

# Spectrocolorimeter “TKA-VD”



Structurally “TKA-VD” consists of three functional blocks:

- 01 “Brightness” (replaceable optoelectronic unit with a cable, input lens  $\varnothing 21$  with an enlightened lens),
- 02 “Illumination” (replaceable optoelectronic unit with a cable, input window with a [cylindrical cosine nozzle luxmeter](#)  $\varnothing 17$ ),
- a signal processing unit with a 15-pin connector for connecting a replaceable optoelectronic unit, with a keyboard and a two-line character display with backlight.

The device has a unique ability to determine the values  $\Delta E$  of the correlated color temperature in real time and measure the exact values  $\Delta E$  of the coordinates of the chromaticity of the radiation source using a special program protected [Certificate of official registration of the computer program No. 2003612396](#) .

## Main technical data and characteristics

A type	Direct measurement method
Receiver (for reference)	Polychromator, 128-pixel silicon solar cell array
Optical range (for reference)	390 ÷ 760 nm
Field of view (for block 01) (for reference)	2nd
<b>Correlated Color Temperature Reading</b> Ranges	1600 ÷ 16000 K
<b>Chromaticity Coordinate</b> Measurement Ranges	x = 0.004 ÷ 0.734; y = 0.005 ÷ 0.834 u ' = 0.007 ÷ 0.623; v ' = 0.005 ÷ 0.595
Working Illumination Limits (Thermal ICs)	10 ÷ 20,000 lx
Working brightness limits (thermal ICs)	10 ÷ 20,000 cd / m2

Limits of the permissible value of the absolute error of measuring the chromaticity coordinates x, y	
– sources with a continuous radiation spectrum	± 0.005
– other sources	± 0.02
The limit of the permissible value of the basic relative measurement error of the correlated color temperature (no more)	5.0%

Overall dimensions of the device (no more)	
Display (for reference)	2-line 16 character LCD with LED backlight
Threaded connector for mounting on a tripod	1/4 "
Display and power supply unit	165x85x35 mm
Optoelectronic unit (no more)	240x70x70 mm

Device weight (no more)	2.5KG
A NiMH rechargeable battery is used to power the devices – Krona battery standard size	8.4V

Also, **at the request of the customer**, the device can be produced with the following execution options: "TKA-VD" / 01 and "TKA-VD" / 02 with one of the non-replaceable unit selected by the customer without a connector.

The optoelectronic unit of the TKA-VD spectroradiometer is a polychromator: the input optical radiation generated by the objective is decomposed into a spectrum on a concave diffraction grating and focused on a diode array, from

which a signal is taken for further processing and calculation of the measured parameters. A device with a linear detector with a fixed position of the diffraction grating has no moving parts, which makes it possible to simultaneously record a relatively wide visible spectral region with imaging.

**Switching between the modes of the instrument Spectrocolorimeter “TKA-VD” on the LCD is performed in a closed cycle by pressing the “Mode” button:**

one	Measurement of <b>luminance</b> $L$ , $\text{cd} / \text{m}^2$ (or <b>light</b> $E$ lx) and <b>chromaticity coordinates</b> $(x, y)$ in the CIE system 31
2	Measurement of <b>luminance</b> $L$ , $\text{cd} / \text{m}^2$ (or <b>light</b> $E$ lx) and <b>chromaticity coordinates</b> $(u', v')$ in the CIE 76
3	Display <b>color coordinates</b> $X, Y, Z$
four	Display of <b>correlated color temperature</b> $T_c$ , K

The device Spectrocolorimeter “TKA-VD” has the ability to display information in two ways: on the built-in LCD and dumping data via the RS – 232 interface (virtual USB). Updating the data output depends on the brightness level of the light source and takes up to 5 seconds.

#### **Main advantages**

- Compactness and ease of use
- Information output to the built-in LCD
- There are no direct domestic analogues
- Real-time value definitions
- Own program for communication with PC
- Low power consumption
- Simplicity and ease of use
- The optoelectronic unit contains a photometric nut (1/4 inch thread) for mounting on a tripod.

One of the important aspects in the organization of labor in an enterprise, in an organization for the sale of goods or the provision of services is the measurement of conditions at the workplace, and for this, with the help of instruments, a study of the correct illumination of color design is carried out. Our spectrophotometer “TKA-VD” is suitable for measuring color coordinates and calculating the color temperature of light sources with high accuracy. This device will also be an indispensable tool when installing digital cinemas or calibrating monitors. This spectrophotometer “TKA-VD”, the price of which is quite low for a device of this class, is popular both in large organizations and among private clients who care about the compliance of their work or study place with the requirements of GOST.