

Spectral Colour measurement in process

100 % Real-time quality control

Table of contents

Application example	About ColorLite.....	3
	Your advantages.....	4
	Spectral Online-/ Inline colour measurement.....	5
	LED-Light source.....	6 / 7
Spectrophotometer	■ Application examples	
	Transmission measurement.....	8
	Reflection measurement	9
	Strand measurement	10
	Cooperation with SKZ Würzburg.....	11
	Our products	
	■ Spectrophotometer	
	Spectrophotometer	12 / 13
	Interfaces.....	14
	Technical data	15
	■ Probe heads	
	Probe head MA38-VA.....	16 / 17
	Probe head MA80-P	18 / 19
	Probe head MK200-R.....	20 / 21
	Probe head MKd0-T/MK200-RT	22 / 23
	Probe head MKd8-AL.....	24 / 25
	Probe head Mki 6010	26 / 27
	Submersible probe	28
	60° Gloss sensor	29
	■ Accessories	
	Inline-density measurement	30
	Accessories probe heads.....	31
	Calibration units	32
	C-Frame systems.....	33
	Linear guides	34 / 35
	Operating elements	36 / 37
	■ Software	
	Software	38
	PCs.....	39
	■ Service	
	Our team	40
	Remote Service and On-site service	41

ColorLite – Your specialist for spectral colour measurement

Officially founded in 2003, the origin of our success lies back in 1997.

When Light emitting diodes – LED's – were evolving from a simple, low intensity light source to a super high power light source, which was robust, had a comparable low power consumption and almost infinite lifespan. LED has revolutionized the lighting industry back then – and it was our idea to use this progression to develop a new system for measuring colours on a professional level.

PhD Student David Pryor at the University of Applied Sciences, Hannover, together with an industry partner from Leipzig, developed the spectrophotometer sph850, which implemented the new LED's. The new system had an extreme flexibility, with a previously unknown small probe head, which connected to the main unit via a flexible cable.

All our products developed since are equally innovate. We constantly ask ourselves the question: "What can we do, to improve, what is already available in the field where we are specialised?"

Meanwhile, our spectrophotometers are used in many branches of industry worldwide. But that is no reason to live in the past - the future holds many challenges - and we are well prepared for them.

ColorLite are specialist in colour measurement, and are very well prepared for an upcoming Industry 4.0- including inline colour measuring systems for 100% production control and the connectivity to dosing- and process control systems with highest flexibility and reliability. Our inline systems have been working in many areas of industry for over ten years.

That is what we stand for: Innovation. Quality. Service.



Dr. David Pryor wishes you a pleasant reading
Company founder and
Managing Director

The best service we can offer you is based on the statement:

**„The true
progress of
invention
is towards
simplicity“**

ColorLite – Your advantages at a glance

- We offer tailor-made complete solutions to determine colour values production-related. With customer-specific measured value output and forwarding to your process control system.
- High-resolution colour information enables, among other things, perfect automatic control of your colour dosage and saves time-consuming and delayed offline measurements in the laboratory.
- Optional thermochromic measurement to determine and compensate for temperature-related colour deviations.
- Modular design for reflection and transmission measurement. Different measuring head variants for non-contact and tactile colour measurement.
- We develop our software, hardware, and optics 100% in-house, and produce in Germany for customers all over the world. Fast and uncomplicated service guaranteed.

„Everything from one source:

**hardware and software,
installation, training,
maintenance packages, and first-
class after-sales service.“**

Spectral Online-/Inline- Colour Measurement

Colour values measured in real time during production are good value for money. For an efficient and resource-saving production, a fully automatic monitoring process is essential.

Spectral colour measurement is the most accurate measuring method to achieve constant and the most reproducible measurement results. The samples are measured with the homogeneous white and blue light illuminated by high-power LEDs. The surface of the product is spectrally scanned in 3.5nm steps. Coordinates in a wavelength range from 400 to 700nm are output in different colour spaces. The ColorLite spectrophotometers take into account the corresponding illuminant and the observer angle of the selected probe head variant. The external probe head is connected to the spectrophotometer via an optical fibre, which can be several meters long. This enables direct measurement in the production line even in difficult environments. For non-contact colour measurements, special probe heads are available.

