User manual
Freeware SOFTWARE “Spectrofotometer”

1. INTRODUCTION.

The following ways of information display are possible:
1) Output onto a built-in LCD;
2) Output to USB port.
Use the supplied USB cable A~B,
settings are: 115200 Baud, 8 data bits, no parity, 1 stop bit, no handshake.
Platform: Microsoft Windows 95/98/NT/2000/XP/Vista.

2. ACCESSORIES

User manual Freeware SOFTWARE
USB Cable A~B
Software disc in a box

3. PROGRAM START

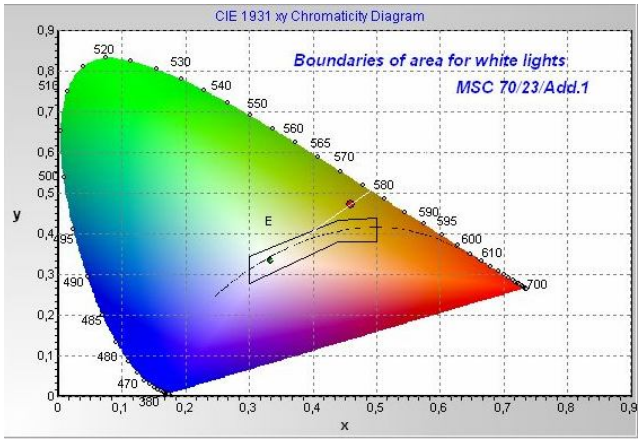
Install a compact disc with an automatic start in CD disk drive. A break for choosing of a version of a program for visible spectrum range will appear. To start a program manually you should choose the file RUN.BAT.
CD auto start launches system scan and software installation, device has to be PC connected, follow instructions.
Note: do not change installation directories to provide automatic device driver installation.

4. PRECAUTIONS BEFORE OPERATING

To carry out measuring connect the device to COM port of the computer and press the button **“ON/OFF”**. The status of this connection is **“Search of devices …”.**

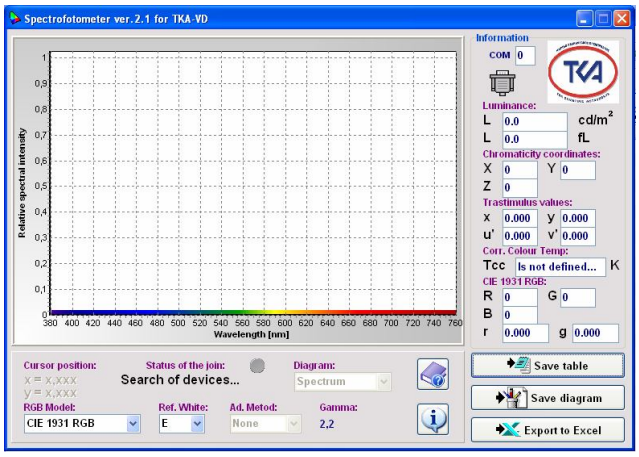
CAUTION!

Before connection and switching the device on make sure it is logged off. If these rules are not observed it might result in exit from some components of a computer system. The warranty doesn’t apply to devices, which broke down due to abuse!
Then connect a cable header to the device. The other end of the cable install into free USB-port on the PC. Make sure that contact pads entered the port up to the stop. After switching the device on the system is ready for exploitation.



5. WORK WITH A PROGRAM

After setting of connection the program’s workspace will depict a spectrum and chromaticity coordinates of being measured object, a status of connection will change from **“Search of devices …”** to **“Data’s reception…”** The program also provides control over errors in data transmission.



	A	B	C	D	E	F
1	Date:	Time:				
2	10.10.2010	11:41:10				
3						
4	sRGB, Ref.White:D50, Ad.Metod:Bradford, Gamma: Apr.2,2					
5						
6	Chromaticity coordinates:					
7	X =	106				
8	Y =	100				
9	Z =	41				
10	R =	150				
11	G =	89				
12	B =	42				
13	Trastimulus values:					
14	x =	0,431				
15	y =	0,403				
16	u' =	0,247				
17	v' =	0,52				
18	r =	0,533				
19	g =	0,316				
20	Illuminance:					
21	E =	339	lx			
22	E =	31,5	fc			
23						
24	Correlated colour temperature:					
25	TCC =	3106	K			

If it is necessary to save the values of the measured spectrum in table-form press the button **"Save table"**, choose the necessary name of a document and a file and press the button **"Save".**

To save a diagram of the spectrum in a document in Windows Bitmap press the button **"Save diagram" ("Save chart"),** choose the necessary name of a document and a file and then press **"Save"**. To go into Microsoft Excel and to be able to work with a data chart press the button **"Export to Excel"** (on condition Microsoft Excel is installed).

6. TECHNICAL SUPPORT

But if you still have a problem with Spectrocolorimeter "TKA-VD" and noting else helps, please contact for technical support at: lab@tkaspb.ru.

7. Protocol of data communication between the device and the PC via serial port means

The data is transmitted only from the device to the PC, while the communication is established at the speed of 115200 Baud with the standard port settings.

The communication protocol represents the following:

- first four bytes – device series identifier.

Then the following is transmitted (274 data bytes):

- device model identifier – 1 byte
- tristimulus values: X, Y, Z – 4 bytes each,
- chromaticity coordinates: x, y, u', v' – 2 bytes each,
- luminance value, cd/m^2, 4 bytes,
- number of request points, 1 byte,
- working points by the wavelength scale, μm, 2 bytes each,
- values of relative spectral distribution, 2 bytes each,
- correlated colour temperature, K, 4 bytes,
- in the end – one byte of the checksum, CRC.

The chromaticity and spectrum coordinate values are transmitted in two-byte format where the high byte is the first to be transmitted, and the low byte is the second.

The entire transmission is carried out in integer format (transfer of the number with a floating point to an integer number is performed).

The checksum CRC is calculated as a sum of all transmitted bytes with the following transmission of the low byte only. The entire transmission comprises 279 bytes (four bytes – identifier, 274 data bytes and one check byte).