ColorLite ColorTube

Benchtop-Spectrophotometer for
Reflection- and Transmission Measurement

- Optional with infrared thermometer for measuring the sample temperature

- LED light source - for best available long term stability

- External sample measurement without dirtying the inner of the device

- Stepless adjustment of the measuring area from 3 mm to 30 mm

- Optional probe-video- / desktop-picture

- Reproducibility < ΔE 0.01

With the new developed, high-quality ColorTube, solid and liquid samples can be measured in reflection and transmission mode. For the measurement of transparent samples, the spectrophotometer is optionally equipped with a third measuring channel. For this purpose, an additional measuring attachment is fitted outside the device. This flexibility allows the device to measure a wide range of samples from opaque to translucent to transparent.

The ColorTube is characterized by a modern and functional design. Only high-quality components are used for the ColorTube, such as a robust aluminum housing, hardened glass cover and stainless steel components.

The heart of the two-channel system is an integrating sphere with a diameter of 140 mm and two spectrometers for the sample and reference channels. The measuring range is between 400 nm and 700 nm with a spectral scanning of 3.5 nm. The integrated gloss trap allows measurements with and without gloss exclusion. High-performance LED light sources ensure long-term stable measurement results. The UV component can although be set variably. Depending on the type of sample, the measuring surface can be infinitely adjusted from 3 mm to 30 mm.

The device can be connected via USB cable with each Windows PC. Together with the in scope of delivery, extensive quality assurance backup software offers the ColorTube the perfect complete solution for your application.

The measurement of pastes, powders and granules can be done easily with an optionally available glass cuvette. For this, the ColorTube can be brought into a vertical position.
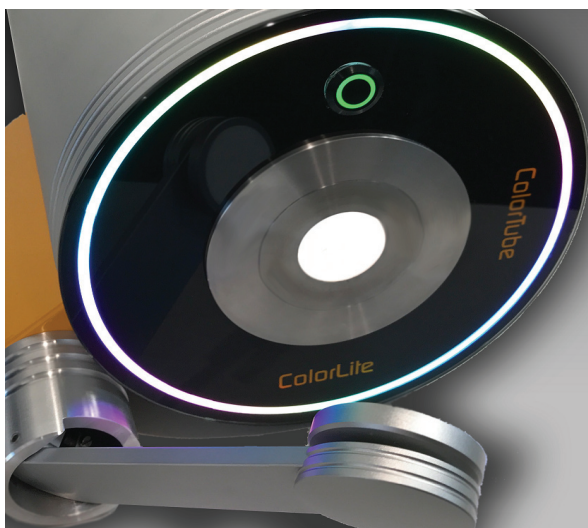
LED-light source of the future

The light emitting diode combination can be controlled with different current intensities in order to optimize the UV components via software. Together with our software algorithms, a very high level of inter-instrument agreement can be achieved - even to existing spectrophotometers.

Temperature in view

The colour of the sample material is highly temperature dependent. Neglecting this fact leads to false measurements. The unique feature of the ColorTube is the optionally available integrated infrared thermometer, which closes a big gap in the measuring methodology of colours. Colour deviations due to the thermo chromatic effect can be accurately examined and evaluated.
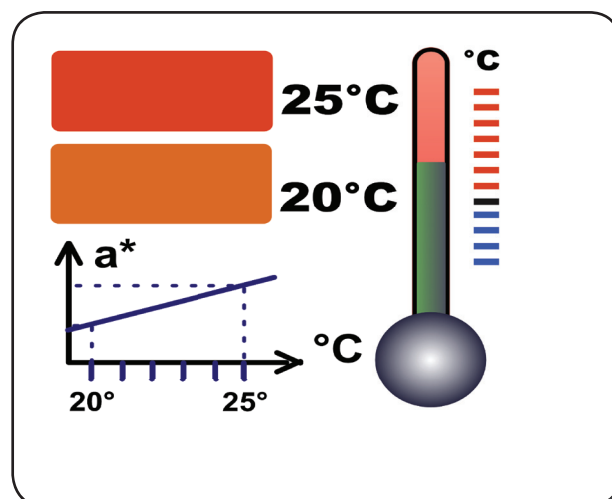
Extension possibility for transmission measurement

For the measurement of transparent samples, the spectrophotometer is optionally equipped with a third measuring channel. An additional measuring attachment is fitted outside the device.
The measurement is not carried out in the device, but outside the measurement opening. Thanks to this solution, the device can not be contaminated internally by liquid samples. A complex and time-consuming cleaning is prevented.