The colour measurement system, the hardware as well as the software are usually adapted to your products and needs.

**„Competence built up from over
20 years of experience in the field
of spectral colour metrology.“**



**„We use only LED’s
as light source for
our spectrophotometers! “**

Advantages of the LED light source:

- LED's guarantee a service life of at least 20 years
- Highest permanent repeat accuracy of the measured values.
- Replacement and maintenance of the light source is not necessary, thus reducing time and costs.
- The emission spectra, including the UV component, are variably adjustable.
- LED's are small, compact, and robust.
- No change of the spectral values over the running time.



Application example

Transmission measurement of foils

The industrial production process of coloured plastic foils requires continuous control of the colour. This is made possible by our online spectral colour measurement systems in combination with a dosing unit.

The spectrophotometer permanently monitors the production and at the same time regulates the colour additions.

Application example

Spectrophotometer

Probe heads

Accessories

Software

Service



Application example

Reflection measurement on a running steel strip

The colour is checked during production immediately after the steel strip leaves the coating furnace. At this point, the plates have a temperature of about 60°C. To compensate for the thermochromic properties, the surface temperature is measured with an infrared sensor for further colour calculation. The probe heads can be moved automatically to different positions and adapt to the different widths of the steel strip.



Application example

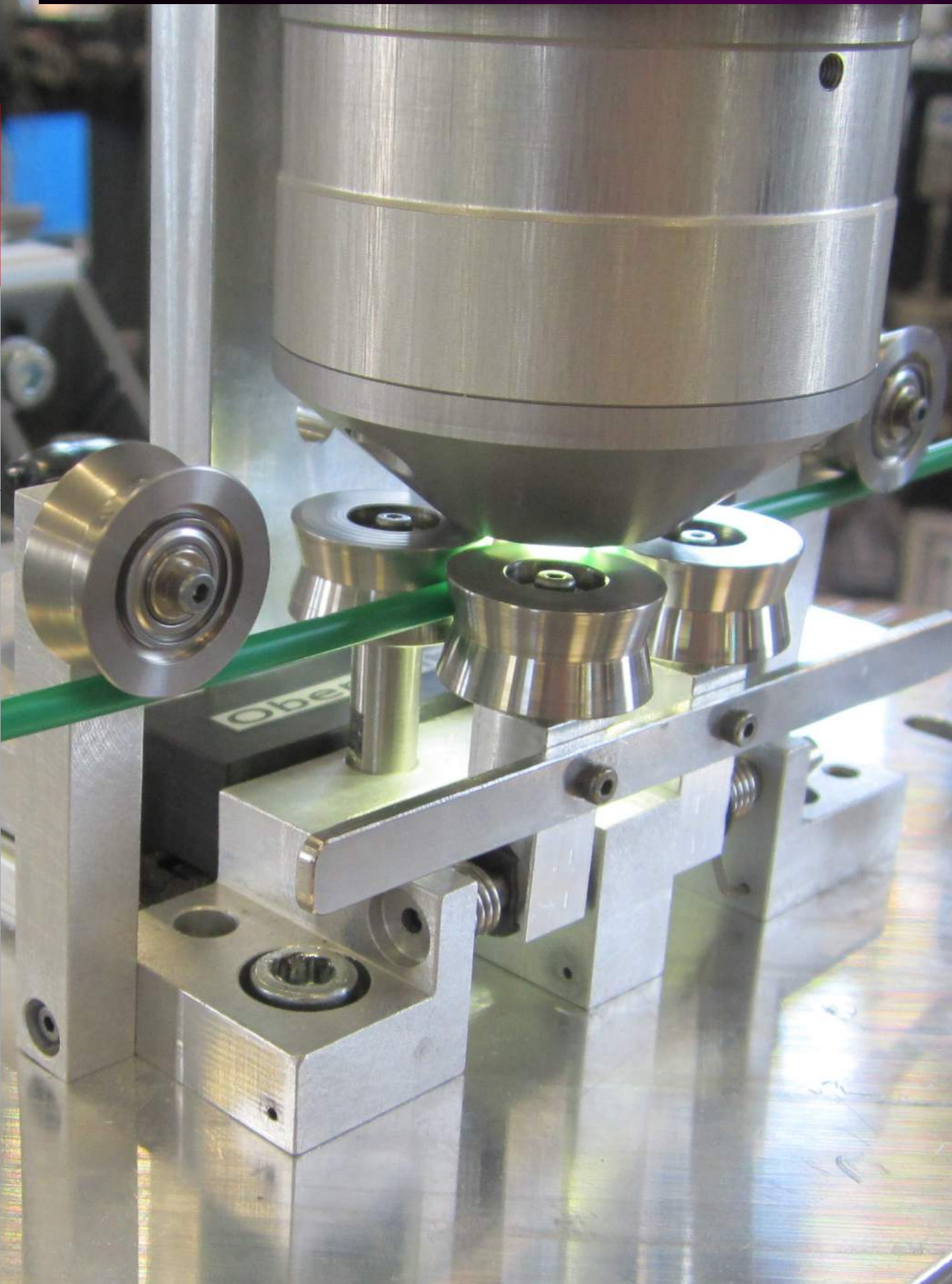
Spectrophotometer

Probe heads

Accessories

Software

Service



Application example

Strand measurement

For the first time, colour measurement on the strand or extrudate in compound production or extrusion offers a very cost-effective solution with a reduction of measuring and reaction times, which reduces production errors to an exceptionally low level.

The system was developed as part of a publicly funded joint project between SKZ Plastics Centre in Würzburg and ColorLite GmbH.

Our cooperation with the SKZ Würzburg

In close cooperation with SKZ, the Plastics Centre Würzburg, we develop spectral online colour measurement systems for the plastics industry.

Under the keyword Industry 4.0 we are constantly working on meeting the increasing customer and market requirements.

The following projects have already been successfully developed with SKZ:

- Online colour measurement with thermochromic function
