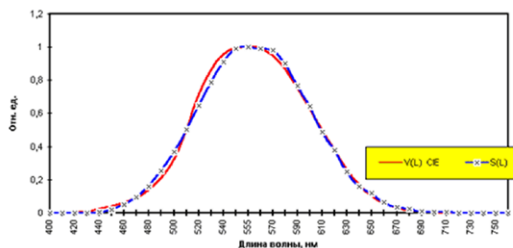
Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Pulsation factor measurements range	1 ÷ 100 %
Basic relative error of pulsation factor measurements	± 10 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25° C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• information processing unit	160 x 86 x 31 mm
• sensing head	Ø 36 x 22 mm
Device weight (NMT)	320 g

The device is powered with a 9V battery (Krona battery unit size).

Upon request the device may be completed with a USB cable.

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

The device has automatic range change, HOLD function, reduced power consumption. The device has a unique possibility to determine illuminance values in real time mode and to calculate the exact values of illuminance pulsation factor using a special program protected by the Certificate of official registration of the computer program No.2003612397.



Luxmeter + Flicker Meter + Luminance Meter

TKA-PKM(09)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

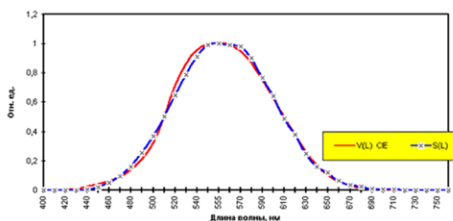
The device is designed to measure the pulsation factor of radiation sources, luminance of extended self-luminous objects by overlay method (monitor screens) and illuminance in the visible spectrum (380 ÷ 760) nm, with data output to a PC (via USB).

Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Luminance measurement range	10 ÷ 200 000 cd/m ²
Basic relative error of luminance measurements	± 10 %
Pulsation factor measurements range	1 ÷ 100 %
Basic relative error of pulsation factor measurements	± 10 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25° C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• information processing unit	160 x 86 x 31 mm
• sensing head	Ø 50 x 30 mm
Weight (NMT)	340 g

The device is powered with a 9V battery (Krona battery unit size).

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

The device has automatic range change, HOLD function, reduced power consumption. The device has a unique possibility to determine illuminance values in real time mode and to calculate the exact values of illuminance pulsation factor using a special program protected by the Certificate of official registration of the computer program No.2003612397.

Ultraviolet Radiometer

TKA-PKM(12)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed for separate measurement of irradiance in the UV spectrum regions:

- (200 ÷ 280) nm — UV-C zone;
- (280 ÷ 315) nm — UV-B zone;
- (315 ÷ 400) nm — UV-A zone.

It is produced in the following hardware versions:

- TKA-PKM(12) — UV-A, UV-B and UV-C zones;
- TKA-PKM(12/A,B) — UV-A, UV-B zones;
- TKA-PKM(12/A) — UV-A zone;
- TKA-PKM(12/B) — UV-B zone;
- TKA-PKM(12/C) — UV-C zone.



Basic technical specifications

Ranges of irradiance measurements:

- in UV-C zone $1 \div 20\,000 \text{ mW/m}^2$
- UV-A, UV-B zones $10 \div 60\,000 \text{ mW/m}^2$

Basic relative error of irradiance measurements $\pm 10\%$

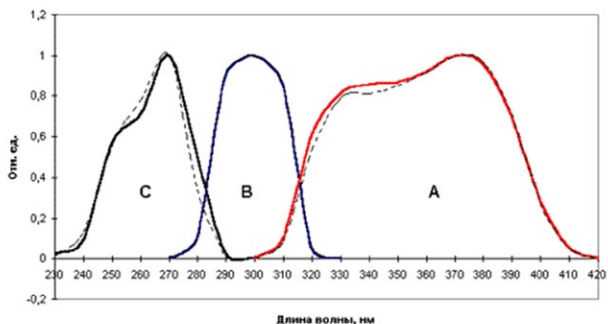
Device operation conditions:

- ambient temperature from -30 to $+60 \text{ }^\circ\text{C}$
- relative air humidity at ambient temperature of $25 \text{ }^\circ\text{C}$ up to 98%
- atmospheric pressure $80 \div 110 \text{ kPa}$

Device weight (NMT) 540 g

Power supply (2 or 4 elements of AA type) 3 V

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

Use of one device to measure radiation in three spectrum ranges, compactness and convenience of operation.

Ultraviolet Radiometer

TKA-PKM(13)



(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

Ultraviolet Radiometer with an integrated attenuating filter. Specially designed for spheres of activities requiring measurement of high irradiance values over a long period of time.

Designed for separate measurement of irradiance in UV-spectrum regions:

- (200 ÷ 280) nm – UV-C zone;
- (280 ÷ 315) nm – UV-B zone;
- (315 ÷ 400) nm – UV-A zone.

It is produced in the following hardware versions:

- TKA-PKM(13) – UV-A, UV-B and UV-C zones;
- TKA-PKM(13/C) – UV-C zone only.

Basic technical specifications

Ranges of irradiance measurements:

- in UV-C zone $10 \div 200\,000 \text{ mW/m}^2$
- in UV-a, UV-B zones $10 \div 60\,000 \text{ mW/m}^2$

Basic relative error of irradiance measurements $\pm 10\%$

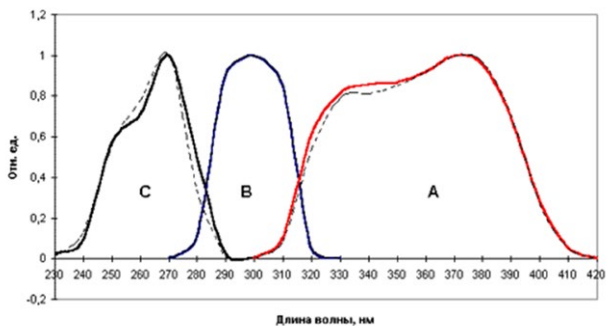
Device operation conditions:

- ambient temperature from -30 to $+60$ °C
- relative air humidity at ambient temperature of 25 °C up to 98 %
- atmospheric pressure $80 \div 110 \text{ kPa}$

Device weight (NMT) 540 g

Power supply (2 or 4 elements of AA type) 3 V

Spectral characteristic



Scope of application of the device

Sanitary and technical supervision in the spheres of activity when the duration of single UV radiation is more than 5 min.

Significant advantages over analogues

Use of one device to measure radiation in three spectrum ranges, compactness and convenience of operation.



Spectrocolorimeter

TKA-VD

(No. 44179-10 in the State Register of Measuring Instruments of the Russia)

The instrument is designed to measure chromaticity coordinates and correlated color temperature of light sources in the international colorimetric system CIE 1931 and 1976 (International Commission on Illumination), illuminance created by normally located sources, luminance of self-luminous surfaces by overlay method and luminance of cinema screens.

Depending on the modification, the instrument measures only luminance (TKA-VD/01) or illuminance (TKA-VD/02) or both parameters (basic model TKA-VD).

Basic technical specifications

Ranges of measurements:

• luminance	10 ÷ 20 000 cd/m ²
• illuminance	10 ÷ 20 000 lx
• chromaticity coordinates	x = 0.004 ÷ 0.734 y = 0.005 ÷ 0.834

Basic relative error of luminance and illuminance measurements	± 10 %
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Basic absolute error of chromaticity coordinates measurements x, y, (NMT):

• sources with continuous spectrum	± 0.005
• other sources	± 0.02

Correlated color temperature reading ranges	1600 ÷ 16 000 K
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Basic relative error of correlated color temperature measurements, (NMT)	± 5 %
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Device operation conditions:

• ambient temperature	from 0 to +40 °C
• relative air humidity at ambient temperature of 25 °C	65 ± 15 %
• atmospheric pressure	86 ± 107 kPa

Overall dimensions of the device (NMT):

• Signal processing unit (SPU)	165 x 85 x 35 mm
• Opto-electronic unit (OEU)	240 x 70 x 70 mm

Device weight (without a base) (NMT)	2.5 kg
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The lower side has a flange with a 1/4 inch thread for mounting on the base.

The scope of supply includes:

- NiMH storage battery 8.4 V (Krona battery unit size);
- network adapter for recharger;
- cable of communication with PC;
- software disk.

Significant advantages over analogues

Compact and easy to operate. Information output on the built-in LCD.

The device has a unique possibility to determine the color temperature values and chromaticity coordinates of radiation sources in real time using a special program protected by the Certificate of official registration of the computer program No.2003612397.

The Spectrophotometer program for Windows extends the operator's possibilities.

The use of a laser pointer as a visualizer of the measured screen surface element and the display backlight significantly simplifies the work with the device in a darkened cinema hall.

Low power consumption. There are no direct domestic analogues. Affordable price.



