

# Operating Instructions

## JETI Spectroradiometer

specbos 2511



JETI Technische Instrumente GmbH  
Göschwitzer Straße 48  
D-07745 Jena  
Tel.: +49 3641 23292 00  
E-mail: [sales@jeti.com](mailto:sales@jeti.com)  
Internet: [www.jeti.com](http://www.jeti.com)

## Contents

1. Introduction .....	3
2. Security recommendations .....	5
3. Driver installation .....	5
3.1. How to open the device manager on Windows 10/ 11 .....	5
4. Installation and operation of hardware .....	6
4.1. Installation of USB device.....	6
4.2. Installation of Bluetooth device .....	7
4.3. Battery handling.....	9
5. Display Operation for specbos 2511 .....	9
5.1. Connection Through USB .....	9
5.2. Taking a Measurement.....	10
5.3. Display reset.....	10
5.4. Displaying of Results .....	11
5.4.1. Numeric Values .....	11
5.4.2. Spectrum.....	12
5.4.3. xy Diagram .....	13
5.4.4. u'v' Diagram.....	14
5.4.5. CRI .....	15
5.4.6. RGB.....	16
5.4.7. Transmission / Reflectance.....	17
5.5. Data storage .....	18
5.5.1. Saving of Data and File Management .....	18
5.5.2. File Explorer .....	20
5.5.3. Reading the stored data.....	20
5.6. Reference Measurement .....	21
5.7. Settings.....	22
5.7.1. Device Settings.....	22
5.7.2. Measurement Settings.....	25
5.7.3. View Settings.....	28
5.8. Trigger function .....	30
5.8.1. Connectors .....	30
5.8.2. External Control of the Measurement.....	30
6. Technical data.....	31
6.1. Basic characteristics .....	31
6.2. Device dimensions.....	32
7. Declarations.....	33
7.1. CE – Declaration of conformity .....	33
7.2. Declaration of UKCA conformity .....	34
7.3. Certificate of warranty .....	35
7.4. License Agreement.....	36
8. Service.....	38

## 1. Introduction

**specbos 2511** is an easy-to-use spectroradiometer for various light measuring applications. It can be used in standalone operation as well as in combination with the PC software JETI LiVal, which offers a variety of additional measuring quantities and functionalities compared to the stand-alone operation.

You can measure Luminance/ Radiance as well as Illuminance/ Irradiance. Also, colorimetric data (CCT, chromaticity, RGB, color purity, dominant wavelength, CRI, CQS and other color quality scales) are calculated from the spectral data. Therefore, it is suited for the test of light sources, of LCD screens, for the measurement of projectors and of room illuminance. The robustness and miniaturized shape of the device make it suitable for laboratory as well as industrial use.

There are three versions of the device for different wavelength ranges:

<b>specbos 2511</b>	380 nm to 780 nm
<b>specbos 2511-NIR</b>	380 nm to 1100 nm
<b>specbos 2511-UV</b>	200 nm to 1100 nm

All versions are optionally available with:

- Focus Add-On, for the measurement with Add-On Optics, e.g. for small spot diameters of 0.5 mm, 1 mm and 3 mm
- HiRes Add-On, with increased optical bandwidth of 2 nm (380 ... 780 nm) and 3 nm (200 ... 380 nm, 780 ... 1100 nm)
- Trigger Add-On, with trigger input/ output

The indication of the measuring spot on the target in case of Luminance/ Radiance measurements will be realized by a pilot laser circle. Irradiance measurements are done with the optional cosine corrector. A wide range of other accessories are available.

Acquisition and analysis of data is done by the PC software JETI LiVal. The connection to the PC works via USB interface (virtual COM port) or via Bluetooth. It is also possible to communicate directly with the instrument via DLLs. Detailed helping information for this application is included on the USB flash drive. The instrument can be driven by SCPI compatible firmware commands. The command list is also available on the USB flash drive.

### PC Requirements:

- Processor (x86/x64) with 1 GHz or faster with 2 or more cores, min. 4 GB RAM
- Graphic resolution: min. 1024 \* 768, 32-bit colour depth recommended
- Windows 10/11

## Scope of Delivery:

- Device with protection cap
- Tripod
- Transport case
- USB flash drive with PC software *JETI LiVal*, DLLs, operating instructions and firmware command list
- Double locked USB-C to USB-A cable
- USB power supply
- Bluetooth USB adapter (dongle)
- Operating instructions
- Calibration certificate

## 2. Security recommendations

Before any operation, please read the following safety precautions to avoid any possible bodily injury and to prevent the device from damage. To avoid any contingent danger, this device must only be used within its specified ranges.

- The target pointer is a Class 1 laser product<sup>1</sup>, which must be handled carefully. Being directed into human eyes, it can cause loss of eyesight. Do not look into the laser beam or aim the laser at another person!
- Avoid using liquid cleaners.
- Don't spill liquids of any kind on the device.
- Don't touch the glass window of the device, nor the diffusers, glasses or filters contained in the additional equipment.
- If any mechanical damage on the device is detected, please contact JETI.
- Batteries are to be disposed of properly in accordance with statutory provisions. Never open or puncture them, nor throw them into fire.
- We recommend using proper charging devices to avoid any health risks and damage to the device.

## 3. Driver installation

No manual USB driver installation is necessary. **specbos 2511** works with the standard USB CDC driver, which is already integrated in Windows 10 and 11.

This driver is installed automatically when the device is connected to the PC for the first time.

### 3.1. How to open the device manager on Windows 10/ 11

The *Windows Device Manager* shows information about the devices installed on your computer.

There are several ways to open the *Device Manager*, depending on the Windows version and the settings of Windows. The easiest of them is:

- Find the **Start** icon in the middle or left end of the taskbar and click on it with the right mouse button.
- In the window that appears, click on the **Device Manager** entry.

---

<sup>1</sup> Classification according to IEC 60825-1

## 4. Installation and operation of hardware

### 4.1. Installation of USB device

Unpack the spectroradiometer **specbos 2511** carefully and check the delivered parts.

All **specbos 2511** devices are powered via USB interface.

Additionally, the battery will be charged during this time.

Connect the device to a USB interface of a PC or laptop using the enclosed USB cable.

**Attention:** The USB port of the PC must provide voltage of at least 4.8 V and current of at least 500 mA.  
 Otherwise – what can be the case e.g. if using passive USB-hubs – the measuring values can be unreliable or the device will be disconnected.



**specbos 2511**

The instrument is switched on automatically when the USB connection to the PC is established and ready for operation, e.g. by *JETI LiVal*.

Reset: Please take a little rod, e.g. of a paper clip and press the reset button through the hole in the device housing.

Status LEDs:

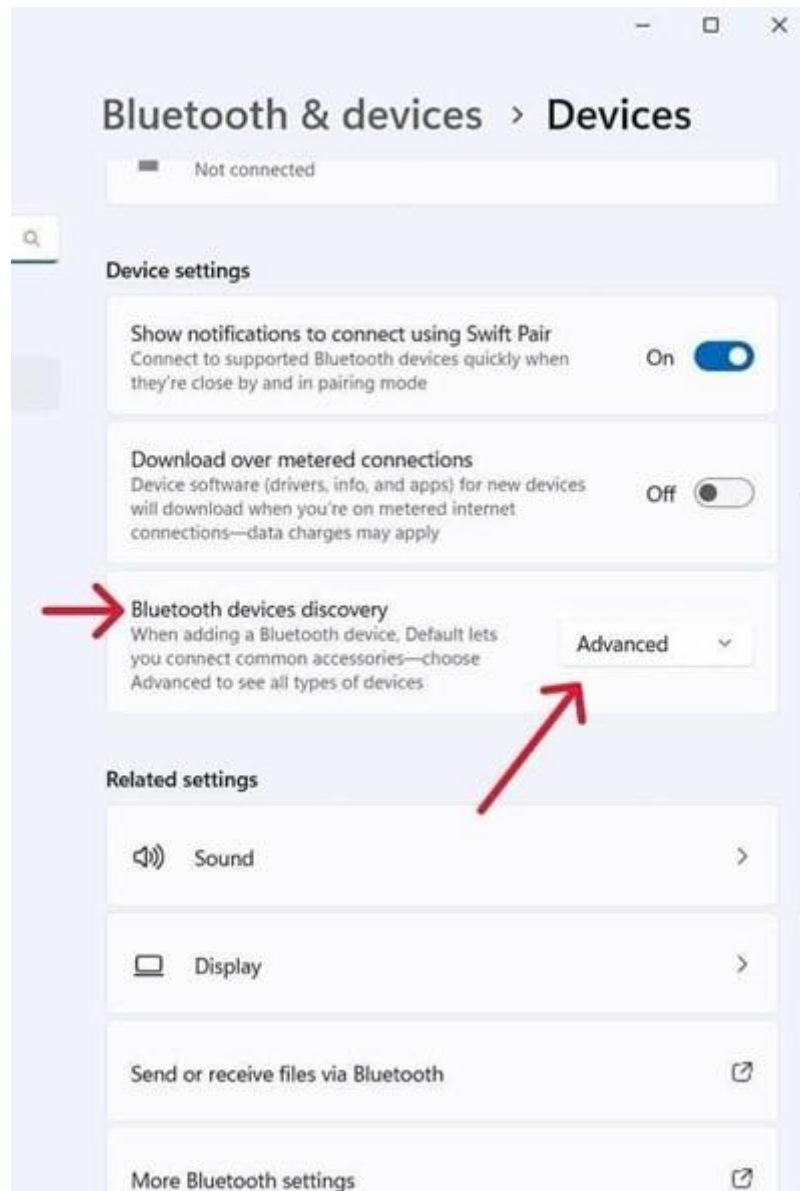
<i>while Battery powered</i>		<i>while connected to a power source</i>
Battery ok ( $\geq 25\%$ ), no Bluetooth connection	<b>Green</b>	Battery fully loaded, no Bluetooth connection
Battery ok ( $\geq 25\%$ ), Bluetooth connected	<b>Blue</b>	Battery fully loaded, Bluetooth connected
---	<b>Yellow</b>	Battery is loading, no Bluetooth connection
---	<b>Turquoise</b>	Battery is loading, Bluetooth connected
Battery low ( $< 25\%$ ), no Bluetooth connection	<b>Orange</b>	---
Battery low ( $< 25\%$ ), Bluetooth connected	<b>Lila</b>	---
Battery empty, device is shutting down	<b>Red</b>	Battery isn't loading
---	<b>Red blinking</b>	Insufficient power supply
Device is powering up or in Bootloader	<b>White</b>	Device is powering up or in Bootloader

## 4.2. Installation of Bluetooth device

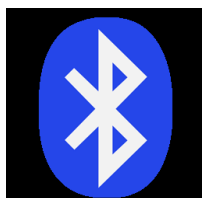
**specbos 2511** can be used via Bluetooth or USB, alternatively.

The Bluetooth interface is often integrated into modern computers. If your computer is not equipped with it, you will need to use the Bluetooth dongle (included in the delivery). The software guides you through the installation.

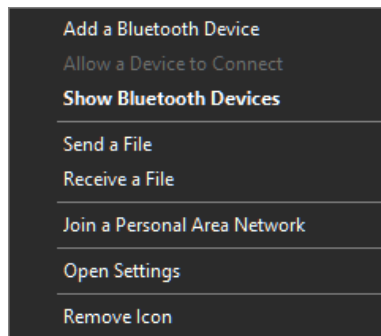
**Note:** In Windows 11 you must change the setting for Bluetooth devices discovery to “Advanced”



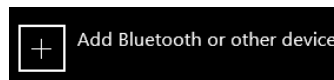
- Click on the Bluetooth symbol to start the installation process.



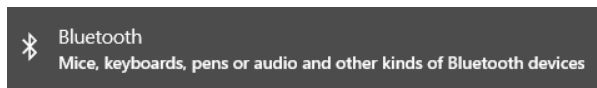
- Click **Add a Bluetooth Device**



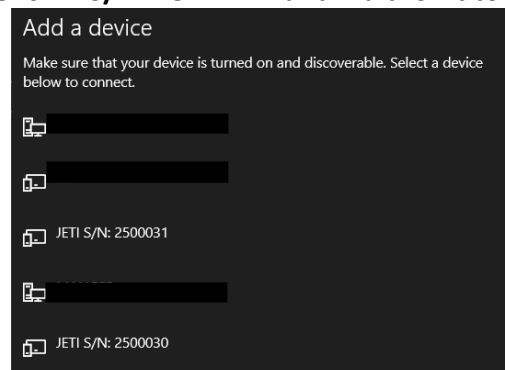
- a window opens, click on



- a window opens, click on



- Select your device, looks like **“JETI S/N: 251xxxx”** and wait for it to connect



- If a PIN number is requested, enter 0000
- The next window finalizes the installation. Click **Close**
- If you have problems with the Bluetooth connection, there is a collection of possible causes and solutions on our website: [www.jeti.com](http://www.jeti.com)

### 4.3. Battery handling

specbos 2511 is powered by battery if the wireless interface is used.