- Measurement on the plastic strand
- Colour measurement for the extrusion blow moulding process
- Development of a process stable granulate colour measurement system (Start May 2019)



Spectrophotometer

100% quality control of the colours with high-resolution spectrophotometers of ColorLite.

Measurement of the slightest colour differences not visible to the human eye directly in production. Long before limit values are reached.

With the sph9i and sph ipm inline spectrophotometers you opt for a continuous monitoring process and thus reduce high reject costs.

Measures can be taken without delay. Time-consuming laboratory analyses are no longer necessary due to the high-precision spectral colour measurement in the process.

The colour measurement system, the hardware as well as the software are usually adapted to product or customer-specific requirements.

sph9i

- Remarkably high repeat accuracy due to high-resolution spectral measurement technology
- Durable and balanced high-performance LED light sources
- Different probe head variants for reflection and transmission measurement
- Simple communication with the process control system via ProfiBus, ProfiNet, Ethernet

sph ipm

- Simple operation via the 7" touch display
- Solid aluminium housing, IP65 dust and water protected
- External probe head or integrated in the sph ipm spectrophotometer
- Interfaces are adapted according to customer requirements

Our online products

Spectrophotometer



Model	ColorLite sph9i
Article No.	E610100
Spectral range	400 nm to 700 nm
Dimension	235 x 220 x 60 mm
Description	The external probe head is connected to the spectrophotometer via an optical fiber, which can be several meters long. This allows direct measurement in the production line even in difficult environments. Special probe heads are available for non-contact colour measurements.

Model	ColorLite sph ipm
Article No.	E610200
Spectral range	400 nm to 700 nm
Dimension	250 x 260 x 110 mm
Description	The sph ipm is equipped with a modern 7" touchscreen and colour display and allows easy operation through a logical menu navigation. The display allows to show measured values, curves with history, as well as status and alarm information. The sph ipm offers all possibilities for easy system integration by means of different interfaces.

Option: Extension of the spectral range up to 1,100 nm:

Both spectrophotometers are also available as 2-channel spectrophotometers.

(sph9i-II - article no. E610101, sph ipm-II - article no. E610201)

The 2-channel version uses a second spectrometer, which is used as a reference channel for measurement of the light source during each measurement.