Scope of application of the device

It is used to measure color characteristics, illuminance and luminance of signal lights, light panels, advertising screens, cinema screens, traffic lights, etc. The need for such measurements is dictated by the rapid development of alternative sources of optical radiation (LEDs), the emergence of various versions of displays, light panels, as well as technological processes using sources of optical radiation.



Luminous flux meter

TKA-KK1

(TU 4486-016-16796024-2011)

It is designed to measure the full light flux of LEDs using the method of integrating sphere ("Ulbricht Sphere").

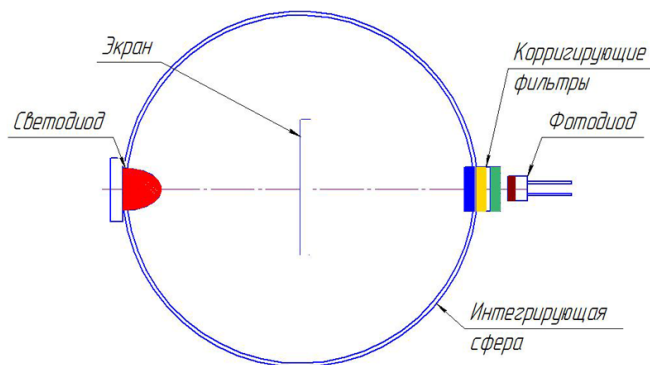
Basic technical specifications

Light flux measurement range	1 ÷ 2 000 lx
Basic relative error of light flux measurement (NMT)	10 %
Device operation conditions:	
• ambient temperature	from 0 to +40 °C
• relative air humidity at ambient temperature of 25 °C	65 ± 15 %
• atmospheric pressure	86 ÷ 107 kPa
Dimensions (NMT):	
• information processing unit	130 x 70 x 30 mm
• measuring ball	180 x 180 x 180 mm
Device weight (NMT)	2 kg
Diameter of the aperture for LED (NMT)	15 mm

The complete set includes replaceable diaphragms with diameters of (3, 5, 9) mm.

Sphere diameter: 140 mm, light receiver – photodiode placed in the lower semisphere.

The device is powered with a 9V battery (Krona battery unit size).



Significant advantages over analogues

Total light flux measurements can be made within seconds by operators of any qualification level; the device is reliable and simple to operate. Affordable price.



Luminance Meter

TKA-KINO

(TU 4437-006-16796024-17)

The instrument is designed for measuring the luminance of distant extended objects in the visible region of the spectrum (380...760) nm.

Basic technical specifications

Measuring angle	1.5°
Luminance measurement range, cd/m ²	10.0 ÷ 2 000
Luminance measurement range, fL	2.8 ÷ 580
Basic relative error of luminance measurements	± 6 %
Device operation conditions:	
• ambient temperature	from -10 to +40 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT)	200 x 85 x 35 mm
Device weight (NMT)	0.9 kg
Cell (non-removable battery)	2000 mAh
Charger voltage (micro USB)	5 V (500 mA)
Laser pointer: class II, 630-670 nm, laser power output	< 5 mW

Scope of application of the device

The instrument is designed for controlling the brightness of screens in movie theaters, measuring the brightness of facades and other elements of buildings in construction, architecture, industrial design and other areas of science and technology.

Integrated laser for indicating the measurement direction and the display backlight significantly simplifies the work with the device in a darkened cinema hall.

Significant advantages over analogues

The inexpensive portable Luminance Meter that meets modern metrological and technical requirements and allows pointing to the measured object with the help of a laser pointer.



Spectrophotometer

TKA-SPECTR(PAR)

(Utility model patent No. 179245)

The instrument is designed to measure the absolute spectral distribution of optical sources in the visible region in the range from 400 to 790 nm, to measure irradiance and photosynthetic photon flux density PPFD in $\mu\text{mol/s/m}^2$.

Regulatory documents:

- GOST R 57671-2017 Irradiation instruments with LED light sources for greenhouses. General specifications.
- PNST 211-2017 Plant irradiation with LED light sources. Measurement methods.
- GOST P 58461-19 Plant irradiation in protected ground structures. Terms and definitions.

In world practice, an agreement has been adopted that allows us to determine and measure PAR irradiance as an incident quantum flux in the range from 400 to 700 nm without involving any experimental plant responses. For quantitative transition from units of energy capacity to units of luminous power, we use a standard expression (see "Light measurements" by M.G. Kozlov, K.A. Tomsky, p.37). 'TKA-Spectr (PAR) Spectrophotometer is a direct-reading device with output of zonal irradiance values on the display in mW/m^2 and PPFD quantum efficiency in $\mu\text{mol/s/m}^2$ in four zones B/G/R/FR (blue, green, red, far red).

Basic technical specifications

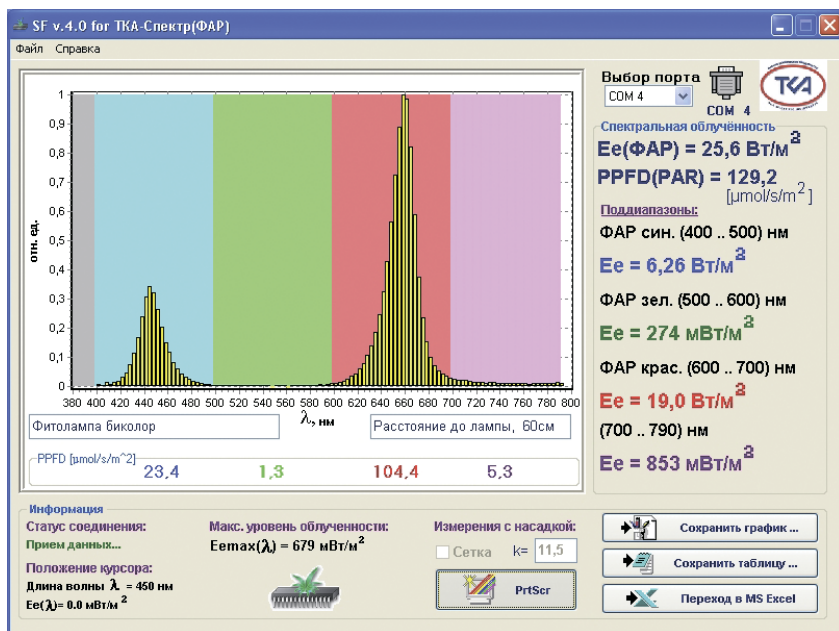
Full irradiance measurement range (two measurement modes with/without attenuator, A type source calibration)	100 ÷ 600 000 mW/m^2
Spectral range	400 ÷ 790 nm
Measurement mode	Continuous / Pause
Basic relative error of irradiance measurements (NMT)	± 8 %
Receiver: Polychromator, 128-pixel line of silicon photocells.	
Scan step	3.33 nm
Spectral line width (FWHM)	10 nm
Integration time range (measurement time)	16 ÷ 4096 ms
Updating the data output	depends on the irradiance level and takes up to 5 s
Device operation conditions:	
• ambient temperature	from 0 to +40 °C
• relative air humidity at ambient temperature of 25 °C	up to 85 %
• atmospheric pressure	84 ÷ 107 kPa
Device weight with the power supply source (NMT)	2.0 kg
Dimensions (NMT):	
• signal processing unit (SPU)	165(L) x 85(B) x 35(H) mm
• opto-electronic unit (OEU)	240(L) x 72(B) x 65(H) mm

The underside of the OEU has a 1/4 inch threaded flange for mounting on a stand. Display: LCD - 2 lines of 16 characters Protocol: Original Open Digital Protocol

PC communication cable: USB Am-Bm

Power supply: NiMH storage battery 6HR61 8.4 V, 170 ÷ 250 mAh Charger: network adapter AC-220-Si-20-24-500

Software inteRussiaace part (freeware) Spectrophotometer (@ M' Windows) serves to display the received data both in a tabular and graphical form; measurement results pretension.



Main window of software SF 4.0.2 (example of measurement of real phyto-lamps)

Scope of application of the device

The instrument has proven itself in research at the stage of designing new LED greenhouse phytolamps.



Spectroradiometer

TKA-Spectr

(Utility model patent No. 179245, 225818)

The device is designed for measurements of radiometric (spectral radiance, spectral irradiance) and colorimetric (chromaticity coordinates, correlated color temperature, color rendering indices) characteristics of self-luminous objects in the visible region of the spectrum with subsequent processing, recording and printing of the obtained information in graphical and digital form.