**Note:** The battery powered **specbos 2511** will be switched off automatically if the defined operating time of 5 min is elapsed without any communication.

The battery will be charged when the device is connected to the PC via USB.  
Alternatively, it can be charged with the power supply.

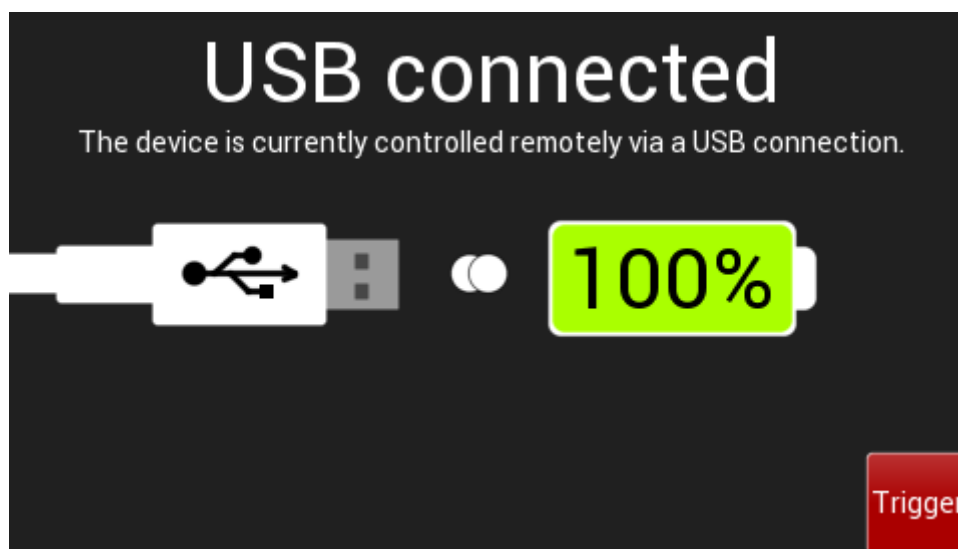
**Note:** Connect the device with your PC or the power supply to charge the battery via USB.

If the device is operated by **JETI LiVal** software, the battery status can be seen in the title bar of the window and through menu **Info** > **Battery Status**. If battery is low, corresponding warnings will be shown.

## 5. Display Operation for specbos 2511

### 5.1. Connection Through USB

When **specbos 2511** is connected to software via USB, the following window is displayed:



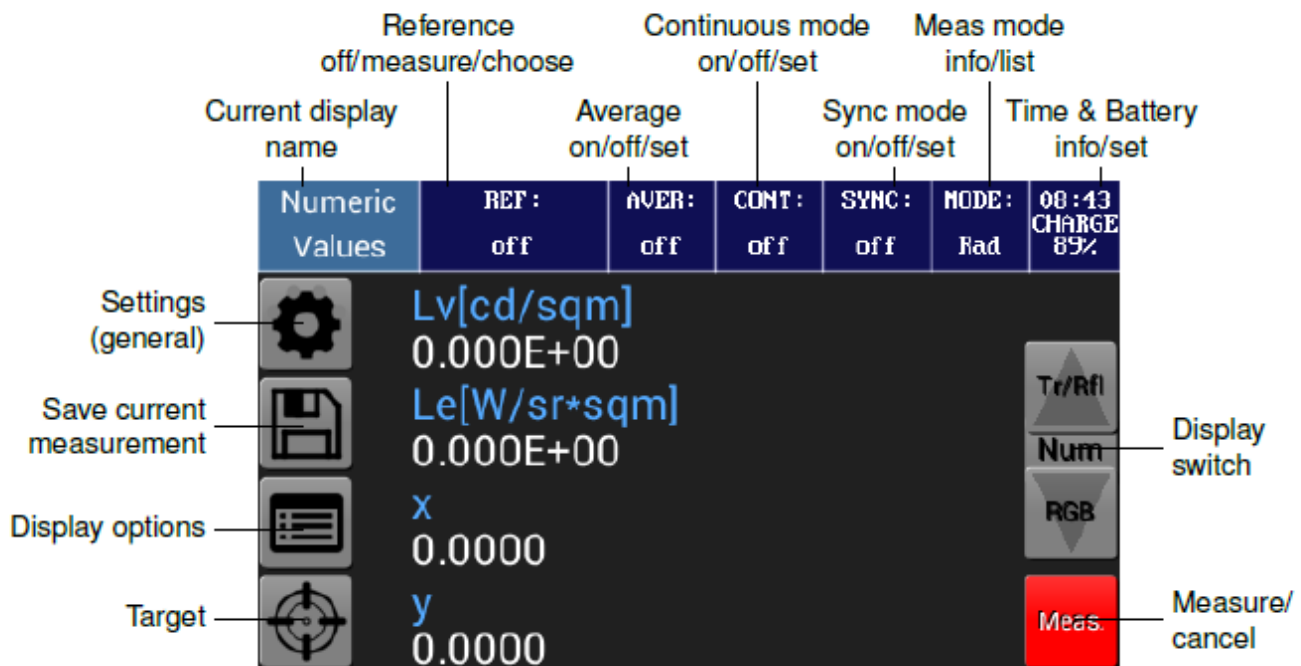
To use **specbos 2511** as a stand-alone device through its display functionality, close the controlling software.

To use it with JETI LiVal, tap on Trigger: this will cause JETI LiVal to initiate a measurement and receive data from the device.

## 5.2. Taking a Measurement

This section describes how to get started by taking a quick measurement. Note that some of the references to buttons and lights are describes in the previous sections.

- Turn on **specbos 2511** by pressing the **On/ Off** switch. The green status LED will illuminate.
- **specbos 2511** will initialize and show the main measuring interface:



- The measuring area can now be marked using the Target button or by briefly pressing the **On/ Off** switch.
- Aim the target laser by pointing the measuring head on the front of the device in the direction of light. Press the Measurement button.
- The results will be instantly displayed on the screen.

## 5.3. Display reset

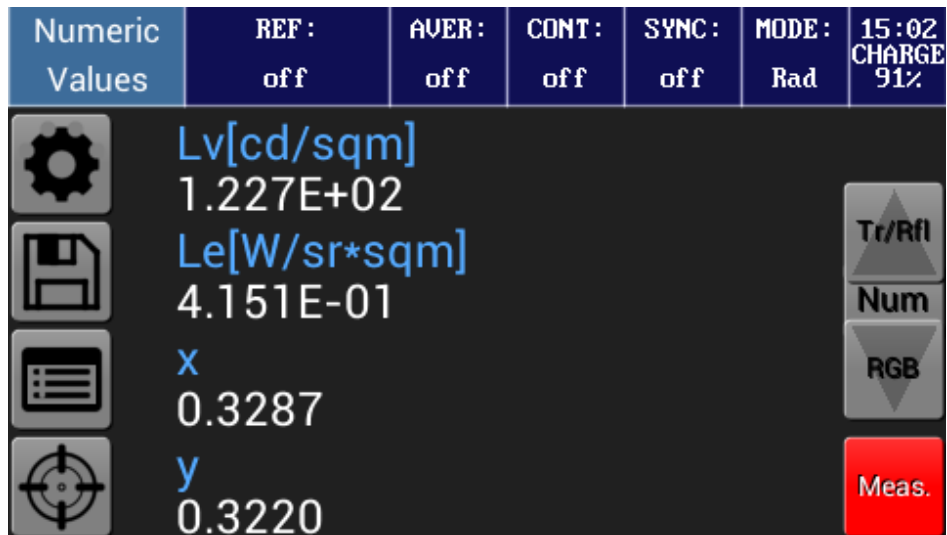
With **specbos 2511** it may happen that the display no longer responds accurately to touch inputs. In that case, recalibrating the display may help.

To do this, you must first switch off the device. When switching on using the **On/ Off** switch, hold it down (for about 2–3 seconds) until the screen calibration menu appears and calibrate the display.

## 5.4. Displaying of Results

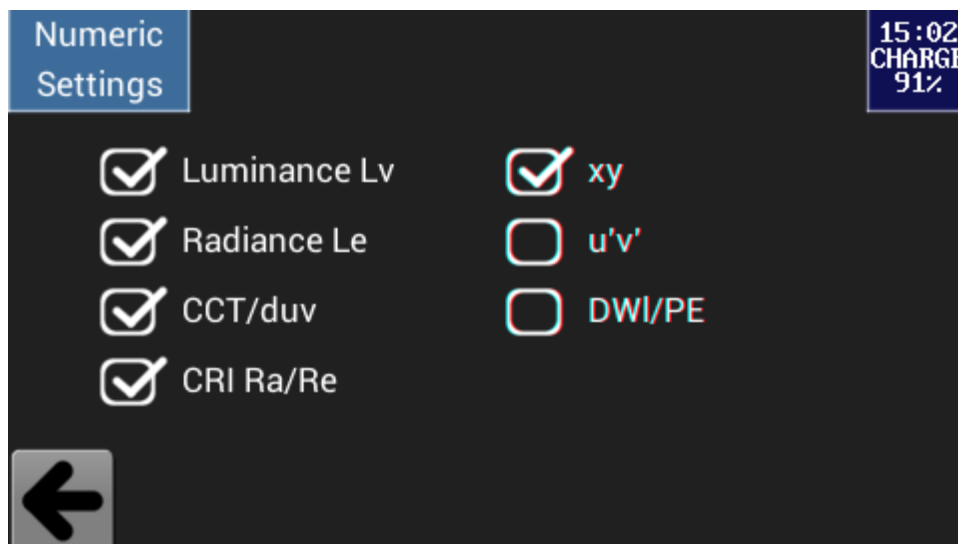
### 5.4.1. Numeric Values

This screen shows a list of measurements recorded after pressing the Measurement button as demonstrated in the previous section.



#### Numeric Values Display Options (List of Values)

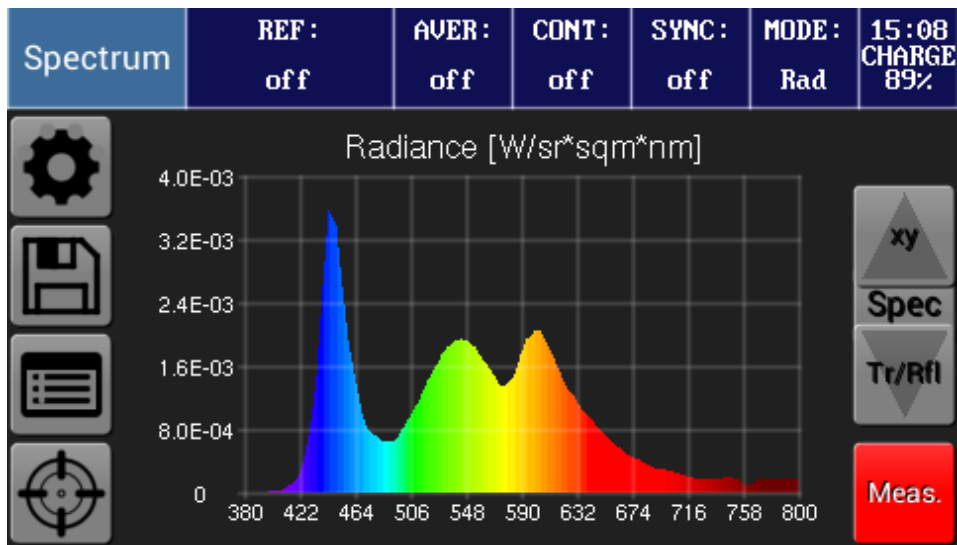
The Numeric Values list can be customized with different units of measure (e.g. Lv, xy, CCT) through the context-based **Display options**, accessed from the Numeric Values Screen.



Tap on the checkbox to select/deselect an item from the list and then return to the Numeric Values by tapping the Back icon. Now your new dataset is displayed.

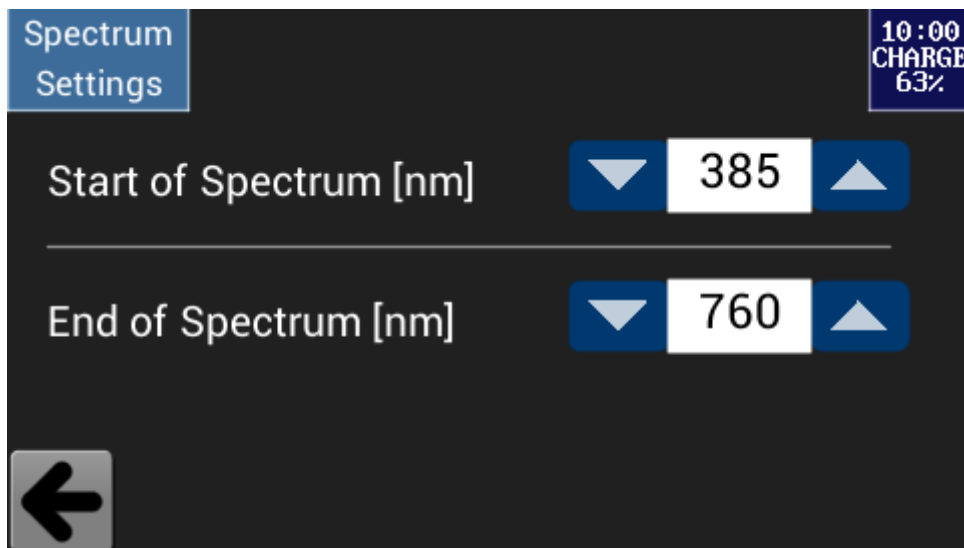
## 5.4.2. Spectrum

Light Spectrum of the latest measurement taken.