## A perfect design for a perfect Spectrophotometer

Perfection for the 21st century.
The extraordinary outside reflects the extra ordinary inside of our products.
We work with design experts which give our products a wow effect!
To achieve this we use only the highest quality materials.

Flexibility through variable measurement apertures

The ColorTube has changeable apertures, so that different measuring openings can be selected with one device. An integrated optic enables the enlargement or reduction of the measuring area.

The following measuring openings are available:

- 6 mm
- 15 mm
- 30 mm
- 40 mm
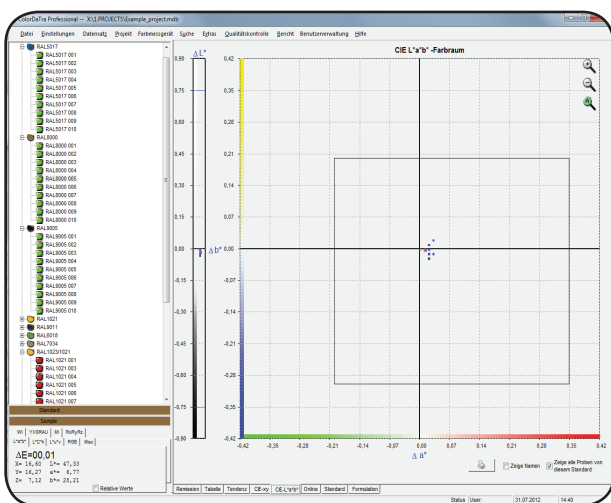
Including database software ColorDaTra

The powerful and easy-to-use software supports quality assurance in all aspects. The measurement data are not only recorded quickly and precisely with the ColorTube, they can also be managed by the software, evaluated and analyzed in different color space representations.

All relevant information can then be quickly and easily summarized using the professional reporting feature.

Benchtop-Spectrophotometer ColorTube

Measurement Geometry	Two channel d/8° diffuse illumination; 8° viewing SCI (specular component included) SCE (specular component excluded) switchable
Integrating sphere size	140 mm, barium sulphat coating, stainless steel screen
Measuring area	3 mm to 30 mm continuously variable adjustable
Displayed spectral range	400 nm to 700 nm
Spectral resolution	Holographic grating spectrometer FWHM** @ 500 nm < 10 nm Scanning in 3.5 nm interval 115 steps per scan
Inter-instrument agreement	< 0.2 DE - we can offer to adapt our devices to existing systems
Measurement range	0 to 175%
Illuminates	D65, D55, D50, A, C, F11 - Individual illuminants can be implemented - for example LED
Standard Observer	2° (1931) and 10° (1964)
Repeatability	$\Delta E \leq 0.01$ CIELab
Colour Scales	XYZ, Yxy, ΔE CIE L*a*b*, L*u*v*, L*C*h, Hunter Lab dE, dE94, dE2000, CMC1:1, CMC2:1, dECMCdyn CIE-L*a*b* diagram incl. Tolerance limits
Quality control tolerance limits and colour differences	ΔE CIELab , ΔL*a*b* , ΔL*uv , ΔL*C*h , Min/Max, PASS/FAIL, $\Delta ECMC$ (1:1 und 1:2)
Other Values	Contrast: LRV - BS 8493:2008, various white-index values, various yellowness-index values, grey-index
International norms	ASTM D 2244, D 6290, E 308, E 1164 DIN 5033, 5036, 6174 DIN EN ISO 11664 ISO 7724
Calibration	PTB - white standard + black reference standard automatic white calibration
Size	370 mm x 235 mm x 180 mm 6.0 kg
Light Source	White and blue LED's, Life span > 20 year
PC connection	USB, Bluetooth

Included in the delivery are:

- Certified white standard
- Black reference standard
- Measuring aperture
- Cerificate of Conformity
- PC-Software ColorDaTra Professional with licence for free updates
- USB cable and power supply