Basic technical specifications

Spectral range	380 ÷ 780 nm
Measurement mode: Single	
Resolution / diskretteness (NMT)	10 / 0.4
Measurement ranges:	
• spectral radiance	$10 \cdot 10^{-6} \div 0.1 \text{ W}/(\text{avg m}^2 \cdot \text{nm})$
• spectral irradiance	$10 \cdot 10^{-5} \div 0.5 \text{ W}/(\text{m}^2 \cdot \text{nm})$
• chromaticity coordinates x, y in the ICI system 1931	$x = 0.004 \div 0.734$ $y = 0.005 \div 0.834$
• general color-rendering index Ra of self-luminous objects	1.0 ÷ 100.0
• luminance	0.1 ÷ 60 000 cd/m ²
• illuminance	1 ÷ 200 000 lx
• radiance	$5 \cdot 10^{-4} \div 2000 \text{ W}/(\text{m}^2 \cdot \text{avg})$
• illuminance	$1 \cdot 10^{-4} \div 2000 \text{ W}/\text{m}^2$
• correlated color temperature	1 600 ÷ 50 000 K
• PAR luminance in the range of 400 ÷ 700 nm	$0.01 \div 500 \mu\text{mol}/(\text{m}^2 \cdot \text{s} \cdot \text{avg})$
• PAR irradiance in the range of 400 ÷ 700 nm	$0.1 \div 2000 \mu\text{mol}/(\text{m}^2 \cdot \text{s})$
Basic relative error of luminance measurements	± 10 %
Basic relative error of illuminance measurement	± 10 %
Computed properties:	
• weighted radiance in the range of 390 ÷ 760 nm, W/(m ² ·avg)	
• weighted illuminance in the range of 390 ÷ 760 nm, W/m ²	
• color coordinates, chromaticity coordinates in ICI systems 1931, 1964, 1976	
• dominant wavelength λ _c , nm	
• color rendering indices of self-luminous objects CRS, CQS, TM-30-18	
• difference between luminance in twilight and daylight vision conditions	
• color difference with an arbitrary reference source	
Receiver: Polychromator, 1024-pixel line of silicon photodiodes Minimum diameter of the section being scanned photometrically	15 mm
Signal exposure time	0.007 ÷ 4 s
Measurement time (NMT)	60 s
Device operation conditions:	
• ambient temperature	from 0 to +40 °C
• relative air humidity at ambient temperature of 25 °C	up to 85 %
• atmospheric pressure	84 ÷ 107 kPa
Device weight with the power supply source (NMT)	1.0 kg
Dimensions (NMT)	250(L) x 100(B) x 80(H) mm
InteRussiaace	USB / Bluetooth
Power supply source	built-in battery 3.7 V

The underside of the instrument has a threaded socket (1/4") for mounting on a stand.

Digital optical sensors

TKA-DOTS

(TU 26.51.53-006-16796024-2020)

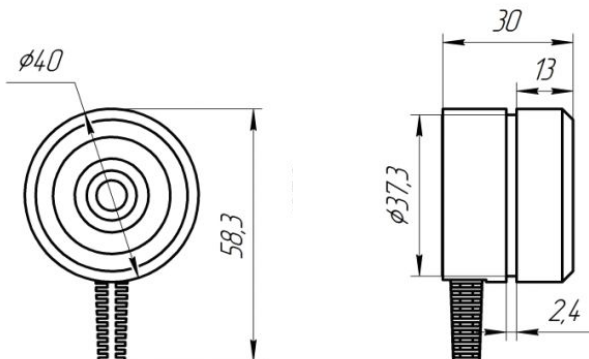
The sensor is designed for measuring (depending on the sensor type):

- irradiance in regions of the spectrum:
315 ÷ 400 nm (UV-A zone),
280 ÷ 315 nm (UV-B zone),
280 ÷ 400 nm (UV-A zone+B),
200 ÷ 280 nm (UV-C zone),
- illuminance in the visible spectrum
- luminance in the visible spectrum



Basic technical specifications

Dynamic range of values of the quantity being measured	1.00 ÷ 1 000 000
Graduation error (NMT)	± (3 ÷ 5) %
Dimension of the quantity being measured depending on the sensor type:	
• Irradiance mW/m ²	
• Illuminance lx	
• Luminance cd/m ²	
Angular characteristic of the sensor sensitivity depending on the sensor type:	
• Irradiance of level 0.5 (NLT)	± 15.0 °
• Illuminance	cosine
• Luminance of level 0.5 (NLT)	± 20.0 °
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Weight (NMT)	100 g



The sensor is equipped with a cable with 4-pin miniXLR connector for power connection and data exchange.

To operate the sensor, the connection can be made to the Information Processing Unit (USUK.10.0002 TKA-UFD IPU, supplied separately) or any device with the relevant characteristics. Data exchange is performed via UART protocol.

Sensor connection parameters:

• Baud rate	115200
• Data bits	8
• Stop bits	1
• Parity	none

Characteristics of TKA-UFD IPU

Metrological parameters:

Limits of the permissible basic relative error

of the exposure calculation $\pm 12.0\%$

Dimension of measurement result display:

• Irradiance	W/m ² , W/cm ²
• Illuminance	lx
• Luminance	cd/m ²

Electric parameters:

Charger connector	micro USB
Battery capacity	1100 mAh
Charge current consumed (NMT)	600 mA

Operation parameters:

Time of update of display readings	0.5 s
Dimensions	170x85x35 mm
Weight (NMT)	0.4 kg
Time of uninterrupted operation of the device (NLT)	8 h
Operating ambient temperature range without condensation	-30...+60 °C
Permissible relative air humidity at ambient temperature of 25 °C (NMT)	98 %
Atmospheric pressure	80...110 kPa
Mean time to failure (NLT)	2000 h

Instruments to determine microclimate indicators

Thermohygrometer	TKA-PKM(20)
Wall-mounted thermohygrometer with access to PC	TKA-PKM(23)
Thermohygrometer with a black ball to measure the EHT index	TKA-PKM(24)
Anemometer	TKA-PKM(50)
Heat loss anemometer	TKA-PKM(52)
Anemometer + Thermohygrometer	TKA-PKM(60)
Microclimate parameters meter	TKA-METEO
Heat irradiance meter	TKA-ITO

In accordance with SanPiN 2.2.4.548-96 Hygienic requirements to microclimate of production premises, the main indicators characterizing microclimate in production premises of all types include: air temperature, suRussiaace temperature, relative air humidity, air velocity and thermal radiation intensity.

The necessity of control of microclimate parameters is related to prevention of an adverse impact of the microclimate of workplaces, production premises on human well-being, functional state, working capacity and health.

Average radiation temperature (average radiation temperature, effective temperature of surrounding suRussiaaces) – is the temperature of an imaginary (virtual) homogeneous environment, in which heat transfer by radiation from the human body is equal to the transfer of this heat in the actual inhomogeneous environment.

Temperature inside the black ball (sphere) – is the resultant air temperature at the center of a thin-walled hollow sphere, in which the influence of synchronous action of the air temperature, temperature of surrounding suRussiaaces and air flow velocity is taken into account.

Wet-bulb temperature – is the temperature taken by a saturated air-vapor mixture during the vaporization process, provided that the heat content of the air is kept constant and equal to the initial heat content.

Dew point temperature – is the temperature to

which the air must cool at a given pressure for the vapor contained in it to reach saturation and begin to condense, i.e. dew appears.

Thermal exposure intensity (thermal exposure flow density) – is the amount of radiation energy per unit volume of space, measured in SI system in W/m³.

Heat load index of the environment (HLE index) is an empirical indicator (°C) characterizing the joint effect of microclimate parameters (temperature, humidity, air velocity and thermal exposure) on the human body, in which the values of wet-bulb, irradiation and air temperatures are summed up with certain weights. It is used to estimate the possible thermal overheating of a person during the period characterizing his/her active activity.

WBGT Temperature Index – is an empirical integral index reflecting the joint effect of air temperature, air velocity, humidity and thermal radiation on heat exchange with the environment, in the presence of solar radiation, expressed as a single numerical value in °C, regulated in GOST R ISO 7243 2007



Thermohygrometer

TKA-PKM(20)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed for measuring air velocity inside premises.

Basic technical specifications

Relative humidity measurement range	5 ÷ 98 %
Basic absolute error of relative humidity measurements	± 3 %
Temperature measurement range	-30 ÷ +60 °C
Basic absolute error of temperature measurements	± 0.2 °C
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Power supply (2 AA type cells)	3 V
Overall dimensions of the device (NMT):	
• information processing unit	135 x 73 x 27 mm
• sensing head	220 x 22 x 22 mm
Device weight (NMT)	250 g

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

Increased speed, improved performance, high-precision sensor, low power consumption, affordable price.



Wall-mounted thermo-hygrometer with access to PC

TKA-PKM(23)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed for measuring relative humidity and air temperature, as well as displaying atmospheric pressure readings (RH, kPa) and parameters calculated in real time: wet-bulb temperature (twet, °C) and dew point temperature (tdew, °C) indoors, with information output to a PC (via USB).