### Spectrum Display Options (Wavelength Range)

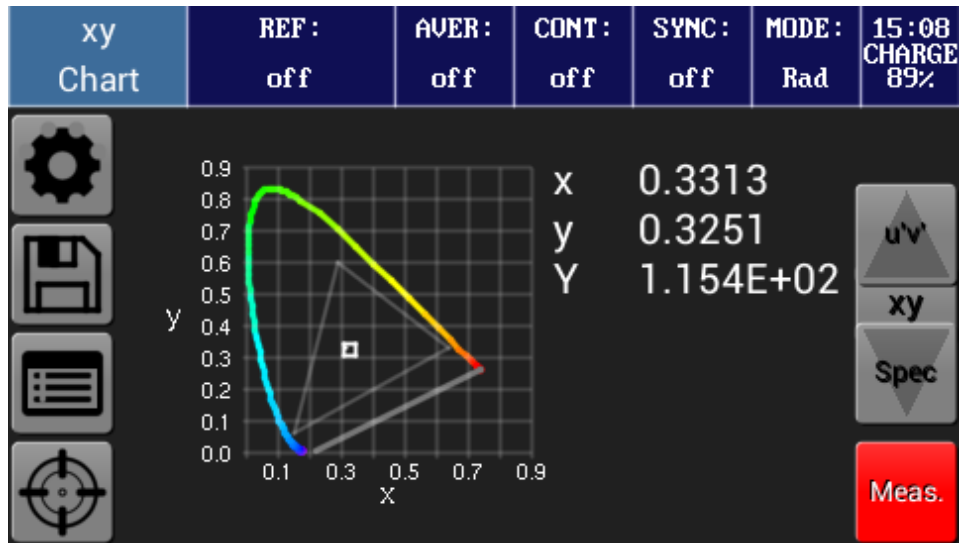
The start and the end wavelength of the displayed spectrum can be adjusted through the context-based [Display options](#), accessed from the Spectrum Screen.



This setting is common with the setting for the transmission/reflectance diagram.

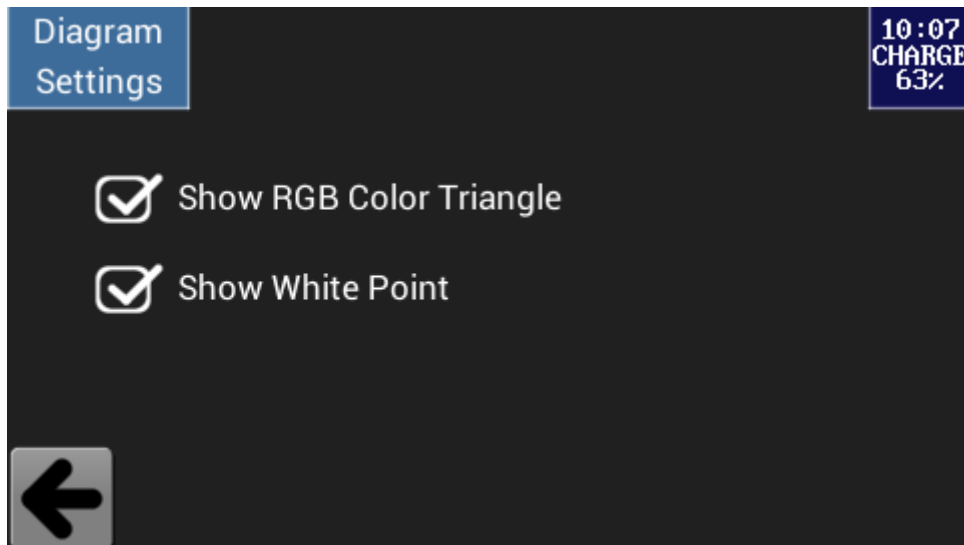
### 5.4.3. xy Diagram

The CIE1931 chromaticity xy values of the latest measurement taken.



#### xy Diagram Display Options (Color Space & White Point)

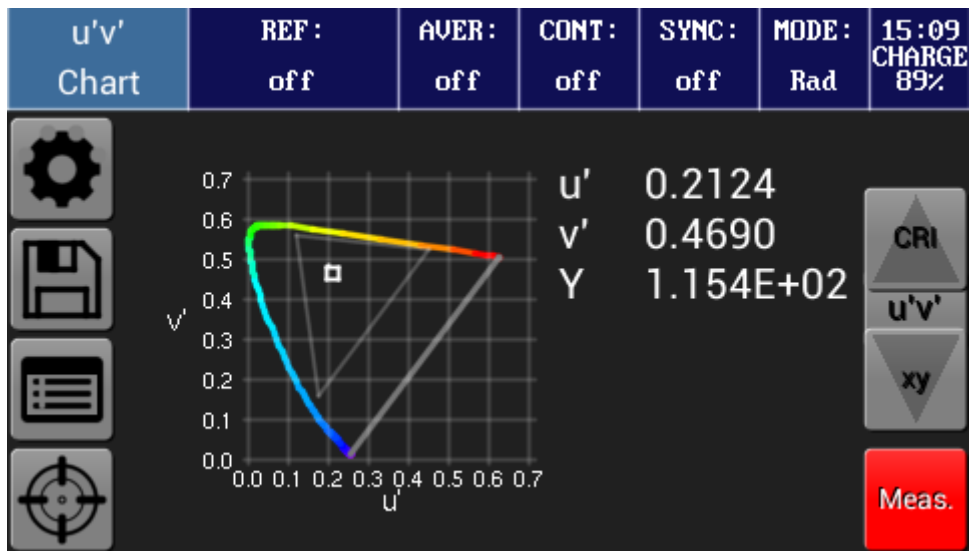
By tapping the checkbox, you can display the RGB color triangle and the white point of the chosen RGB color Space, through the context-based **Display options**.



These settings are common with the settings of the u'v' diagram.

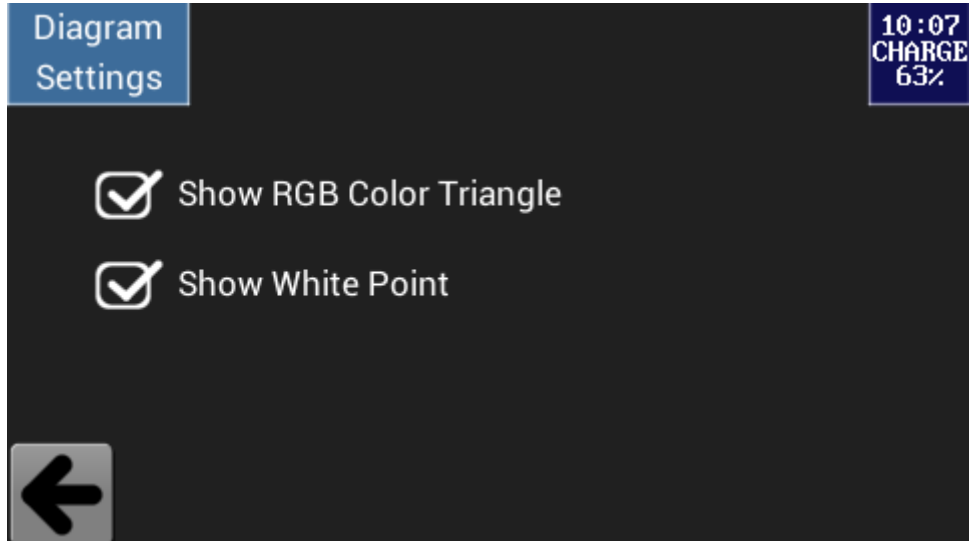
### 5.4.4. $u'v'$ Diagram

The CIE1976 chromaticity  $u'v'$  values of the latest measurement taken.



#### $u'v'$ Diagram Display Options (Color Space & White Point)

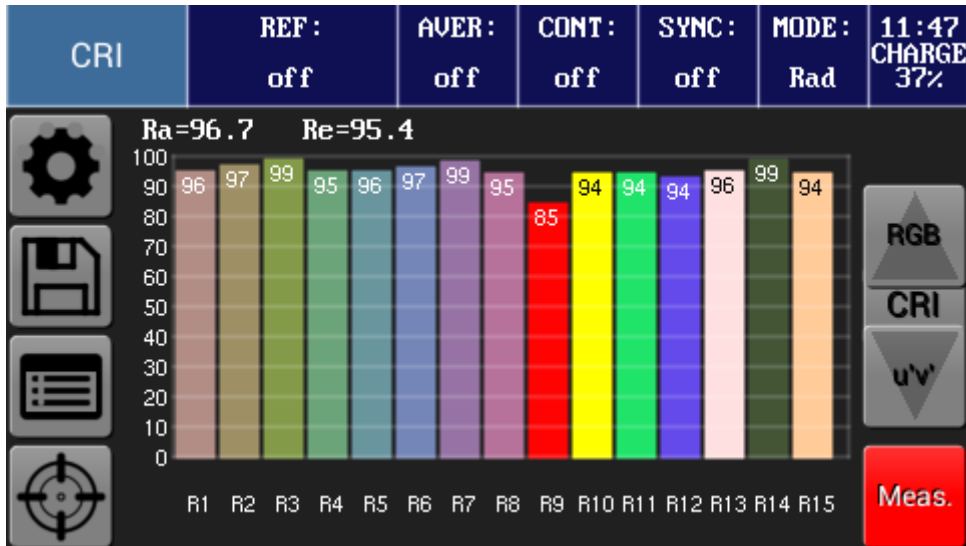
By tapping the checkbox, you can display the RGB color triangle and the white point of the chosen RGB color space, through the context-based Display options.



These settings are common with the settings of the xy diagram.

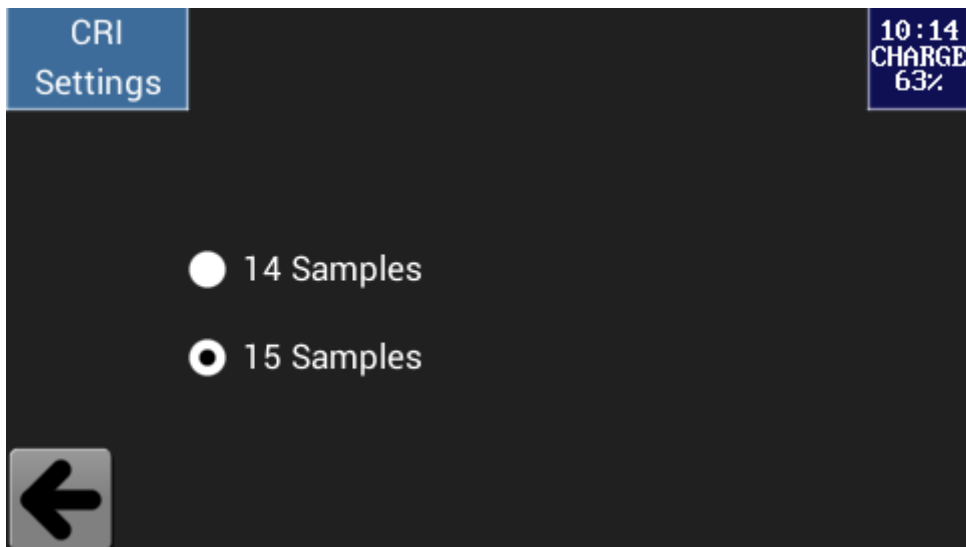
### 5.4.5. CRI

The CRI R1–R15 values as well as Ra and Re values of the latest measurement taken.



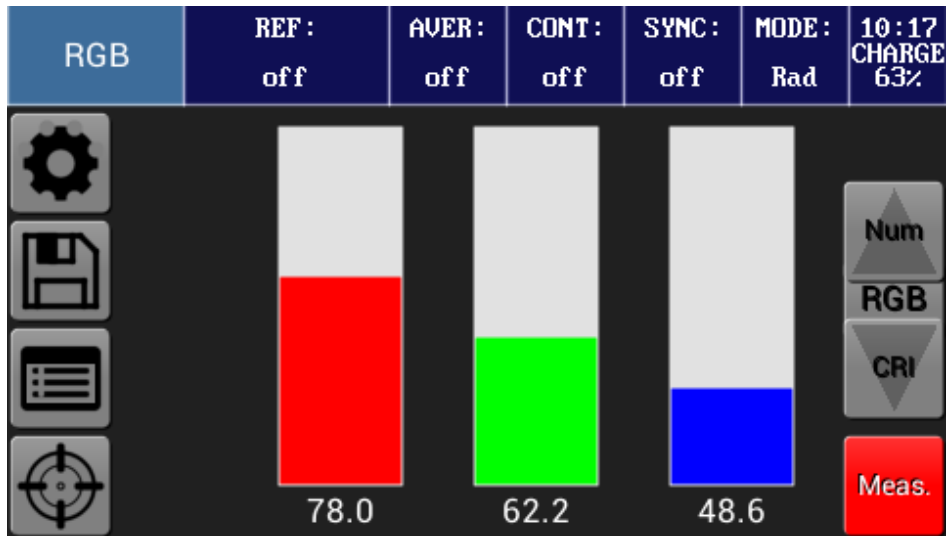
#### CRI Diagram Display Options (15th Color Sample)

By tapping the checkbox, you can select whether the 15th CRI color sample (**Asian skin color**) is used, through the context-based **Display options**.



