

## Technical Specification Colorimeter PCE-CSM 2

### Colorimeter for quality control / digital software included / Li-ion battery / black-and-white contrast calibratable / measuring modes for various parameters / colour analysis of black, white, red, green, yellow and blue

The Colorimeter proves to be a multitasking device. It is designed to measure the colour spectrum of various objects. Light consists of a broad spectrum of colours which are not always purely white, black or blue. A light-source illuminates an object, which then absorbs part of that light and reflects another one. That reflected light can be then detected by a sensor in order to determine the reflected wavelengths and thus calculate its colour. Colorimeters are often applied in areas of quality control in industrial sectors. Colorimeter of the PCE-CSM series are applied especially in industries where the characteristics of colours play a big role. Whether it is dental technology, painting industries or for the production of plastic bags, the colorimeter PCE-CSM 2 and PCE-CSM 4 are ideal products for quality management and thus assure highest reliability, whenever it is important to assure a certain standard in optic quality. The colorimeter supports an ergonomic design and features a user-friendly menu navigation. The difference between the colorimeter PCE-CSM 2 and PCE-CSM 4 is the size of the measuring surface. The colorimeter PCE-CSM 2 has a size of 8 mm, while the colorimeter PCE-CSM 4 has a larger measuring aperture of 20 mm. Due to this alternation the devices are ideal for individualised applications in various divisions. The supported colour spaces of the colorimeter PCE-CSM 2 and PCE-CSM 4 are CIEL\*a\*b\*C\*h, CIEL a\*b\* and CIEXYZ. Thus the colorimeter is designed for application in professional industries. Another advantage of the colorimeter of the PCE-CSM series is that it supports a vertical justification. This means that the whole device does not need to be placed on the object to analyse, but only the part with the sensor in it. The industrial perspective of it is that this method allows the measuring of damp objects, textiles and even food. The colorimeter PCE-CSM 2 and PCE-CSM 4 are therefore ideally applied for measurements of e.g. meat, bananas or tomatoes. Due to the software "CQCS3" that is included in the delivery, the measured data can be read out on a computer or laptop for a digital overview.

- Rechargeable Lithium-Ion battery
- Autom. calibration of black-and-white contrast
- Continuous performance
- Designed for food industry
- Measures various colours
- Application on different surfaces
- Simplified user-interface
- Software included in delivery

#### Technical Specifications of the Colorimeter

Measuring apertures	Ø8 mm (PCE-CSM 2), Ø20 mm (PCE-CSM 4)
Sensor	Silicium-photodiode
Colour spaces	CIEL*a*b*C*h CIEL a* b* CIEXYZ
Formula for indifference in colour	$\Delta E^*ab$ $\Delta L^*ab$ $\Delta E^*C^*H$
Light source	D65
Type of light source	LED
Data memory	100 standards, 20000 samples
Aberrance in-between the utilities	$\leq 0,50\Delta E^*ab$
Repeatability	30 measurements on average, with standard- white plate
Standard deviation	within $\Delta E^*ab$ 0.08
Weight	500 g
Dimensions	205 x 67 x 80 mm

Power Supply

rechargeable lithium-ion-batteries

3.7 V at 3200 mAh

Charging time

8 hours

Battery operation time

approx. 5000 measurements

Lifetime of lamp

5 years, more than 1.6 million measurements

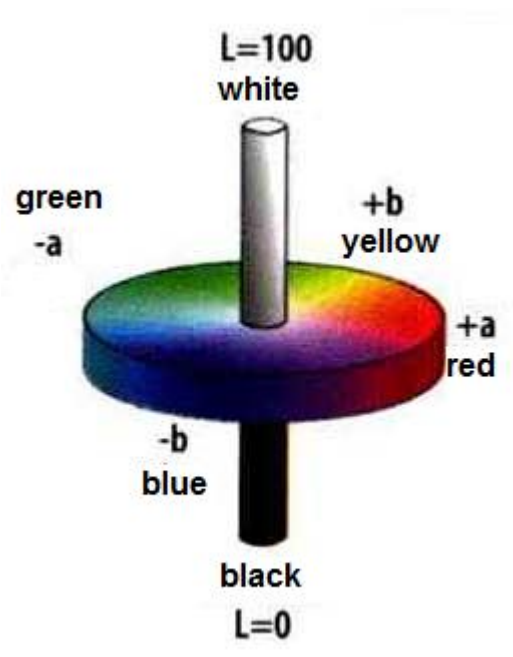
Temperature range

0 ... +40 °C

Relative humidity

0 ... 85 %, non-condensing

### The L\*a\*b color space



Here you can see the colour space L\*a\*b. This colour space covers all colors that are visible with the naked eye. L=100 stands for white and L=0 for black. "a+" and "a-" or "b+" and "b-" stands for the colour contrasts red, green, yellow and blue.

#### Delivery Content:

- 1 x Colorimeter PCE-CSM 2
- 1 x USB cable
- 1 x aluminium transportation case
- 1 x battery
- 1 x adapter
- 1 x wrist band
- 1 x standard calibration plate white
- 1 x computer software
- 1 x instruction manual