Basic technical specifications

Relative humidity measurement range	5 ÷ 98 %
Basic absolute error of relative humidity measurements	± 3 %
Temperature measurement range	-30 ÷ +60 °C
Basic absolute error of temperature measurements	± 0.2 °C
Atmospheric pressure readings range	30 ÷ 110 kPa
The dew point temperature reading range is determined according to GOST 8.524-85, within	-55 ÷ +60 °C
The range of wet-bulb temperature readings is calculated according to the analytical formula obtained by statistical processing of Psychrometric Tables (GOST 8.524-85), within	-10 ÷ +60 °C
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT)	135 x 73 x 27 mm
Device weight (NMT)	250 g
Power supply (2 AA type cells)	3 V

The device is equipped with a wall mount.

Upon a prior order, the device can be equipped with a USB cable and a disk with software.

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

Wall mount, low power consumption for continuous monitoring of microclimate conditions, increased speed, improved performance, high-precision sensor, affordable price.

Equipped with a computer interface allows expanding the capabilities of the device without compromising the time of data acquisition, eliminating the need for paper media during the reading of microclimate parameters.



Thermohygrometer with calculation of the EHL index

TKA-PKM(24)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed to measure indoor relative humidity, air temperature and temperature inside the black ball, and to display the parameters calculated in real time:

- HLE and WBGT-indices (°C),
- wet-bulb temperature (t_{wet} , °C),
- dew point temperature (t_{dew} , °C),
- average radiation temperature ($t_{av.rad.}$, °C),
- thermal exposure intensity (W/m^2).

Basic technical specifications

Ranges of temperatures:

• relative humidity	5 ÷ 98 %
• temperature	-30 ÷ +60 °C
• temperature inside the black ball	0 ÷ +100 °C

Ranges of design parameters:

• EHT index	0 ÷ +70 °C
• WBGT-index (in the presence of solar radiation)	0 ÷ +75 °C
• wet-bulb temperature	-10 ÷ +60 °C
• dew point temperature	-55 ÷ +60 °C
• average radiation temperature	0 ÷ +160 °C
• thermal exposure intensity	0 ÷ +1700 W/m ²

Basic absolute errors of measurements:

• relative humidity	± 3 %
• air temperature	± 0.2 °C
• temperature inside the black ball:	
– in the range of temperatures (0 ÷ +50 °C)	± 0.5 °C
– in the range of temperatures over +50 °C	± 1.0 °C

Wet-bulb temperature readings are calculated according to the analytical formula obtained by statistical processing of Psychrometric Tables (GOST 8.524-85).

Dew point temperature readings are determined in accordance with GOST 8.524-85.

Readings of the environmental heat load index (Thermohygrometer) are calculated according to the formula for calculating HLE indoors:

$$HLE = 0,7 \cdot t_{wet} + 0,3 \cdot t_{sph}$$

where t_{wet} – wet-bulb temperature, t_{sph} – black ball temperature.

Readings of the average radiation temperature are calculated according to ISO 7726 using the formula

$$t_{av.rad.} = [(t_{sph} + 273,2)^4 + 0,48 \cdot 10^8 \cdot (t_{sph} - t)^{5/4}]^{1/4} - 273,2, \text{ °C.}$$

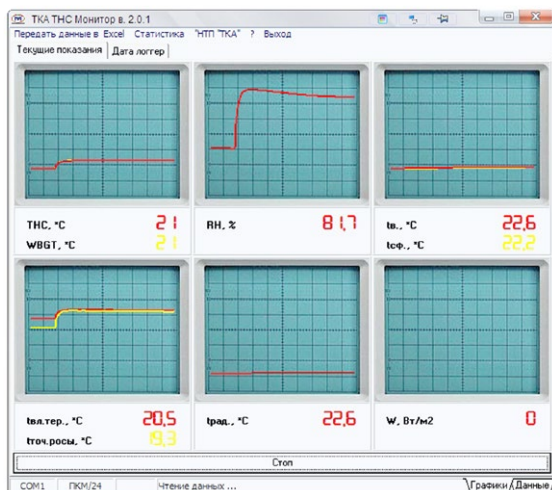
Readings of the thermal exposure intensity are calculated according to ISO 7726 using the formula

$$W = 5,67 \cdot 10^{-8} \cdot [(t_{av.rad.} + 273,2)^4 - (t + 273,2)^4], \text{ W/m}^2.$$

Device operation conditions:

• ambient temperature	from -30 to+60 °C
• relative air humidity at ambient temperature of 25° C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Power supply (2 AA type cells)	3 V
Overall dimensions of the device (without a stand, with an installed black ball)	265 x 95 mm
Device weight (NMT)	400 g

The delivery set includes a black ball (sphere) with a diameter of 90 mm; 2 AA batteries; table top stand-tripod (optional floor stand-tripod h=1.3 m high); extension cable for the measuring probe; PC communication cable (via USB) and software disk.



Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

There are no direct analogues. The device has a unique possibility to determine the values of HLE and WBGT indices in real time mode due to simultaneous measurement of the air temperature and the temperature inside the black ball, air humidity and calculation of precise wet-bulb temperature values using a special program protected by the Certificate of official registration of the computer program No. 2004611468.

Additional simultaneous determination of average radiation temperature and thermal exposure intensity values provides an effective and reliable assessment of possible thermal overheating during the study of the hot environment.

Equipping with USB-inteRussiaace allows: expansion of the capabilities of the device without compromising the time of data acquisition, abandoning hard copies during reading microclimate parameters.

The function of setting the exposure time by the operator when measuring thermal indices and parameters, in the range from 5 to 60 minutes, with a diskretteness of 5 minutes. The whole process of measuring HLE and WBGT indices is fully automated. Additional functions of processing the received information: memorization, averaging, selection of minimum and maximum values, graphical display of measured and calculated microclimate parameters.



Anemometer

TKA-PKM(50)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed for measuring air velocity inside premises.

Basic technical specifications

Measurement method: heat loss anemometer.

The range of air velocity measurements $0.1 \div 20$ m/s

Basic absolute error of air velocity measurements (V):

• in the range of $(0.1 \div 1.0)$ m/s $\pm (0.045 + 0.05 \cdot V)$ m/s

• in the range of $(>1.0 \div 20)$ m/s $\pm (0.1 + 0.05 \cdot V)$ m/s

Device operation conditions:

• ambient temperature from -30 to $+60$ °C

• relative air humidity at ambient temperature of 25 °C up to 98 %

• atmospheric pressure $80 \div 110$ kPa

Power supply (2 or 4 AA type cells) 3 V

Overall dimensions of the device (NMT):

• information processing unit $205 \times 65 \times 28$ mm

• sensing head $375 \times \varnothing 22$ mm

Device weight (NMT) 350 g

Upon a prior order, the device can be equipped with a USB cable and a software disk.

The device has the functions of calculating the air volume flow rate (L/s or m³/hour) and measuring the average value of air velocity for a certain period of time (100 s), in accordance with the recommendations to SanPiN (see, for example, Guidelines "Physical factors. Ecological and hygienic assessment and control". M. Meditsina, 1999, v.2., p. 416).

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.



Heat loss anemometer

TKA-PKM(52)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed for measuring air velocity and temperature inside premises.

Basic technical specifications

Measurement method: heat loss anemometer.

Range of air velocity measurements 0.1 ÷ 20 m/s

Basic absolute error of air velocity measurements (V):

- in the range of (0.1 ÷ 1.0) m/s ± (0.045 + 0.05•V) m/s
- in the range of (>1.0 ÷ 20) m/s ± (0.1 + 0.05•V) m/s

Temperature measurement range -30 ÷ +60 °C

Basic absolute error of temperature measurements ± 0.2 °C

Device operation conditions:

- ambient temperature from -30 to +60 °C
- relative air humidity at ambient temperature of 25 °C up to 98 %
- atmospheric pressure 80 ÷ 110 kPa

Power supply (2 or 4 AA type cells) 3 V

Overall dimensions of the device (NMT):

- information processing unit 205 x 65 x 28 mm
- sensing head 375 x Ø 22 mm

Device weight (NMT) 350 g

Upon a prior order, the device can be equipped with a USB cable and a software disk.

The device has the functions of calculating the air volume flow rate (L/s or m³/hour) and measuring the average values of air velocity for a certain period of time (100 s), in accordance with the recommendations to SanPiN (see, for example, Guidelines "Physical factors. Ecological and hygienic assessment and control". M. Meditsina, 1999, v.2., p. 416).

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.



Anemometer + Thermohygrometer

TKA-PKM(60)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

The device is designed for measuring air velocity, temperature and relative humidity inside premises.