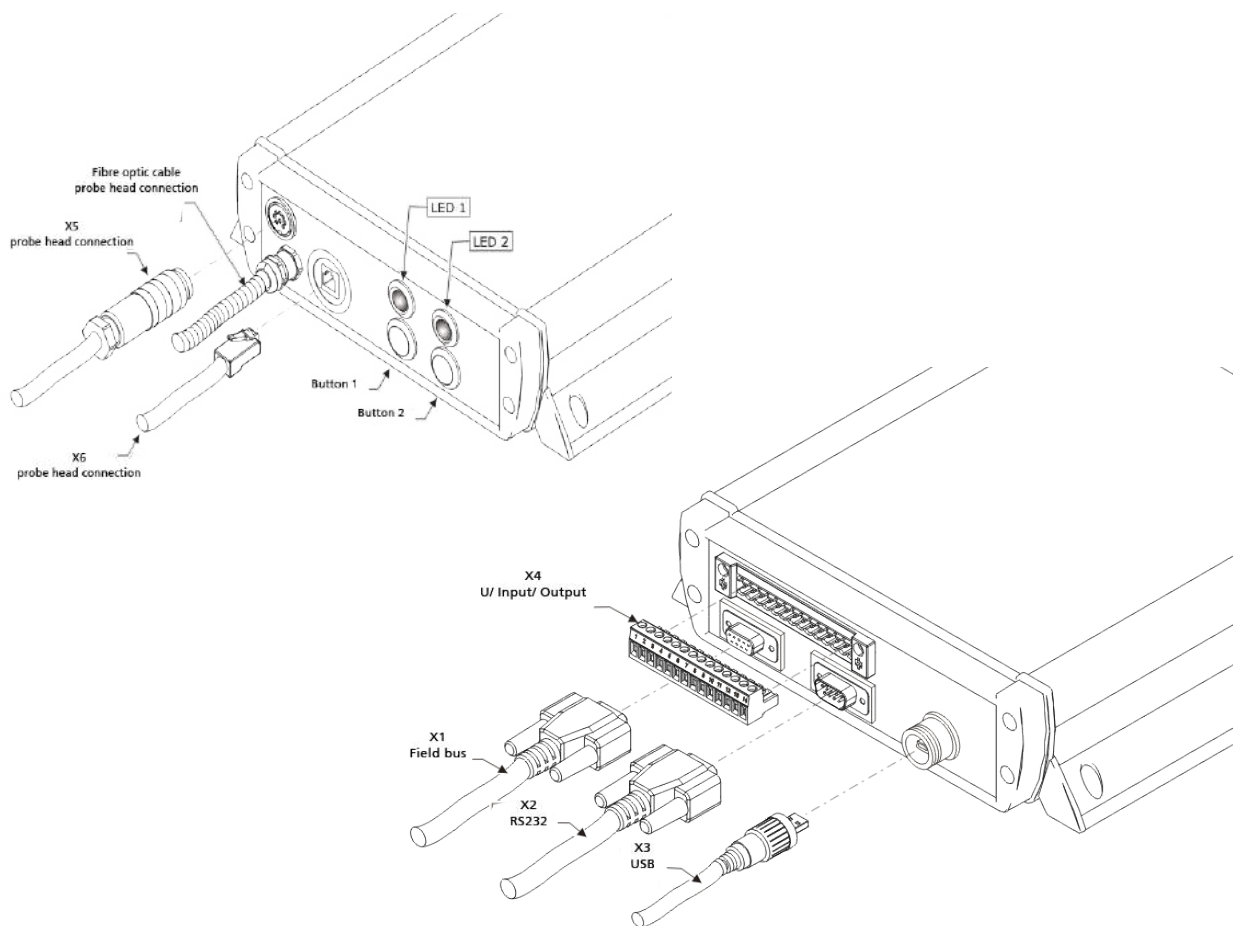
Advantage: An internal device calibration is performed for each colour measurement.

Interfaces

The sph9i spectrophotometer can be installed in a separate switch cabinet or operating panel together with all the circuitry, fuses, and motor controls. (see page 40)

The interfaces for the sph 9i and ipm spectrophotometers are configured according to your requirements

- USB-cable
- RS232
- Ethernet
- Profibus
- Profinet
- Power-Output 4-20 mA
- Others