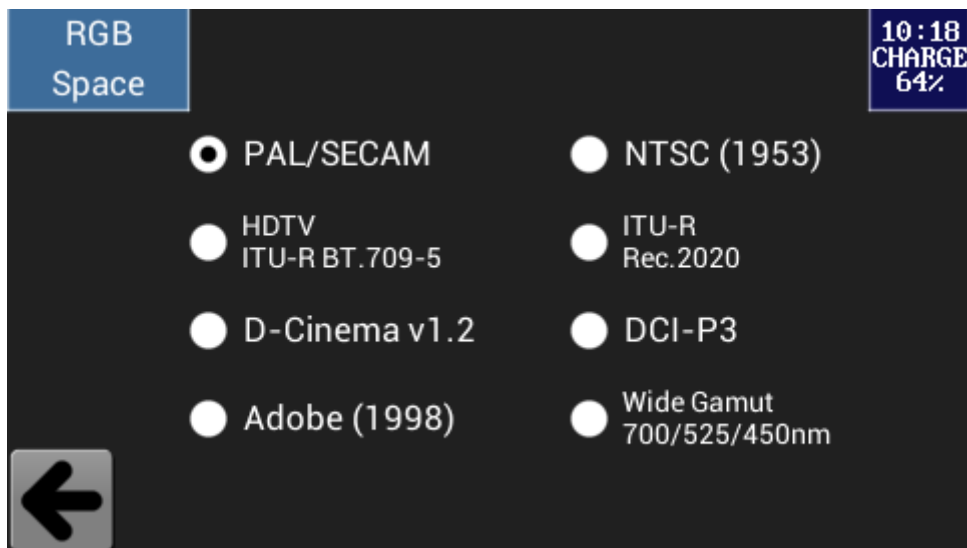
### 5.4.6. RGB

The RGB values of the latest measurement taken.



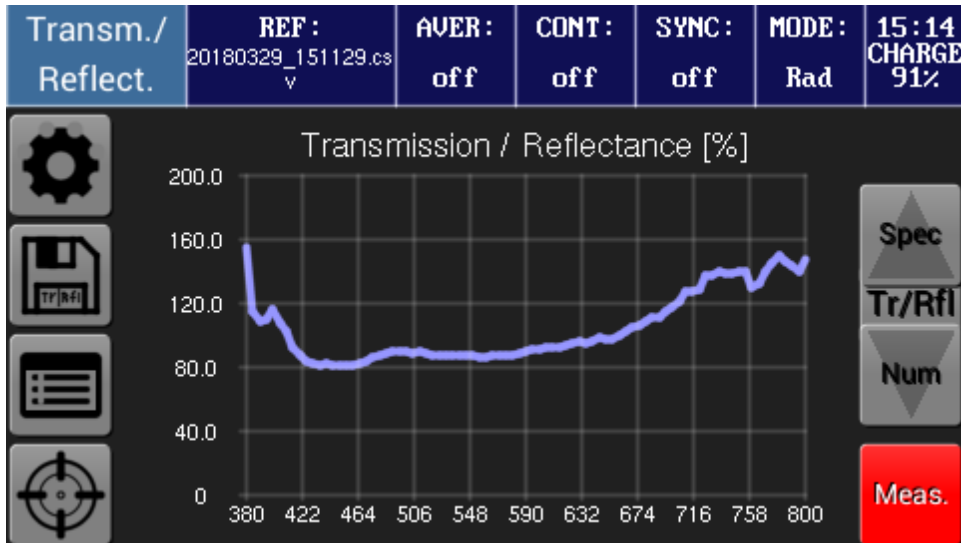
#### RGB Display Options (RGB Color Space)

The required RGB color space can be selected (e.g. PAL, NTSC, HDTV) through the context-based **Display options**, accessed from the RGB Screen.



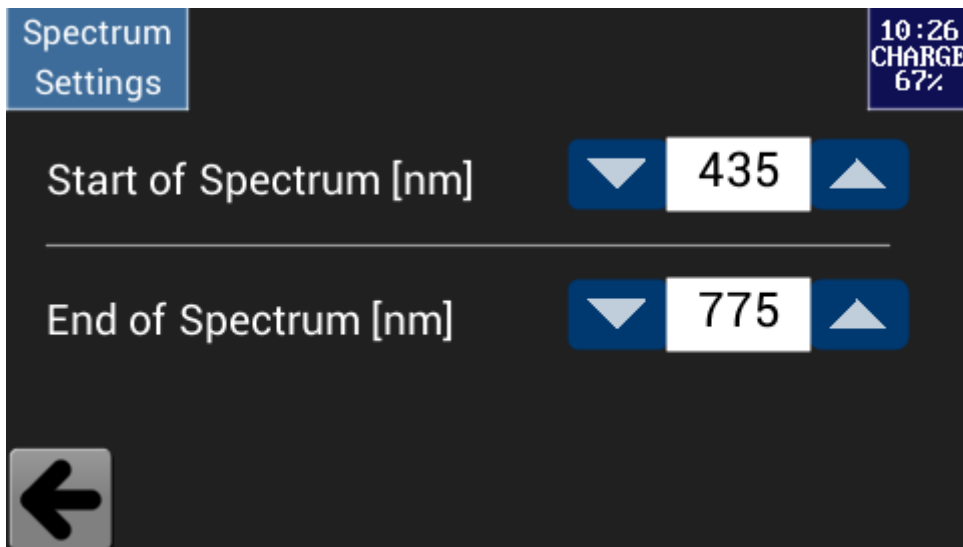
### 5.4.7. Transmission / Reflectance

Transmission / Reflectance curve. A reference must be measured or chosen (see chapter 5.6 Reference Measurement).



#### Transm./Reflect. Display Options (Wavelength Range)

The start and the end wavelength of the displayed spectral data can be adjusted through the context-based **Display options**, accessed from the Transm./Reflect. Screen. This is the same wavelength range which is used by Spectrum Screen.



This setting is common with the setting for the spectrum diagram.

## 5.5. Data storage

**specbos 2511** can store up to 120 000 measurements in its internal memory.

### 5.5.1. Saving of Data and File Management

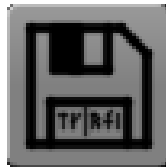
#### General information

**specbos 2511** supports two file formats: '.xxxx' for all usual measurements and reference files and '.tr.xxxx' for transmission/reflectance data, where xxxx represents an internal sequential hexadecimal number.

Every measurement can be saved by tapping on the **Save** button from the main window. If you are in Transmission/Reflectance mode, a '.tr.xxxx' file will be produced.

In all other cases a '.xxxx' file will be produced.

The **Save** button in the Transmission/Reflectance mode is specially marked to avoid ambiguity:



### 5.5.1.2 Settings

Go to **File Settings** in the Main Settings window  
(alternatively long tap on the **Save** icon in the main window).

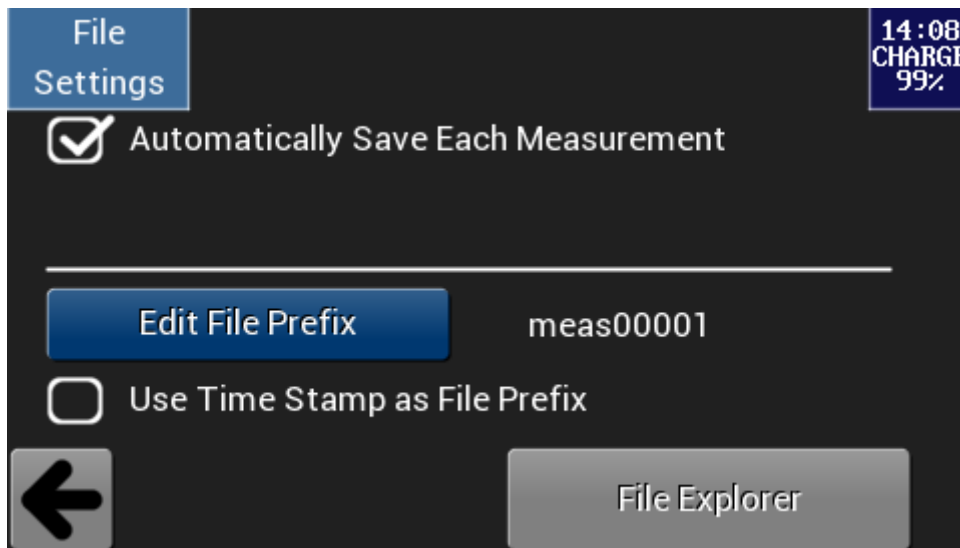
Names are given to files automatically according to a pattern.  
There are two options:

if the checkbox 'Use Time Stamp as File Prefix' is set, time stamp is used for file names;

if this checkbox is not set, some user specified (under **Edit File Prefix**) prefix with a number, is used.

'Automatic Save' feature allows you to write every measurement with a name specified by a certain pattern as described above onto the device memory automatically.

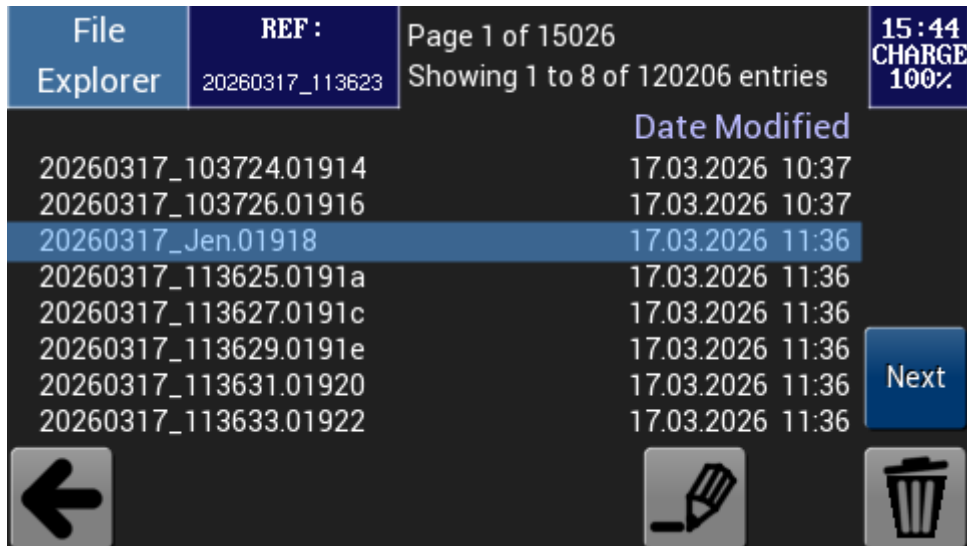
If automatic saving is on, **Save** button in the main window is marked red.



## 5.5.2. File Explorer

**specbos 2511** has a simple file explorer that allows you to rename and delete files.

To find it: go to Main Settings / File Settings (or long-tap on **Save** button in the main window) and then tap on **File Explorer**.










## 5.5.3. Reading the stored data

The data stored in the device can be read out using the supplied JETI LiVal software and saved on a PC. Please refer to the software user manual for further details.

## 5.6. Reference Measurement





The Reference item allows you to compare two measurement side by side: the current measurement against historical data from the device memory.

If you selected or measured reference in any way described below, reference data will appear (see also chapter 5.7.3 Show Reference as) and Transmission/Reflectance curve will become available.