Basic technical specifications

Range of air velocity measurements	0.1 ÷ 20 m/s
Basic absolute error of air velocity measurements (V):	
• in the range of (0.1 ÷ 1.0) m/s	± (0.045 + 0.05•V) m/s
• in the range of (>1.0 ÷ 20) m/s	± (0.1 + 0.05•V) m/s
Temperature measurement range	-30 ÷ +60 °C
Basic absolute error of temperature measurements	± 0.2 °C
Relative humidity measurement range	5 ÷ 98 %
Basic absolute error of relative humidity measurements	± 3 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Power supply (2 or 4 AA type cells)	3 V
Overall dimensions of the device (NMT):	
• information processing unit	205 x 65 x 28 mm
• sensing head	375 x Ø 22 mm
Device weight (NMT)	350 g

Upon a prior order, the devices can be equipped with a USB cable and a computer medium with software.

The device has the functions of calculating the air volume flow rate (L/s or m³/hour) and measuring the average values of air velocity for a certain period of time (100 s), in accordance with the recommendations to SanPiN (see, for example, Guidelines "Physical factors. Ecological and hygienic assessment and control". M. Meditsina, 1999, v.2., p. 416)

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

The additional measurement channel (relative humidity) expands the operational possibilities of the heat loss anemometer.



Microclimate parameters meter

TKA-METEO

It is designed to measure air temperature, relative humidity, air velocity, atmospheric pressure, thermal exposure intensity, as well as to display the thermohygrometer.

Basic technical specifications

Parameters being measured:

Range of relative humidity measurements	5 ÷ 98 %
Relative humidity measurement error	± 3 % RH
Air temperature measurement range	-30 ÷ +80 °C
Air temperature measurement error	± 0.2 °C
Air velocity measurement range	0.1 ÷ 20 m/s
Atmospheric pressure measurement error:	
- in the range of 0.1 ÷ 1.0	± (0.045 + 0.05V) m/s
- in the range of >1.0 ÷ 20	± (0.1 + 0.05V) m/s
Atmospheric pressure measurement range	600 ÷ 825 mm Hg
Atmospheric pressure measurement error	± 1.125 mm Hg
Range of measurement of thermal exposure intensity	0 ÷ 3 500 W/m ²
Error of measurement of heat flux density	± (2.0 + 0.08·VM) W/m ² (where VM is the irradiance value being measured)

Computed properties:

Heat load index	in the range of 0 ÷ +80 °C,
Power supply	4 AA type storage batteries
Continuous work time of the device (NLT)	8 h

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, workplace certification and other areas of activity regulated by the requirements of SanPiN 2.2.4.548-96, GOST 30494-96 and ISO 7726.



Heat irradiance meter

TKA-ITO

(No. 57180-14 in the State Register of Measuring Instruments of the Russia)

It is designed for measuring heat irradiance of the personnel in industrial and residential premises caused by the impact of local and general heat sources.

Basic technical specifications

Range of measurement of thermal exposure density	10 ÷ 3 500 W/m ²
Basic absolute error of measurements thermal flux density	± (2.0 + 0.08·MV) W/m ² (where MV is the irradiance value being measured)
Power supply (2 AA type cells)	3 V
Device operation conditions:	
• ambient temperature	from -20 to +55 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Dimensions (NMT):	
• device (WxHxD)	190 x 70x25 mm
• black ball unit	290 x 95x95 mm
Weight (NMT)	380 g

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, workplace certification and other areas of activity regulated by the requirements of SanPiN 2.2.4.548-96, GOST 30494-96 and ISO 7726.

Significant advantages over analogues

The device fully meets the requirements of regulatory documents on heat irradiance measurement, registers thermal exposure with a 360° viewing angle, has an extended measurement range up to 3500 W/m² has increased performance due to the original design of the black ball, the device display provides information on the values of heat irradiance, radiation and ambient temperatures. It has a USB output to PC.

Combined devices

Luxmeter + Luminance Meter + Thermohygrometer	TKA-PKM(41)
Luxmeter + Ultraviolet Radiometer + Thermohygrometer	TKA-PKM(42)
Luxmeter + Thermohygrometer	TKA-PKM(43)
Anemometer + Luxmeter + Luminance Meter + Thermohygrometer	TKA-PKM(61)
Anemometer + Luxmeter + Ultraviolet Radiometer + Thermohygrometer	TKA-PKM(62)
Anemometer + Luxmeter + Thermohygrometer	TKA-PKM(63)
Anemometer + Luxmeter + Luminance Meter + Ultraviolet Radiometer + Thermohygrometer	TKA-PKM(65)
Luxmeter + Ultraviolet Radiometer + Thermohygrometer instrument complex for microclimate control in cultural and art institutions (with increased sensitivity in the UV radiation region)	TKA-KEEPER

A unique solution to improve the efficiency of measurements of the main parameters of labor conditions and life safety in the premises. Combination of photometric measurement channels and channels of measurement of the main microclimate parameters in one device allows significant simplification of the measurement procedure and increase of the reliability of their simultaneous assessment.

TKA manufactures a wide range of combined instruments. You can find the required version of the instrument by using the selection table.

Thermohygrometer + channels of measurement of photometric parameters

TKA-PKM instruments of series (41-43)	E, lx	L, cd/m ²	E _a (A+B), mW/m ²	t, °C	RH, %
(41) Thermohygrometer + Luxmeter + Luminance Meter	■	■		■	■
(42) Thermohygrometer + Luxmeter + Ultraviolet Radiometer	■		■	■	■
(43) Thermohygrometer + Luxmeter	■			■	■

Anemometer + Thermohygrometer + channels of measurement of photometric parameters

TKA-PKM instruments of series (61-65)	E, lx	L, cd/m ²	E _a (A+B), mW/m ²	t, °C	RH, %
(61) Anemometer + Thermohygrometer + Luxmeter + Luminance Meter	■	■		■	■
(62) Anemometer + Thermohygrometer + Luxmeter + Ultraviolet Radiometer	■		■	■	■
(63) Anemometer + Thermohygrometer + Luxmeter	■			■	■
(65) Anemometer + Thermohygrometer + Luxmeter + Luminance Meter + Ultraviolet Radiometer	■	■	■	■	■



Combined instruments

TKA-PKM of series (41-43)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

Combined instruments designed to measure the luminance of extended self-luminous objects by overlay method (monitor screens, for example), illuminance in the visible spectrum (380 ÷ 760) nm, irradiance in the spectrum region (280 ÷ 400) nm – UV-(A+B), air temperature and relative humidity inside the premises.

Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Luminance measurement range	10 ÷ 200 000 cd/m ²
Basic relative error of luminance measurements	± 10 %
Irradiance measurement range	10 ÷ 60 000 mW/m ²
Basic relative error of irradiance measurements	± 10 %
Temperature measurement range	-30 ÷ +60 °C
Basic absolute error of temperature measurements	± 0.2 °C
Relative humidity measurement range	5 ÷ 98 %
Basic absolute error of relative humidity measurements	± 3 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• information processing unit	130 x 70 x 30 mm
• sensing head	230 x 48 x 55 mm
Device weight (NMT)	300 g

The device is powered with a 9V battery (Krona battery unit size).

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

Combination of several measurement channels in one instrument simultaneously. Possibility of measuring by one unchangeable head. Compactness and convenience of operation.



Combined instruments

TKA-PKM of series (61-65)

(No. 24248-09 in the State Register of Measuring Instruments of the Russia)

Combined instruments designed for measuring both photometric parameters and principal microclimate parameters, the luminance of extended self-luminous objects by overlay method (monitor screens, for example), illuminance in the visible spectrum (380 ÷ 760) nm, irradiance in the spectrum region (280 ÷ 400) nm – UV-(A+B), air velocity, temperature and relative humidity inside the premises with output of information to a PC (via USB).

Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Luminance measurement range	10 ÷ 200 000 cd/m ²
Basic relative error of luminance measurements	± 10 %
Irradiance measurement range	10 ÷ 60 000 mW/m ²
Basic relative error of irradiance measurements	± 10.0 %
Temperature measurement range	-30 ÷ +60 °C
Basic absolute error of temperature measurements	± 0.2 °C
Relative humidity measurement range	5 ÷ 98 %
Basic absolute error of relative humidity measurements	± 3 %
Range of air velocity measurements	0.1 ÷ 20 m/s
Basic absolute error of air velocity measurements (V):	
• in the range of (0.1 ÷ 1.0) m/s	± (0.045 + 0.05•V) m/s
• in the range of (>1.0 ÷ 20) m/s	± (0.1 + 0.05•V) m/s
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25°C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• information processing unit	160 x 86 x 31 mm
• sensing head	425 x 48 x 55 mm
• sensing head No.2 for TKA-PKM(65)	152 x 48 x 55 mm
Device weight (NMT)	650 g

The devices are power supplied by a NiMH storage battery 8.4 V (Krona battery unit size).

Upon a prior order the devices may be provided with a USB cable and an information-carrying medium with software.

TKA-PKM(65) is distinguished by the availability of two changeable measuring heads.

Scope of application of the device

Sanitary and technical supervision in residential and industrial premises, museums, libraries, archives; workplace certification and other areas of activity.

Significant advantages over analogues

Combination of the possibility to measure basic photometric parameters and microclimate parameters in one device. Compactness and convenience of operation. Possibility of communication with PC.



Instrument complex

TKA-KEEPER

(TU USUK.26.5153.190.001 TU)

Designed for measuring microclimate and photometric parameters in premises:

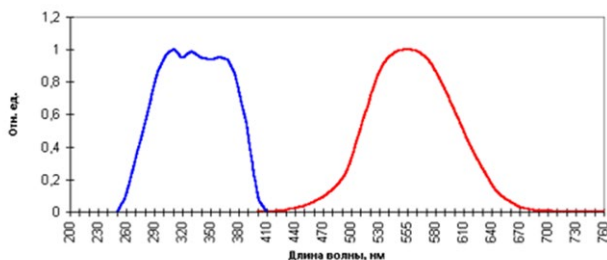
- illuminance in the visible spectrum (380 ÷ 760) nm;
- irradiance in the spectrum region (280 ÷ 400) nm — UV-(A+B);
- air temperature;
- relative air humidity.

Basic technical specifications

Illuminance measurement range	10 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 8 %
Irradiance measurement range	10 ÷ 40 000 mW/m ²
Basic relative error of irradiance measurements	± 10 %
Temperature measurement range	-30 ÷ +60 °C
Basic absolute error of temperature measurements	± 0.2 °C
Relative humidity measurement range	5 ÷ 98 %
Basic absolute error of relative humidity measurements	± 3 %
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device (NMT):	
• information processing unit	130 x 70 x 30 mm
• sensing head	230 x 48 x 55 mm
Device weight (NMT)	400 g

The device is powered with a 9V battery (Krona battery unit size).

Spectral characteristic



Scope of application of the device

Control of microclimate in cultural and art institutions.

Significant advantages over analogues

It combines the functions of a universal luxmeter, ultraviolet radiometer, air temperature and humidity meter. Increased performance, improved operational characteristics, low power consumption.

Dataloggers

Dataloggers of microclimate parameters (temperature, relative humidity, atmospheric pressure)	TKA-PKL(25)-D
	TKA-PKL(26) / TKA-PKL(26)-D
	TKA-PKL(28) / TKA-PKL(28)-D
	TKA-PKL(29) / TKA-PKL(29)-D
	TKA-PKL(30) / TKA-PKL(30)-D
Datalogger of photometric parameters	TKA-PFL(34)

TKA Scientific Instruments has developed a line of Dataloggers (loggers) of photometric and microclimate parameters with the possibility of combining them into indoor microclimate monitoring systems. These are compact devices built on the basis of industrial devices of TKA-PKM series which have wide possibilities for connection of various sensors. The information received from sensors is transmitted for processing and analysis of the readings.

The use of such systems is particularly effective in large rooms, warehouses, in rooms where cabling is difficult or undesirable, in restaurant chains or medical institutions, and in other cases of simultaneous monitoring of parameters in several rooms. At the same time, temperature, humidity and other parameters can be continuously monitored in the central office. As a result of the operation of the equipment and software you get an objective archive of data on production and storage conditions, which, if necessary, can be used as evidential base for regulatory authorities.

Objective monitoring of the state of a remote object and the possibility of operative intervention in the operation of the equipment makes it possible to avoid emergency situations.

All Dataloggers have internal memory for recording the measurement results. In addition, recorders have the possibility to transmit data via Ethernet channels, Wi-Fi, LoRa or RS-485.

The number of measuring posts equipped with transmitters and working for one receiving station connected to a personal computer can reach 253 pieces. The software included in the system allows observing the current values of the measured microclimate parameters on the PC monitor screen in the real time mode, setting critical (emergency) levels for each of the parameters, with an audible alarm generated in case of exceeded limits. The coverage range of the system in data transmission via Wi-Fi is determined by the specific features of the object (presence of internal walls, their thickness and material, sources of electromagnetic interference, etc.) and can be increased by installing additional repeaters (routers).



Datalogger of microclimate parameters

TKA-PKL(25)-D

(USUK.26.51.53.140.001 TU)

The self-contained recorder is designed for measuring relative humidity, temperature and atmospheric pressure and recording them into internal memory or on a memory card.

Basic technical specifications

Range of relative humidity measurements	5 ÷ 98 %
Error of relative humidity measurement	± 3 % RH
Range of air temperature measurement	-30 ÷ +60 °C
Error of air temperature measurement in ranges:	
from -30 to -10 °C incl.	± 0.5 °C
from -10 to +15 °C incl.	± 0.3 °C
from +15 to +25 °C incl.	± 0.2 °C
from +25 to +45 °C incl.	± 0.3 °C
from +45 to +60 °C	± 0.5 °C
Range of atmospheric pressure measurements	70 ÷ 120 kPa
Error of atmospheric pressure measurement in the ranges:	
from -30 to +5 °C incl.	± 0.4 kPa
from +5 to +60 °C	± 0.2 kPa
Memory write intervals	10 s ÷ 24h
Memory size (NLT)	524 000 measurements
Cell (non-detachable lithium battery)	3.2 V
Overall dimensions of the device (NMT)	120 x 67 x 40 mm
Device weight (NMT)	260 g

Scope of application of the device

Objective microclimate monitoring and mapping in restaurants, museums, libraries, warehouses of all kinds, and in other cases of simultaneous parameter control in several premises.

Significant advantages

Compact size and intuitive operation of the instrument; internal memory for storing measurement results of three channels; data recording on microSD card;

universal mount, allowing the device to be mounted on almost any surface; non-detachable, internal battery of optimal capacity, charged via microUSB and providing long-term operation of the device in autonomous mode, which saves the user from periodic purchase of replacement batteries.

Dataloggers of microclimate parameters

TKA-PKL(26) / TKA-PKL(26)-D

TKA-PKL(28) / TKA-PKL(28)-D

TKA-PKL(29) / TKA-PKL(29)-D

TKA-PKL(30) / TKA-PKL(30)-D

(No. 76454-19 in the State Register of Measuring Instruments of the Russia)

The instruments are designed to measure relative humidity, temperature and atmospheric pressure* and record them into internal memory. The instruments have the ability to combine several such devices (up to 253) into a measurement-information network and subsequent display of the measurement results on the PC monitor screen using special software included in the instrument delivery set and compatible with Windows OS.



Type of system	Type of logger	Method of transmission / display of measurement results	Dimensions / weight (NMT)
Wireless	TKA-PKL(26) / TKA-PKL(26)-D	via Wi-Fi, LoRa (optional), via USB; display representation	120 x 67 x 40 mm 260 g
Stationary	TKA-PKL(28) / TKA-PKL(28)-D	via Ethernet	147 x 37 x 38 mm 170 g
Wireless	TKA-PKL(29) / TKA-PKL(29)-D	via Wi-Fi, via USB	142 x 37 x 38 mm 130 g
Stationary	TKA-PKL(30) / TKA-PKL(30)-D	via RS-485	112 x 117 x 36 mm 110 g

Basic technical specifications

Range of relative humidity measurements	5 ÷ 98 %
Error of relative humidity measurements	± 3 % RH
Range of air temperature measurements	-30 ÷ +60 °C
Error of air temperature measurements, in ranges:	
from -30 to -10 °C incl.	± 0.5 °C
from -10 to +15 °C incl.	± 0.3 °C
from +15 to +25 °C incl.	± 0.2 °C
from +25 to +45 °C incl.	± 0.3 °C
from +45 to +60 °C	± 0.5 °C
Range of atmospheric pressure measurements *	70 ÷ 120 kPa
Error of atmospheric pressure measurements *, in ranges:	
from -30 to +5 °C incl.	± 0.4 kPa
from +5 to +60 °C	± 0.2 kPa
Memory write intervals	10 s ÷ 24h
Memory size (NLT)	524 000 measurements
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25 °C	to 98 %
• atmospheric pressure	80 ÷ 110 kPa

* - for modifications of D-index devices

Scope of application of the devices

Scope of application of the device: objective microclimate monitoring and mapping in restaurants, museums, libraries, warehouses of all kinds, and in other cases of simultaneous parameter control in several premises.

Significant advantages

The devices have self-contained power supply (built-in battery), non-volatile memory (NLT 524000 measurements), transmit measurement results via wired or wireless channel which are displayed on the screen of a computer, smartphone or tablet via an external software application.

The software included in the system allows observing the current values of the measured microclimate parameters on the PC monitor screen in the real time mode, setting critical (emergency) levels for each of the parameters, with an audible alarm generated in case of exceeded limits.

It can be used for remote control of the safety of goods being transported. As a result of the equipment and software operation, the user receives an objective archive of data on storage conditions, which, if necessary, can be used as an evidential base for controlling authorities.

The use of recorders is especially effective in warehouse complexes for storage of foods, medical products, uniforms, where strict requirements to microclimate are imposed.