Numeric Values	REF : 20180329_151129.csv	AVER : off	CONT : off	SYNC : off	MODE : Rad	15:12 CHARGE 91%
 Lv[cd/sqm]	1.023E+02	1.154E+02				 Tr/Rfl  Num  RGB  Meas.
 Le[W/sr*sqm]	3.504E-01	3.873E-01				
 X	0.3408	0.3313				
 y	0.3326	0.3251				

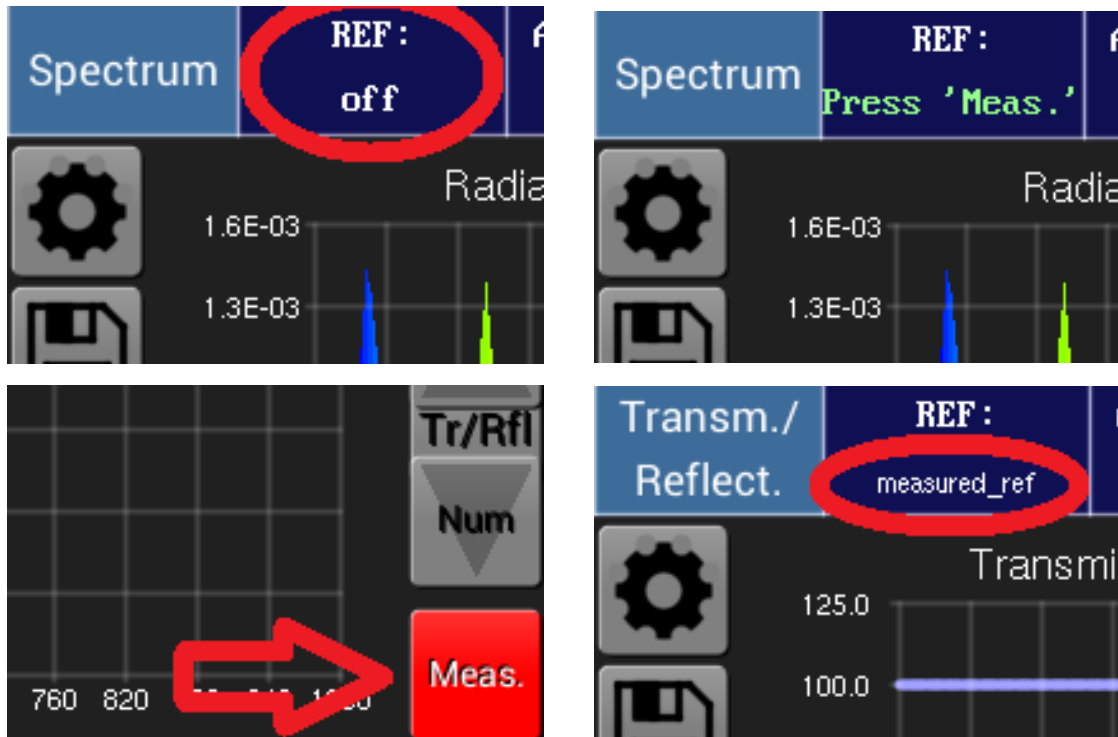
Generally, there are two options:

If you want to use some file you already have saved on the device memory as reference, long-tap on the REF-field in the top line and select a '.xxxx' file. Confirm your choice with the Select button.

File	REF :	Page 1 of 15026	15:44 CHARGE 100%
Explorer	20260317_113623	Showing 1 to 8 of 120206 entries	
		Date Modified	
20260317_103724.01914		17.03.2026 10:37	
20260317_103726.01916		17.03.2026 10:37	
20260317_Jen.01918		17.03.2026 11:36	
20260317_113625.0191a		17.03.2026 11:36	
20260317_113627.0191c		17.03.2026 11:36	
20260317_113629.0191e		17.03.2026 11:36	
20260317_113631.01920		17.03.2026 11:36	
20260317_113633.01922		17.03.2026 11:36	
			 Next
			

If you don't intend long-term usage of the references and want to renew it before every measuring session, short tap on the REF-field in the top line.

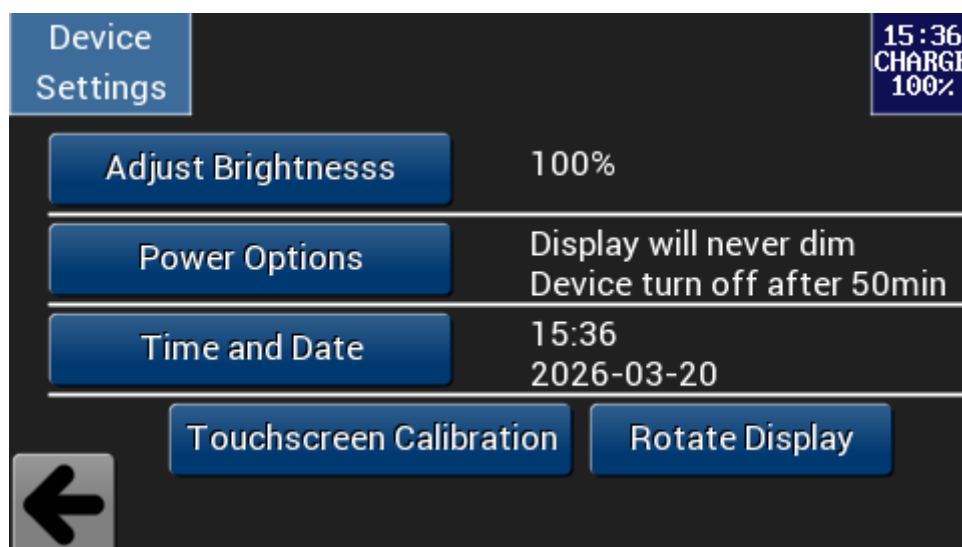
**Press Meas.** text appears. If you do a measurement now, it will be saved automatically to internal RAM and it will be set as reference.



## 5.7. Settings

For a better understanding of the possible settings some important terms and measurement parameters are explained below. The different adjustment possibilities are divided into Device Settings, Measurement Settings and View Settings.

### 5.7.1. Device Settings

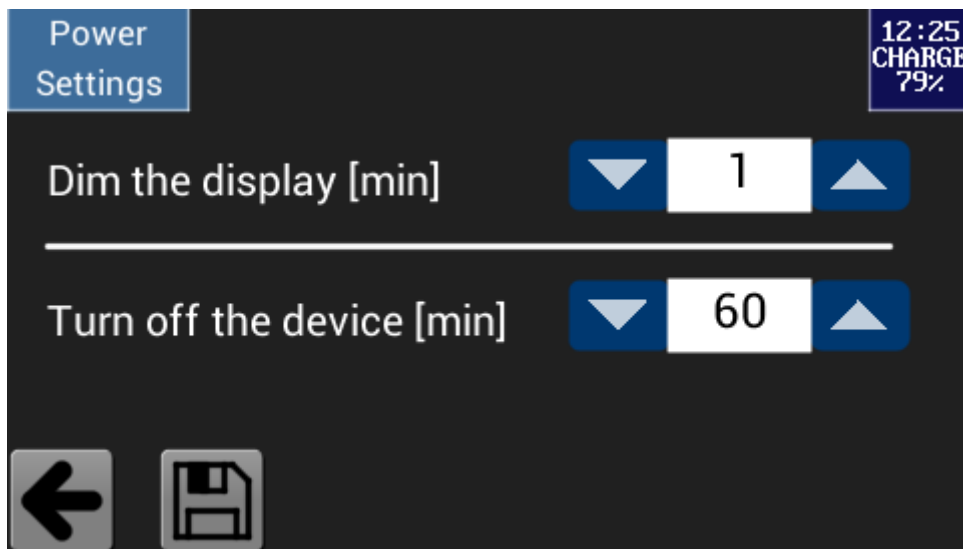


## Adjust brightness

The brightness of the display can be changed under options Adjust brightness. Just click on the bar (full control corresponds to 100 % brightness)

## Power Options

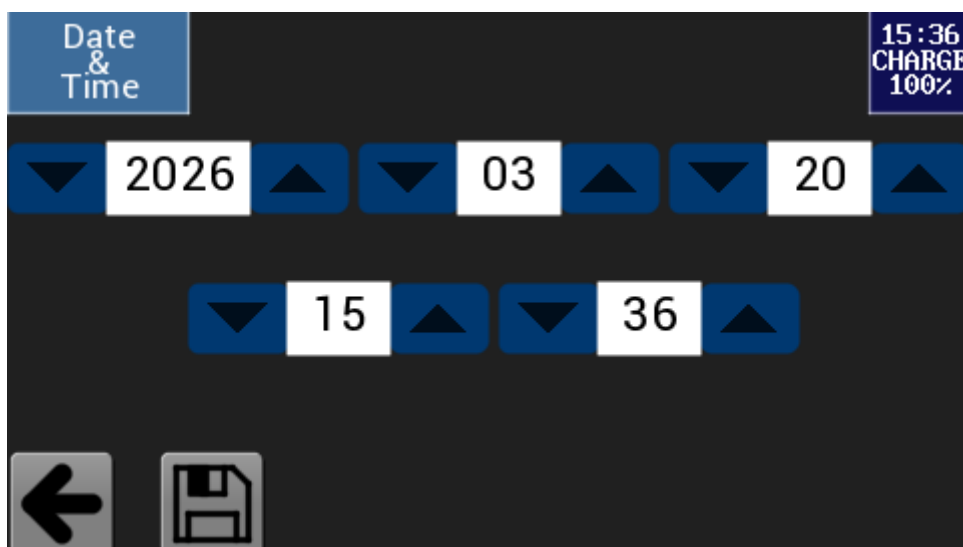
The Power Setting Options allow you to set different actions to take when the device is left idle for a certain amount of time.



Do not forget to click Save button.  
If the device turns off after a specific time, any setting will be lost!

## Time and date

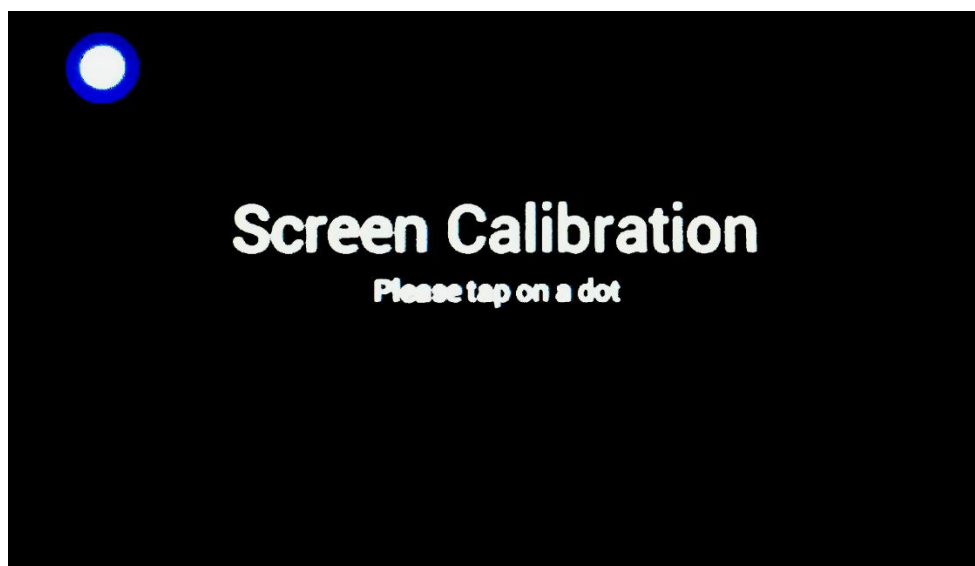
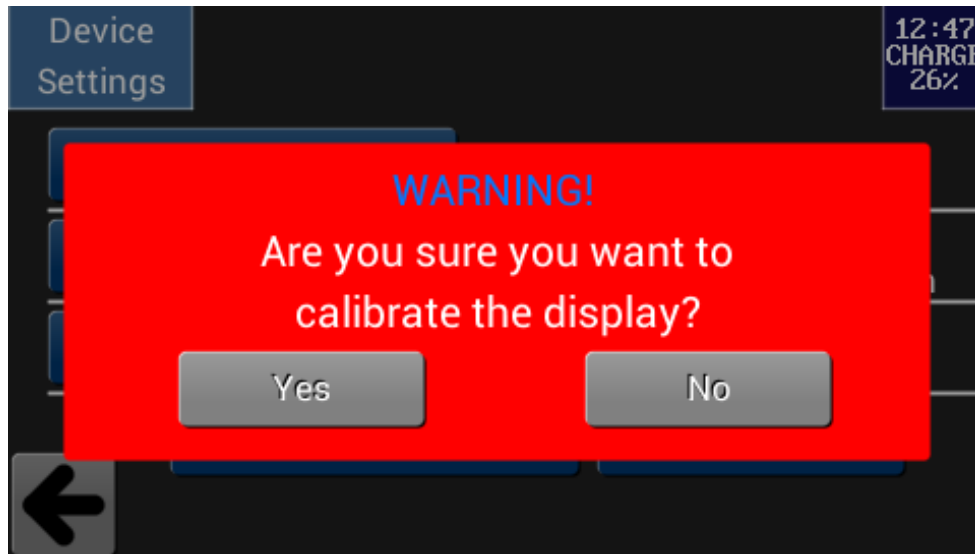
When the device is delivered, the CET is set. In this menu you can adjust the time.



Do not forget to click Save button.