In the absence of the Internet and in the situation of a complete emergency power outage (blackout) the TKA-PKL(26) model will autonomous continuation of measurements with the results displayed on the screen of the device.



Datalogger of photometric parameters

TKA-PFL(34)

(TU 26.51.53-012-16796024-2022)

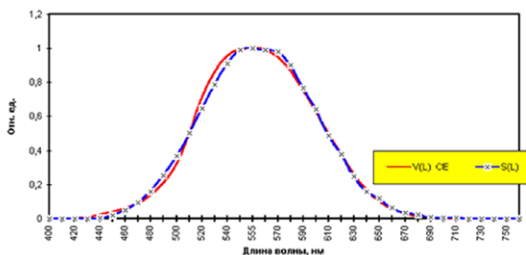
The device is designed to measure illuminance in the visible spectrum (380 ÷ 760) nm.

The device can work as a data recorder (Datalogger), storing the measurement results in the internal memory at specified intervals and transmitting them via Wi-Fi and/or LoRa.

Basic technical specifications

Illuminance measurement range	1 ÷ 200 000 lx
Basic relative error of illuminance measurement	± 6 %
Memory size (NLT)	524 000 measurements
Communication interface	USB, Wi-Fi, LoRa
Power supply voltage	3.2 V (non-detachable battery)
Device operation conditions:	
• ambient temperature	from -30 to +60 °C
• relative air humidity at ambient temperature of 25° C	up to 98 %
• atmospheric pressure	80 ÷ 110 kPa
Overall dimensions of the device without an antenna (NMT)	115x37x38 mm
Weight (NMT)	130 g
Service life	7 years
Mean time to failure (NLT)	10000 h

Spectral characteristic



Scope of application of the device

Data recorders (loggers) are a measuring device for recording measured values. Self-contained loggers have small size and weight, they are often used as portable devices. Loggers have a built-in memory, the range of the scan period, memory operation mode (cyclic or one-time until filled) can be set.

Significant advantages

The devices have self-contained power supply (built-in battery), non-volatile memory (NLT 524000 measurements), transmit measurement results via wired or wireless channel which are displayed on the screen of a computer, smartphone or tablet via an external software application.



Standard thermohygrometer TKA-TV/ETALON

(No. 87919-23 in the State Register of Measuring Instruments of the Russia)

The instrument is designed to measure relative humidity and air temperature, inert gases and their mixtures and to be used as a standard for verification (calibration) of measuring instruments of the MI Russia of relative humidity of gases in accordance with the "State verification scheme for measuring instruments of the Russia of humidity of gases and hydrocarbons condensation temperature".

Thermohygrometers are manufactured in two modifications: TKA-TV/Etalon-0.5 (1st category) and TKA-TV/Etalon-1 (2nd category), and differ in the maximum permissible absolute error of measurement of relative humidity of gases, temperature measurement range and calibration interval.

Basic technical specifications

Relative humidity measurement range	5 ÷ 95 %
Basic absolute error of relative humidity measurements:	
• for TKA-TB/Etalon-0.5 modification, at the air temperature of 23±1 °C (NMT)	± 0.5%
• for TKA-TB/Etalon-1 modification, at the air temperature of 23±5 °C (NMT)	± 1.0%
Air temperature measurement range:	
• for TKA-TB/Etalon-0.5 modification	from +22.0 to +24.0 °C
• for TKA-TB/Etalon-1 modification	from +18.0 to +28.0 °C
Basic absolute error of temperature measurements	± 0.3 °C
Discreteness of readings of relative humidity values	± 0.01 %
Discreteness of readings of temperature values	± 0.01 °C
Device operation conditions:	
• ambient temperature	from +18 to +28 °C
• relative air humidity at ambient temperature of 25 °C	up to 80 %
• atmospheric pressure	80 ÷ 110 kPa
Power supply (unchangeable battery)	3.7 V
Overall dimensions of the device (NMT):	
• information processing unit	40 x 79 x163 mm
• measure probe	Ø 20 x 164 mm
Device weight (NMT)	500 g

Scope of application

Calibration and verification of relative humidity meters, in testing laboratories, in standardization and metrology centers, at production facilities.

Significant advantages

The device has a touch screen graphic display, microSD card slot, supports USB inteRussiaace.

Humid gas generators

Humid gas generator (working standard of 2nd category)	TKA-GVL-01-1
Humid gas generator (working standard of 2nd category)	TKA-GVL-01-2
Humid gas generator (working standard of 2nd category)	TKA-GVL-03
Humidity calibrator (working standard of 2nd category)	TKA-KVL-04

TKA Scientific Instruments has developed unique humid gas generators of the first and second categories and put them into operation. The design of six input ports of such generators allows testing devices with probe diameter from 5 to 32 mm.

TKA-GVL-03 generator also has a working chamber with the volume of 8.3 liters, which allows testing thermohygrometers with significant dimensions.

TKA-KVL-04 humidity calibrators also have a working volume of 8.3 liters and are designed to reproduce the unit of relative humidity in vapor-air mixtures during calibration and verification of humidity measuring instruments.



Humid gas generator

TKA-GVL-01

(No. 54028-13 in the State Register of Measuring Instruments of the Russia) It is produced in two modifications:

TKA-GVL-01-1 modification - working standard of 2nd category,

TKA-GVL-01-2 modification - working standard of 2nd category, according to GOST 8.547-09.

The generator is designed to create a vapor-air stream with a certain relative humidity by mixing two air streams - dry and humid.

Basic technical specifications

Range of reproduction of relative humidity	from 1 to 100 %
Limit of the permissible basic error:	
• for TKA-GVL-01-1 modification	± 1.0 % RH
• for TKA-GVL-01-2 modification	± 2.0 % RH
Humidity level setting increment of	1 %, within the limits from 1 to 100 % RH
Temperature range of normal working conditions 22 °C	± 3 °C
Working range of ambient temperature	from + 10 °C to + 35 °C
Number of working chambers	6
Diameters of instrument probes installed into working chambers	from 5 mm to 32 mm
Power supply	220 V, 50 Hz
Consumed power	50 W
Dimensions (WxHxD)	570 x 515 x 440 mm
Weight (NMT)	30 kg

The delivery set of the generator of TKA-GVL-01-1 modification includes a verified standard thermohygrometer TKA-TV/Etalon-1. Generators of both modifications are completed with an external thermohygrometer designed to control the ambient conditions during measurements of temperature, humidity and atmospheric pressure.

Additional option: humidity chamber TKA-KVL-04-2 connected to the gas main outlet of the TKA-GVL-01 humid gas generator.

Scope of application

Calibration and verification of relative humidity meters, in testing laboratories, in standardization and metrology centers, at production facilities.

Significant advantages

Electronic control of generator operation modes, two-way communication with PC.

Compact, self-contained, no need to connect external gas mains or compressed gas cylinders to the generator.



Humid gas generator

TKA-GVL-03

(No. 79819-20 in the State Register of Measuring Instruments of the Russia)

Distinguishing feature:

Availability of a built-in humidity chamber with a volume of 8.3 liters and six cylindrical chambers with diameters of input ports from 5 to 32 mm.

Generators in accordance with GOST 8.547-09 peRussiaorm the functions of a working standard of the 2nd category.

The generators are designed to reproduce the specified values of relative humidity in vapor-air mixtures by mixing two air streams - dry and humid.

Basic technical specifications

Range of reproduction of relative humidity:

• for working chambers 1...6	from 1 to 100 %
• for working chamber 7	from 5 to 95 %

Limit of permissible basic error:

• for working chambers 1...6	± 1.5 % RH
• for working chamber 7:	
- in the range of relative humidity measurements from 5 to 50% incl.	± 2.0 % RH
- in the range of relative humidity measurements from 50 to 95%	± 2.5 % RH

Discreteness of setting relative humidity levels	1 % RH
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Number of working chambers	7
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Power supply	from 190 to 230 V, 50 Hz
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Consumed power	50 W
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Dimensions (LxWxH)	570 x 440 x 790 mm
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Weight (NMT)	50 kg
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The delivery set of the generator includes a verified standard thermohygrometer.

Scope of application

Services in the field of assurance of measurement uniformity: calibration and verification of relative humidity meters, in testing laboratories, in standardization and metrology centers, at production facilities.

Significant advantages

Electronic control of generator operation modes, two-way communication with PC; no need to connect external gas mains or compressed gas cylinders.



Humidity calibrator

TKA-KVL-04

(No. 85673-22 in the State Register of Measuring Instruments of the Russia)

Produced in two modifications: TKAKVL-04-1 with a built-in humidity generator and TKA-KVL-04-2 with an external humidity source (generator).

The humidity calibrators are designed for reproducing relative humidity units in vapor-air mixtures in calibration and verification of humidity MI Russia and are used as working standards of the 2nd category according to GOST 8.547-09.