## Touchscreen Calibration

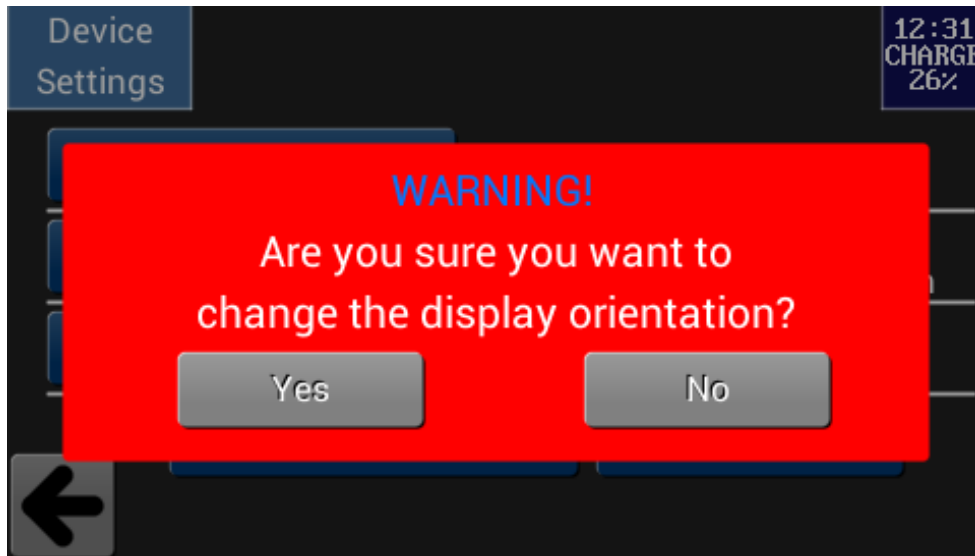
Touchscreen Calibration opens a window in which you can recalibrate the touchscreen (realign) should it react imprecisely to touch. At first, you are asked, if you really want to calibrate.



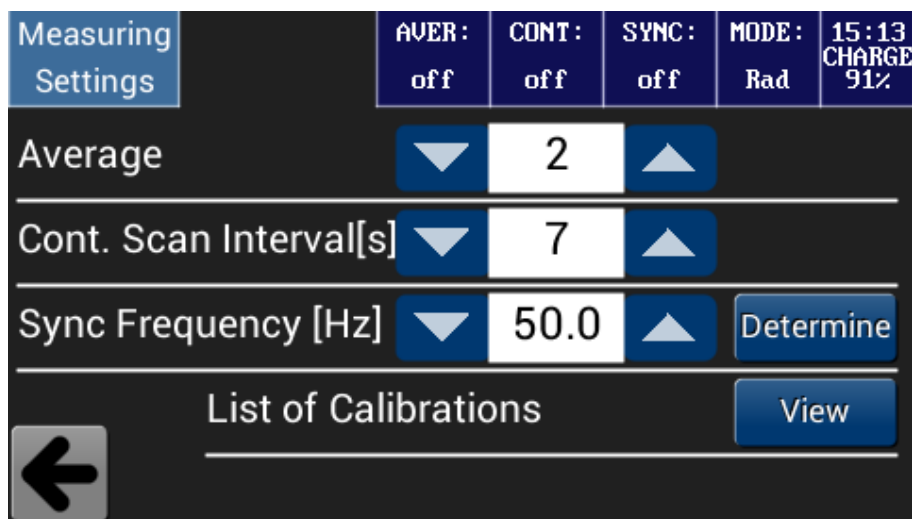
What you need to do is to touch consequently 3 points that will be displayed.

## Rotate display

Rotate display allows a 180° rotation of the display. At first, you are asked, if you really want to rotate.



### 5.7.2. Measurement Settings



#### Average

The Average setting can be used to obtain the spectrum as the mean value from up to 255 successive measurements.

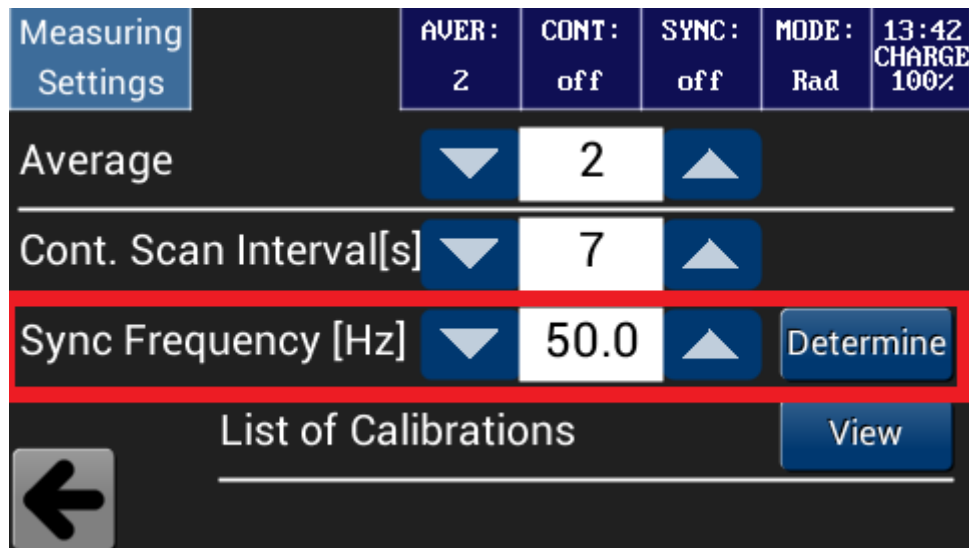
#### Continuous Scan Interval

If you want to measure continuously, you can select the interval in the range of 0 s to 65 535 s. Note that you can begin a measurement session by tapping the Measurement button in the different Mode View and stop the session by pressing the button again.

## Sync Frequency

If you want to measure modulated light sources (typical examples are TV monitors and PWM modulated LEDs), it is necessary to synchronize your device to repetition rate, because **specbos 2511** devices are very sensitive.

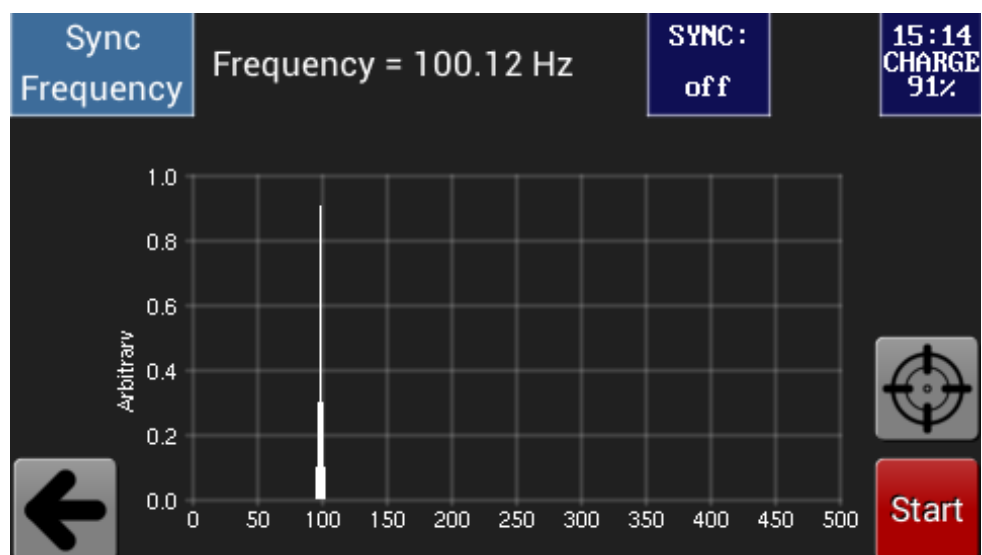
Otherwise, the results, especially of bright sources, will fluctuate significantly. If the repetition rate of the display lies in the order of magnitude of the measuring time of the instrument, the repeatability of the measurement will be poor.



To do this, go to Measuring Settings via Settings-icon of the main screen, or just long-tap on the SYNC-field in the top line.

There you have two options: it is possible to set the frequency manually between 15 Hz and approximately 5000 Hz or to let the device to determine it.

If latter use the button Determine.



If the sync measurement fails, it can have the following reasons:

- The instrument is positioned too far from the light source.
- The influence of the surrounding light or other light sources is too significant.
- The source is not modulated (note that some monitors do not fluctuate in intensity if their brightness control is set to maximum).

## Change Calibration

Additional accessories are recognized by the device automatically via I2C interface.

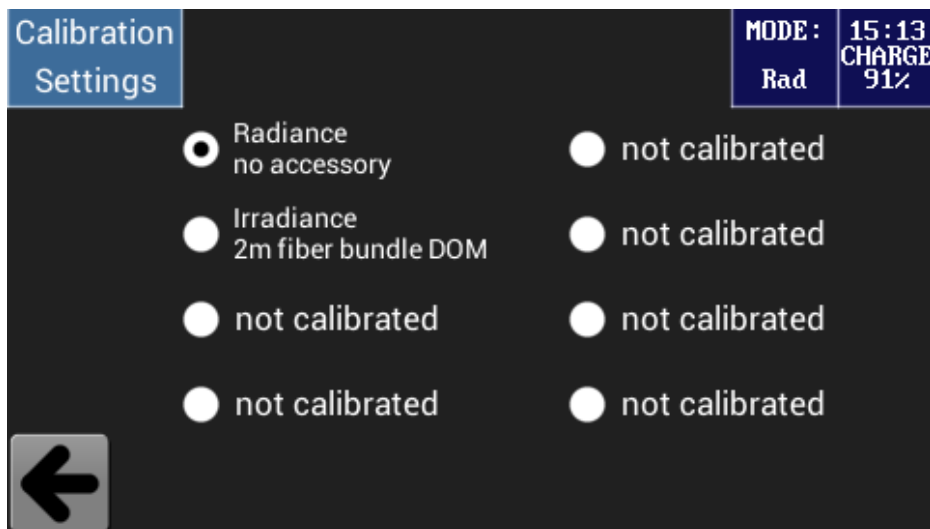
The software will use automatically the appropriate calibration file if the attached accessory is compatible with the device.

By default, the first position is reserved for the Luminance mode measurement without an accessory.

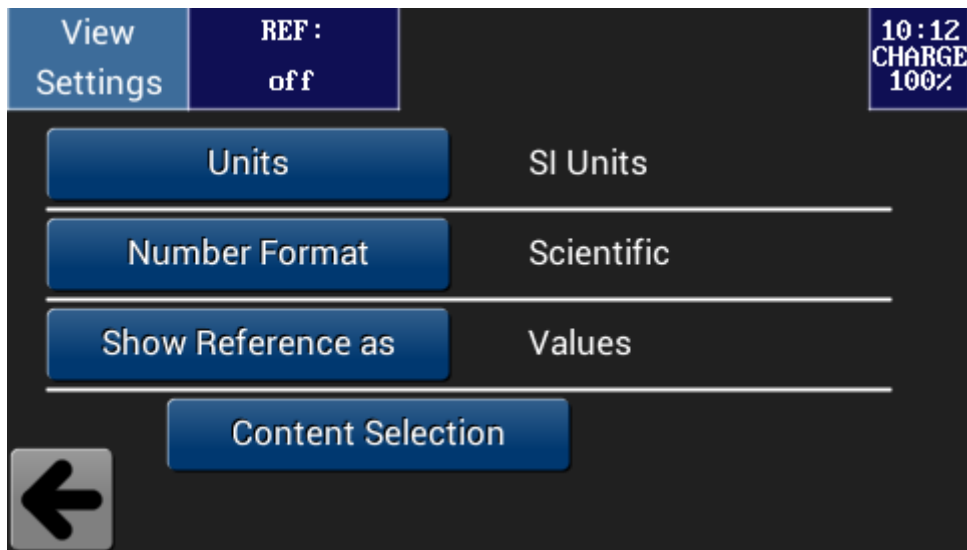
**Remark:** Always make sure that the measuring mode shown in the MODE-field corresponds with the attached accessory. Otherwise, the device will use a wrong calibration file and the measuring results may be confusing.

**specbos 2511** is supplied in calibrated status. The calibration data are saved in the device. A separate file exists for each measuring mode and each accessory.

The list of all calibrations saved in the device is available through the View button right from [List of Calibrations](#) under Measuring Settings. Or just long-tap on the MODE-field in the main screen.

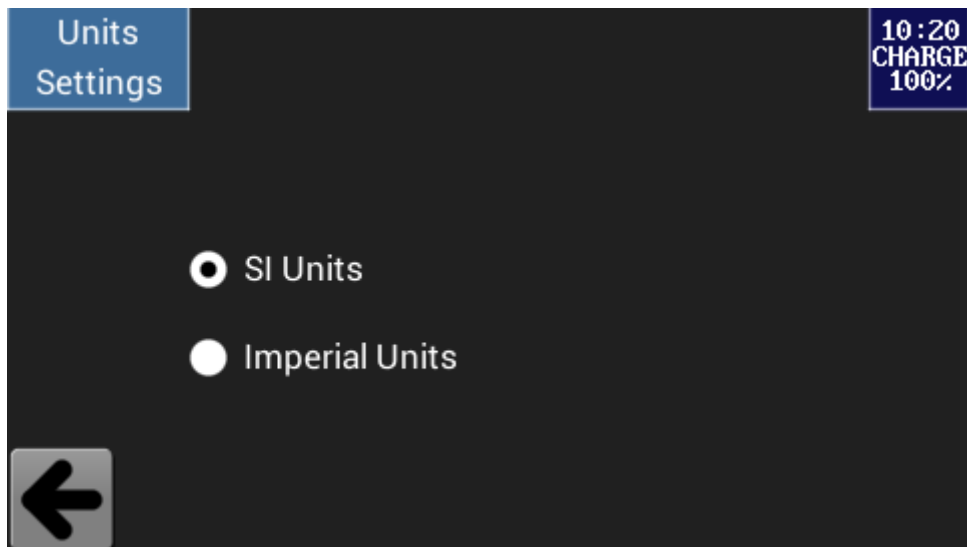


### 5.7.3. View Settings



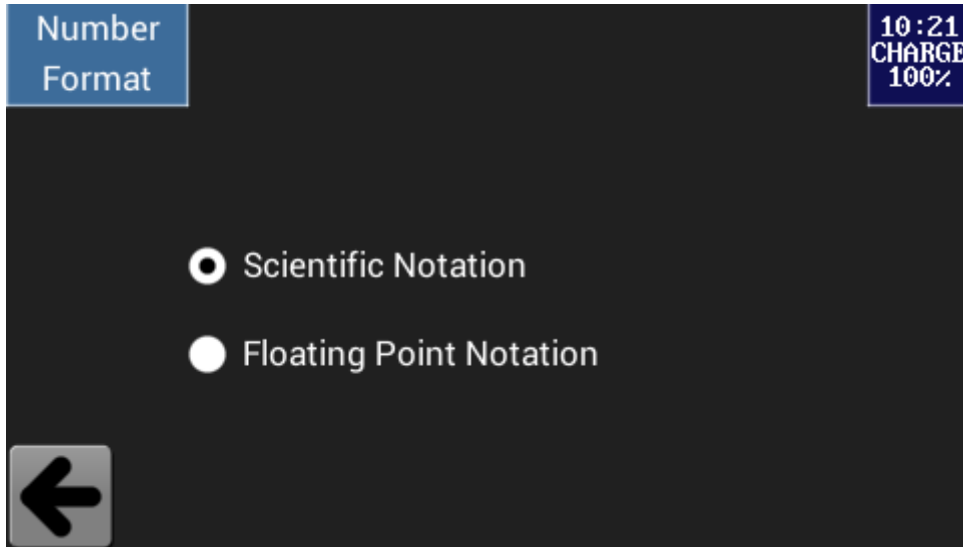
#### Units

Allows the user switch between SI and imperial units. In case of imperial units, Luminance units are footlamberts (fL) and Illuminance units are footcandle (fc).



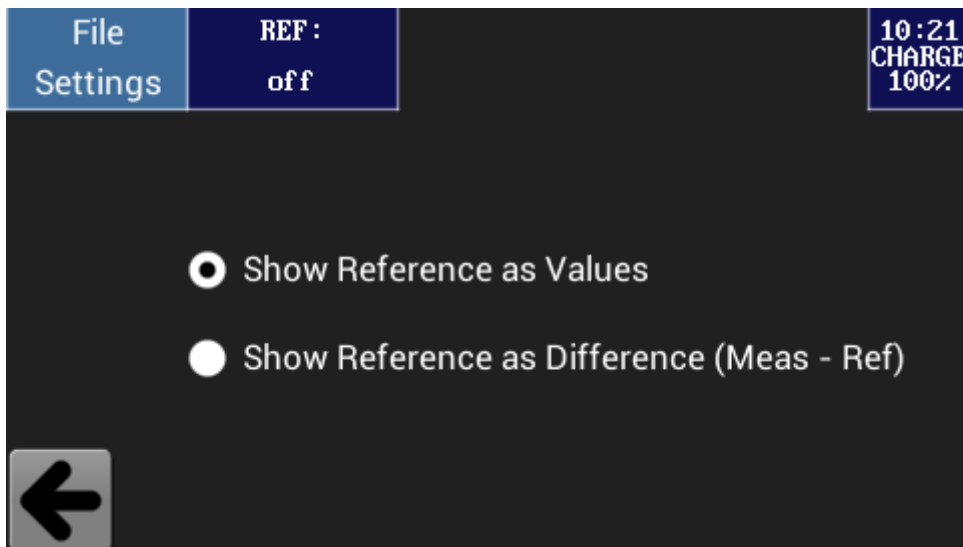
## Number Format

Allows the user to switch between scientific and floating-point notation.



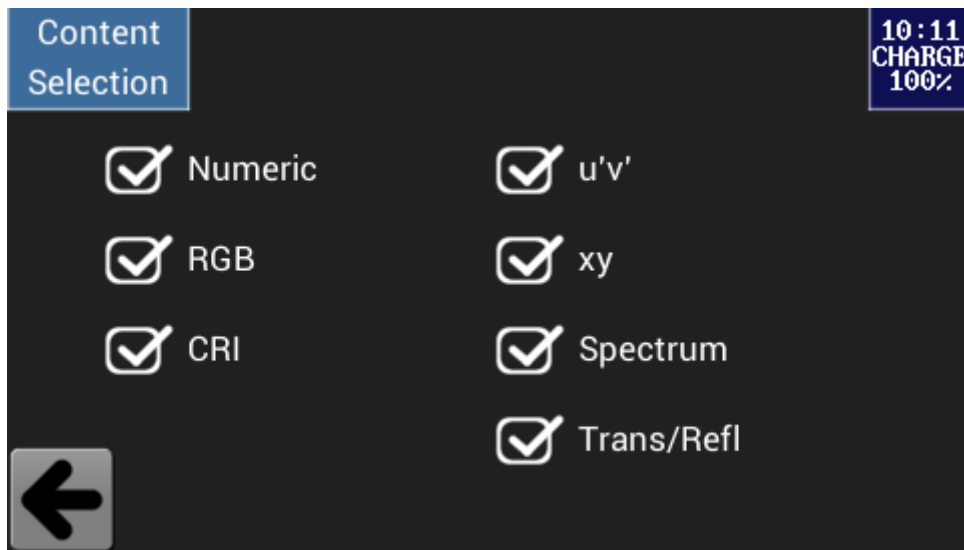
## Show Reference as

Allows the user to choose the appearance of reference values: as absolute values or as differences between measured values and reference values.



## Content Selection

If you want to make a selection that is different to the default, select/deselect a mode view from the list. Now only the selected modes will be displayed.



## 5.8. Trigger function

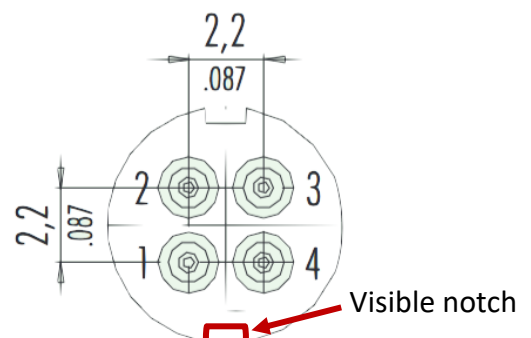
If you ordered the Trigger Add-On, your **specbos 2511** will have a Trigger port and a suitable male connector will be included in the device's delivery package.

### 5.8.1. Connectors

It is possible to trigger the measurement externally or to initiate a flash of a pulse light source. The trigger female connector at the rear side of the device has the following pin out:

Pin out (view to female connector of the device):

- |   |                              |
|---|------------------------------|
| 1 | Trigger-OUT 3.3 V TTL signal |
| 2 | Ground                       |
| 3 | NC                           |
| 4 | Trigger-IN (3...5V tolerant) |



### 5.8.2. External Control of the Measurement

A measurement can be initiated externally by a shortcut between the pins 2 and 4. This can be done, e.g., by a foot push-button. Furthermore, it is possible to use a TTL signal to start a measurement. This is done with the falling edge of the signal.

Both triggering versions act similarly as pressing the green **Measurement** button of the JETI LiVal software.

See the firmware description to change the settings.

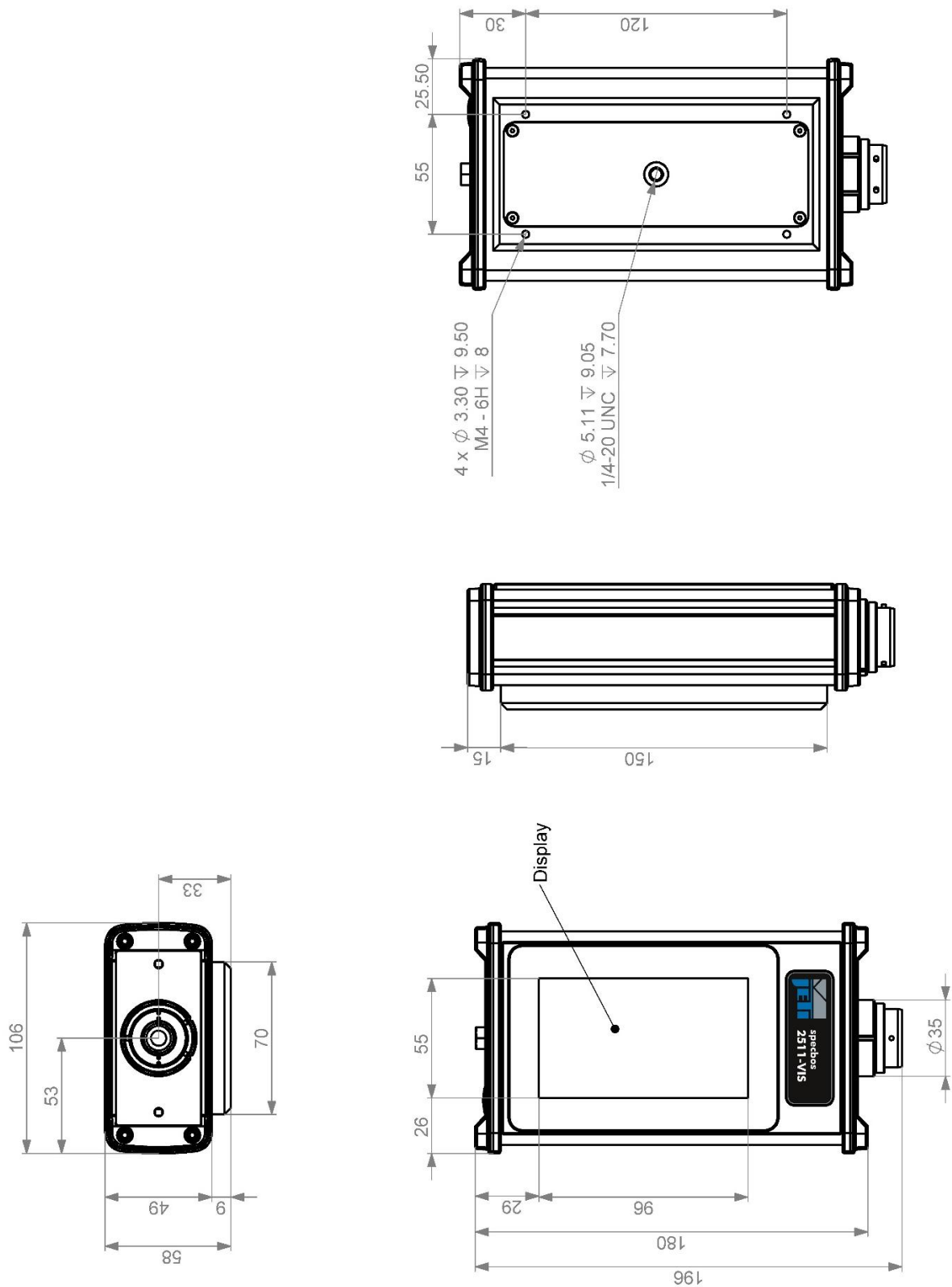
## 6. Technical data

### 6.1. Basic characteristics

Interfaces	USB-C 2.0 / Bluetooth
Software	JETI LiVal
Power supply	USB Hub powered/ Battery/ 5 ... 32 V
Weight	1000 g
Dimensions	186 mm x 105 mm x 50 mm
Wavelength range	380 ... 780 nm UV version: 200 ... 1100 nm NIR version: 380 ... 1100 nm
Optical resolution (FWHM)	4 nm HiRes: 2 nm @ 380 ... 780 nm and 3 nm @ 200 ... 380 nm and 780 ... 1100 nm
Wavelength resolution	1 nm
Digital electronic resolution	16 bit ADC
Viewing angle Radiance mode	1.8 °
Measuring distance/ diameter (measured from front end of the device)	20 cm – Ø 7 mm; 100 cm – Ø 33 mm
Measuring time on grayscale pattern of a display	~ 0.4 s @ 100 cd/m <sup>2</sup> ~ 4 s @ 5 cd/m <sup>2</sup>
Measuring values with <b>optional</b> diffusor	Spectral Radiance, Luminance, total Radiance, x,y, u',v', CCT, CRI, color purity, RGB, PAR, TLCl, circadian metrics and others Spectral Irradiance/ total Irradiance/ Illuminance
Measuring range luminance (Illum. A/ typical warm white LED spectrum)	0.2 ... 150 000 cd/m <sup>2</sup> 0.2 ... 100 000 cd/m <sup>2</sup> ( <i>higher values with optional filter</i> )
Luminance accuracy	± 3.5 % (Illuminant A @ 100 cd/m <sup>2</sup> , k=2)
Luminance reproducibility	± 1 %
Chromaticity accuracy	± 0.002 x, y (Illuminant A, k=2)
Color reproducibility	± 0.0005 x, y (Illuminant A)
Measuring range illuminance	1 ... 800 000 lx
Illuminance accuracy	± 2.4 % (Illuminant A @ 2000 lx, k=2)
CCT reproducibility	± 20 K (Illuminant A)
Max. wavelength error	± 0.3 nm (HgAr line source)
Polarization error f <sub>a</sub>	< 1 %
Dispersive element	Imaging grating (flat field)
Light receiving element	Back thinned CMOS/ CCD array 2048 pixels
Operating conditions	Temperature 10 ... 40 °C Humidity < 85 % relative humidity at 35 °C
Accessories (included)	PC software JETI LiVal for Windows 10/ 11, operating instructions and software development kit on USB flash drive, USB cable, battery charger, tripod, carrying case, protection cap, calibration certificate
Accessories (optional)	Different diffusors and filters, add-on optics
Calibration	NIST traceable, recommended recalibration interval: 1 year

## 6.2. Device dimensions

The following drawing shows the position of the thread on the bottom side of the device, the position of the measuring port on the front and the general dimensions of the instrument.