The principle of operation of the TKA-KVL-04-1 humidity calibrator with a built-in humidity generator is based on the method of mixing dry and humid air flows to generate a vapor-air flux with a certain relative humidity. Setting the required relative humidity in the mixing chamber designed for homogenization of the generated vapor-air mixture is carried out by regulating the flow rate of each of the fluxes by means of supplying the relevant supply voltages to the compressors.

The principle of operation of the TKA-KVL-04-2 humidity calibrator is based on maintaining the vapor-air mixture with a certain relative humidity which is supplied to the working chamber from an external source. A thermohygrometer of humidity and temperature is installed in the working chamber of the calibrator.

Basic technical specifications

Range of reproduction of relative humidity	from 5 to 95 %
Limit of the permissible basic error of reproduction at the temperature of (22±3) °C:	
• for TKA-KVL-04-1 modification	± 1.0 % RH
• for TKA-KVL-04-2 modification	± 2.0 % RH
Discreteness of setting the relative humidity levels for TKA-KVL-04-1 modification	1 % RH
Power supply of the chamber from the alternating current network	from 190 to 230 V, 50 Hz
Consumed power (NMT)	30 W
Dimensions (WxHxD)	570 x 440 x 360 mm
Dimensions of the working chamber (WxHxD)	161 x 260 x 200 mm
Volume of the working chamber	8.3 L
Weight (NMT)	15 kg

Scope of application

Services in the field of assurance of measurement uniformity: calibration and verification of relative humidity meters, in testing laboratories, in standardization and metrology centers, at production facilities.

Medical devices

Device for diagnosing human infection with Helicobacter Pylori bacteria by ammonia content in exhaled air	GastroTest
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TKA Scientific Instruments has developed unique GastroTest devices and put them into production. The device is recommended for mass examinations of the population, including on-site diagnostics. The examination determines the urease activity of Helicobacter pylori bacteria in the patient's stomach, producing a large amount of urease enzyme, which breaks down urea to form ammonia.

The unrivaled devices help save the health of tens and hundreds of thousands of people through early diagnosis. Owing to a new non-invasive technique developed by the authors of the invention, atraumaticity is achieved, time is reduced and the cost of the examination is minimized. The devices have passed medical and technical tests and have a registration certificate of the Federal Service for Supervision in the Sphere of Health Care and Social Development and are included in the State Register of Medical Devices and Medical Equipment.



Device for diagnosing human infection with *Helicobacter Pylori* bacteria by ammonia content in exhaled air

GastroTest

(Registration certificate No. RZN 2021/13993)

The device is available together with the Set for 100 examinations and the Replacement measuring module.

The devices are designed for diagnosis of human infection with *Helicobacter Pylori* bacteria by ammonia content in exhaled air.

The principle of operation of the device is based on the study of the activity of urease enzyme produced by *Helicobacter Pylori* bacteria in the patient's stomach. The result of the test is an infection rate. The infection rate is the excess of ammonia content in human exhaled air, measured after taking urea solution, over the basal ammonia content in human exhaled air. The infection rate is expressed as a percentage.

Basic technical specifications

Range of determined one-time ammonia concentrations	0 ÷ 20 mg/m ³
Infection rate:	0 ÷ 20 – negative result 21 and more – positive result
Sensitivity	95%
Specificity	92%
Dimensions (LxWxH)	180×180×92 mm
Device weight (NMT)	1.0 kg
Time of one examination (NMT)	15 min
Number of stored test results (NMT)	300 pcs.
Operation mode:	8 hours (15 min operation and 10 min break, with power supply from an alternating current network)
Average service life of the device (NLT)	5 years
Results transmission:	Bluetooth not lower than 4.0 (except IOS OS); Wi-Fi; Ethernet
Power supply of the device:	from built-in storage battery / from mains via mains power adapter
Battery charging time (NMT)	5 hours
Time of operation from a fully charged battery (NLT)	3 h

Scope of application

- Medical institutions (hospitals, outpatient clinics and sanatorium-resort institutions, examination under the program of preventive medical examination).
- Departmental medical units (Ministry of Defense, Ministry of Internal Affairs, Ministry of Emergency Situations).
- Individual users (pharmacies, dealers, leasing operators, online stores, general practitioners, family physicians).

Table for selecting devices of series TKA-PKM by measurement parameters TKA-PKM version		MEASURED PA					
		Illuminance	Luminance	Irradiance (UVR 315–400 nm)	Irradiance (UVR 280–315 nm)	Irradiance (UVR 280–400 nm)	Irradiance (UVR 200–280 nm)
		E	L	E_e (A)	E_e (B)	E_e (A+B)	E_e (C)
		lx	cd/m ²	mW/m ²	mW/m ²	mW/m ²	mW/m ²
(31)	Luxmeter	■					
(05)	Luxmeter, with PC output	■					
(02)	Luxmeter + Luminance Meter	■	■				
(06)	Luxmeter + Ultraviolet Radiometer	■				■	
(08)	Luxmeter + Flicker Meter	■					
(09)	Luxmeter + Flicker Meter + Luminance Meter	■	■				
(12)	Ultraviolet Radiometer			■	■		■
(12/A)	Ultraviolet Radiometer, UV-A zone			■			
(12/B)	Ultraviolet Radiometer, UV-B zone				■		
(12/C)	Ultraviolet Radiometer, UV-C zone						■
(12/A,B)	Ultraviolet Radiometer, UV-A, UV-B zones			■	■		
(13)	Ultraviolet Radiometer, with an attenuating filter			■	■		■
(13/C)	Ultraviolet Radiometer, with an attenuating filter, UV-C zone						■

Table for selecting devices of series TKA-PKM by measurement parameters TKA-PKM version		MEASURED PA					
		Illuminance	Luminance	Irradiance (UVR 315–400 nm)	Irradiance (UVR 280–315 nm)	Irradiance (UVR 280–400 nm)	Irradiance (UVR 200–280 nm)
		E	L	E _e (A)	E _e (B)	E _e (A+B)	E _e (C)
		lx	cd/m ²	mW/m ²	mW/m ²	mW/m ²	mW/m ²
(20)	Thermohygrometer						
(23)	Thermohygrometer, with access to PC						
(24)	Thermohygrometer + Thermohygrometer						
(41)	Luminance Meter + Luxmeter + Thermohygrometer	■	■				
(42)	Ultraviolet Radiometer + Luxmeter + Thermohygrometer	■				■	
(43)	Luxmeter + Thermohygrometer	■					
(50)	Anemometer						
(52)	Heat loss anemometer						
(60)	Anemometer + Thermohygrometer						
(61)	Anemometer + Luminance Meter + Luxmeter + Thermohygrometer	■	■				
(62)	Anemometer + Ultraviolet Radiometer + Luxmeter + Thermohygrometer	■				■	
(63)	Anemometer + Luxmeter + Thermohygrometer	■					
(65)	Anemometer + Luxmeter + Luminance Meter + Ultraviolet Radiometer + Thermohygrometer	■	■			■	

A special place in the development of TKA Scientific and Technical Enterprise is given to research and development activities. In order to fulfill its full potential and capabilities, it actively cooperates with various foundations and institutions of our country, for example, the Skolkovo Foundation and the Innovation Promotion Foundation.

Within the framework of scientific activities in the foundations, the enterprise carries out several key projects:

Development of a highly sensitive optoelectronic module for selective determination of ammonia concentration in a gas flow

The project is aimed at research, development and creation of a pilot batch of highly sensitive and selective optoelectronic modules designed to measure low concentrations of ammonia in the range of 0ppm to 20ppm. The product is designed to improve the reliability of the results of the existing non-invasive respiratory ammonia-based methods of gastrointestinal tract diagnostics.



Development of an intelligent hardware and software complex for controlling the system of supplementary lighting of crops grown in greenhouse conditions



The project allows significant reduction of the period of growing seedlings of all cultivated crops and increasing the "seasonality" with a significant improvement of its quality. In order to control the supplementary lighting in accordance with a given algorithm, a complex is organized on the basis of a spectroradiometer which includes a distributed network of fiber-optic probes and devices for automatic adjustment of spectral composition and level of maximum illuminance in a given point of space.

Intelligent control system using a map of microclimate parameters of museum premises (MMP)

The modern system of microclimate control is based on continuous monitoring and analysis of its parameters in real time. The specific feature of the intelligent control system presented in the project is adaptation to local conditions through MMP mapping. The MMP mapping increases the accuracy and reliability of metrological control due to the effective placement of MMP recorders, thereby increasing the awareness of curators and contributing to the preservation of cultural values.



Research activities of the enterprise are not limited to activities in foundations. Upon your requests our specialists are ready to conduct research in the field of devices measuring physical environmental factors, as well as to develop samples of new products and their design documentation. In the process of contract conclusion it is possible to order the complete development cycle or its separate parts.



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