## 7. Declarations

### 7.1. CE – Declaration of conformity

We:

JETI Technische Instrumente GmbH Göschwitzer Straße 48 D-07745 Jena
---

declare that the product series

# Spectroradiometer

## specbos 2511

to which this declaration relates is in conformity with the requirements of following documents:

- EU Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- EU Low Voltage Devices (LVD) Directive 2014/35/EU

EU Harmonised standards:

- EN 61326-1 (2018-09)
- EN 55011 (2017-03) class B
- EN 61000-4-2 (2009-12); EN 61000-4-3 (2011-04)
- EN 61000-4-4 (2013-04); EN 61000-4-6 (2014-08)
- EN 61010-1 (2020-03)
- EN 50581 (2013-02)

The **CE** sign confirms the conformity of the product with the standards and directives mentioned above.

  
Technische Instrumente GmbH  
Göschwitzer Straße 48, D-07745 Jena  
Tel.: +49 (0)3641 232 92 00  
Fax: +49 (0)3641 232 92 01



Jena, April 1, 2026

## 7.2. Declaration of UKCA conformity

We:

JETI Technische Instrumente GmbH  
Göschwitzer Straße 48  
D-07745 Jena


declare that the product series

# Spectroradiometer specbos 2511

placed on the market by the Company and its subsidiaries are compliant with Electromagnetic Compatibility Regulations 2016 (S:I: 2016/1091) and following documents.

EU Harmonised standards:

- EN 61326-1 (2018-09)
- EN 55011 (2017-03)
- EN 61000-4-2 (2009-12); EN 61000-4-3 (2011-04)
- EN 61000-4-4 (2013-04); EN 61000-4-6 (2014-08)
- EN 61010-1 (2020-03)

The  sign confirms the conformity of the product with the standards and directives mentioned above.

  
Technische Instrumente GmbH  
Göschwitzer Straße 48, D-07745 Jena  
Tel.: +49 (0)3641 232 92 00  
Fax: +49 (0)3641 232 92 01



Jena, April 1, 2026

### **7.3. Certificate of warranty**

Certificate of warranty for

Model: Spectroradiometer  
Type: specbos 2511

JETI Technische Instrumente GmbH (referred to as JETI) hereby warrants this equipment as follows:

If any part of this unit (except as described below) fails due to poor workmanship or material (determined by JETI) within TWO (2) years from date of delivery, that part will be exchanged at no charge.

This warranty is valid only when the unit is installed and adjusted according to factory specifications and serviced by competent authorized personnel.

JETI does not assume responsibility for any of the following, all of which are excluded from the coverage of this warranty:

- Damage due to ordinary wear and tear, abusive use, or lack of proper maintenance
- Damage due to harsh mechanical shock, e.g. falling to the floor
- Loss or damage due to adverse environmental conditions or acts of God
- Loss of wages or income due to repair, replacement, malfunction or damage

Warranty becomes void if serial number is removed or defaced, or the instrument was opened by the customer.

If a defect appears which the customer feel is covered by this warranty, a written notice describing the defect must be sent to JETI's office at the current address of record.

Upon receipt of customers written report of a defect, if the defective items are covered by this warranty, JETI will repair or replace it at no charge to the customer, within 30 days after receipt of the returned unit (provided there are no labor problems or materials shortages to cause delays). The choice between repair and replacement shall be determined by JETI based on actual conditions or circumstances. JETI reserves the right to substitute new and improved equipment or parts at any time. The obligation to replace defective parts does not require replacement of the complete unit.

**NO OTHER WARRANTY EXPRESSED OR IMPLIED IS APPLICABLE TO THIS UNIT.**

This warranty shall be in effect for a period of 24 months, beginning one week after the date of delivery.

## 7.4. License Agreement

License Agreement for JETI Technische Instrumente GmbH Software Products

IMPORTANT – READ CAREFULLY BEFORE USING THE JETI SOFTWARE

JETI hereby grants to you a non-exclusive license to use one copy of the delivered JETI software program (the 'software') on a single computer according to the following items:

The software is in 'use' on the computer when it is loaded into temporary memory (i.e. RAM) or installed into permanent memory (e.g. hard disk, CD-ROM, or other storage device) of the computer. However, installation on a network server for the sole purpose of distribution to one or more other computer(s) is not constitute 'use' for which a separate license is required, provided you have separate license for each computer to which the software is distributed.

It is only allowed to use the software in connection with the JETI product (instrument, spectrometer or OEM electronics), which was delivered with this software. For additional JETI products you need an extra software license.

The software is owned by JETI or its suppliers and is protected by German copyright laws and international treaty provisions and all other applicable national laws. Therefore, you must treat the software like any other copyrighted material (e.g. a book or musical recording) except that if the software is not copy protected you may either

- make one copy of the software solely for backup or archival purposes, or
- transfer the software to a single hard disk provided you keep the original solely for backup or archival purposes. You may not copy the user documentation provided with the software and the connected JETI product.

You may not:

- permit other individuals to use the software except under the terms listed above;
- modify, translate, reverse engineer, decompile, disassemble (except to the extent that this restriction is expressly prohibited by law) or create derivative works based upon the software or documentation;
- copy the software or documentation (except for back-up or archival purposes);
- rent, lease, transfer, or otherwise transfer rights to the software or documentation;
- remove any proprietary notices or labels on the software or documentation.

Any usage in a forbidden way terminates your Software license immediately.

- You agree that you are authorized only to use the software and documentation in a manner that complies with all applicable laws in the jurisdictions in which you use the software and documentation, including, but not limited to, applicable restrictions concerning copyright and other intellectual property rights.
- You may not use the software in an attempt to, or in conjunction with, any device, program or service designed to circumvent technological measures employed to control access to, or the rights in, a content file or other work protected by the copyright laws of any jurisdiction.
- If you receive the first copy of the software electronically and a second copy on physical media (e.g., CD, diskette, etc.), the second copy may be used for archival purposes only and may not be transferred to or used by any other person. This license does not grant you any right to any enhancement or update.

The software may include certain external software components ('Add-Ons'), including the Lab Windows user interface and drivers. You may only call to or otherwise use such Add-Ons through the use of the JETI applications. Any direct use of Add-Ons through a non-JETI proprietary application, including a custom or user-written application is prohibited by this Agreement. If you have purchased JETI software in connection with a JETI product, you have the right of purchasing a software update, if it is available, for a priority price.

Title, ownership, rights, and intellectual property of the software and documentation remain in JETI and/or its suppliers. Title, ownership rights and intellectual property rights in and to the content accessed through the software including the content of software media demonstration files are to be retained by the applicable content owner and may be protected by applicable copyright or other law. This license gives you no rights to such content.

For the JETI operating environment, the following terms apply:

JETI warrants that for a period of ninety (90) days from the date of acquisition the software, if operated as directed, will substantially achieve the functionality described in the documentation. JETI does not warrant however that your use of the software will be uninterrupted or that the operation of the software will be error-free or secure. JETI also warrants that the media containing the software, if provided by JETI, is free from defects in material and workmanship and will so remain for ninety (90) days from the date you acquire the software.

To the maximum extent permitted by applicable law JETI and its suppliers disclaim all other warranties either express or implied including but not limited to implied warranties of merchantability and fitness for a particular purpose with regard to the software, the accompanying written materials and any accompanying hardware.

If the media is subjected to accident abuse or improper use during the warranty period; or if you violate the terms of this License Agreement, this warranty is immediately terminated. This warranty is void if the software is used on or in conjunction with hardware or software other than the unmodified version of hardware and software with which the software was designed to be used as described in the documentation.

This limited warranty gives you specific legal rights.

Your remedies:

JETI's sole liability for a breach of this warranty is to be in JETI's sole discretion:

- to replace your defective media; or
- to advise you how to achieve substantially the same functionality with the software as described in the documentation through a procedure different from that set forth in the documentation; or
- if the above remedies are impracticable, to refund the license fee, if any, you paid for the software. Repaired, corrected or replaced software and documentation covered by this limited warranty for the period remaining under the warranty that covered the original software or if longer for thirty (30) days after the date JETI either shipped to you the repaired or replaced software or advised you as to how to operate the software so as to achieve the functionality described in the documentation, whichever is applicable. Only if you inform JETI of the problem with the software during the applicable warranty period and provide evidence of the date you acquired the software will JETI be obligated to honor this warranty.

Under no circumstances and under no legal theory whether in tort contract or otherwise JETI, its suppliers or resellers are liable to you or any other person for any indirect, special, incidental or consequential damages of any character including without limitation damages for loss of goodwill, work stoppage, computer failure or malfunction or any and all other commercial damages or losses even if JETI have been informed of the possibility of such damages or for any claim by any other party. Further, in no event JETI's liability under any provision of this agreement exceeds the license fee paid to JETI for the software and documentation. This software is intended for use only with properly licensed media, content, and content creation tools. It is your responsibility to ascertain whether any copyright, patent or other licenses are necessary and to obtain any such licenses to serve and/or create, compress or download such media and content. You agree to record, play back and download only those materials for which you have the necessary patent, copyright and other permissions, licenses, and/or clearances. You agree to hold harmless, indemnify and defend JETI, its officers, directors and employees, from and against any losses, damages, fines and expenses (including attorneys' fees and costs) arising out of or relating to any claims that you have

- viewed, downloaded, encoded, compressed, copied or transmitted any materials (other than materials provided by JETI) in connection with the software in violation of another party's rights or in violation of any law, or
- violated any terms of this License Agreement.

This License Agreement will automatically terminate if you fail to comply with any term hereof. No notice must be required from JETI to effect such termination.

Technical support for the software, as made available by JETI, is given directly from the JETI office in Jena, Germany. This License Agreement constitutes the complete and exclusive agreement between JETI, its resellers and the end user, notwithstanding any variance with any purchase order or other written instrument submitted by you, whether formally rejected by JETI or not. The acceptance of any purchase order you place is expressly made conditional on your consent to the terms set forth herein. The terms and conditions contained in this License Agreement may not be modified except in a writing duly signed by you and an authorized representative of JETI. If any provision of this License Agreement is held to be unenforceable for any reason, such provision is to be reformed only to the extent necessary to make it enforceable, and such decision does not affect the enforceability of such provision under other circumstances, or of the remaining provisions hereof under all circumstances. This License Agreement is governed by the laws of Germany, without regard to conflicts of law provisions, and you hereby consent to the exclusive jurisdiction of the provincial and federal courts sitting in Germany. Any and all unresolved disputes relating in any way to, or arising out of, the software, your usage of the software or this License Agreement are to be submitted to arbitration in Germany; except that, to the extent that you have breached or have indicated your intention to breach this License Agreement in any manner which violates or may violate JETI's intellectual property rights, or may cause continuing or irreparable harm to JETI (including, but not limited to, any breach that may impact JETI's intellectual property rights, or a breach by reverse engineering), JETI may seek injunctive relief, or any other appropriate relief, in any court of competent jurisdiction.

Copyright © 2026 JETI Technische Instrumente GmbH and/or its suppliers.

JETI Technische Instrumente GmbH, Göschwitzer Straße 48, 07745 Jena, Germany. All rights reserved.

## 8. Service

Please contact in case of any question or technical problem:

JETI Technische Instrumente GmbH  
Göschwitzer Straße 48  
D-07745 Jena  
GERMANY  
Tel.: +49 3641 23292 00  
E-mail: [support@jeti.com](mailto:support@jeti.com)  
Internet: [www.jeti.com](http://www.jeti.com)

Copyright © 2026 JETI Technische Instrumente GmbH. All rights reserved.

Software and operating instruction are delivered with respect to the License agreement and can be used only in accordance with this License agreement. The hard and software as well as the operating instruction are subject to change without notice. JETI Technische Instrumente GmbH assumes no liability or responsibility for inaccuracies and errors in the operating instruction. It is not allowed to copy this documentation or parts of it without previous written permission by JETI Technische Instrumente GmbH

April 1, 2026