Technical Data

Measurement geometry	45°/0° d/8° 20°/0° d/0°
Measurement area	2 - 80 mm
Standard observer	2° (1931) und 10° (1964)
Illuminants	D65, D55, F11, A, C
Colour values	XYZ; Yxy; dE CIE L*a*b*; L*C*h*, L*u*v*; dE CIE94, dE CMC, dL*,da*,db*, dE 2000
Spectral range	400 - 700 nm
Spectral resolution	Holografic grating-spectrometer FWHM @ 500nm < 10nm - VIS Range Scanning in 3.5 nm steps 115 x 16-Bit values per scan
Light source	White and blue-LED's - extrem long lasting LED's
Measuring interval	Adjustable from 1 second to 1,000 seconds Averaging as required
Repeatability	< 0.05 dE CIE L*a*b* (measured on a white surface)
Memory	FRAM, Memory for up to 1000 color values and 200 standards
Calibration	With supplied certified white standard optional: automatic calibration unit
Power Supply	sph9i: 24 VDC sph ipm: 110 - 240 V/AC
Climatic conditions	15° to 55° C
Moisture content	max. 85%, non-condensing
PC-Interfaces	Serially: USB, RS232, RS485(isolated) Optional: CAN; Profibus; Profinet, Ethernet (all isolated), Power 4- 20mA
Digital input-/ and output	4/4- channel digital I/O for status of process control system 4 isolated input 0-30V 4 isolated output 0-30V, Power current load 0,7A / channel
Languages	English, German
Conformity to standards	Measurement geometry 45°/0° and d/8° according DIN 5033

The use of optical holografic grating spectrometer

Only the high resolution of a grating spectrometer guarantees that the slightest colour differences can be reliably detected.

The ColorLite spectrophotometers measure the surface of the product by spectral scanning in 3.5 nm steps, approx. 115 values per scan.

Reflection measurement of inhomogeneous materials

Probe head MA38-VA

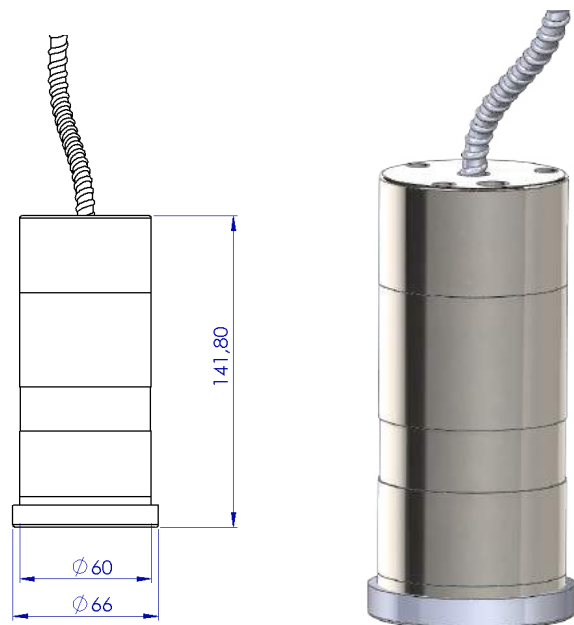
Suitable for the colour measurement of:

- Plastic granules
- Wood surfaces
- floor coverings
- Papers
- Food

Properties:

In order to measure granulates or other inhomogeneous samples, a scanning over a relatively large area is necessary. The MA38-VA probe head with a measuring surface of 38 mm is ideally suited for this purpose.

Due to the height sensitivity of the MA38-VA probe head, a fixed distance to the sample is required.


Technical data

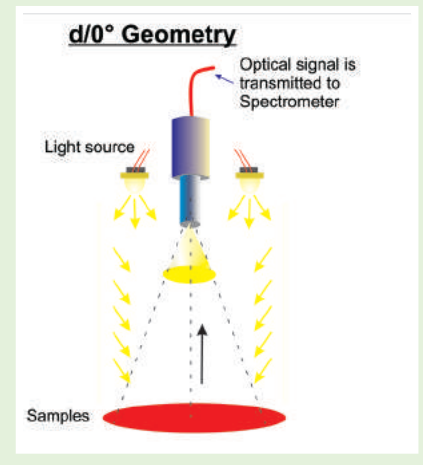
Designation	Probe head d/0° geometry
Name	MA38-VA
Article No.	E630100
Measuring geometry	d/0°
Measuring surface	38 mm
Measuring distance	5 - 30 mm
Housing	Stainless steel (VA)
Light source	White and blue LED's
Opening	Glass with non-reflective coating
Coating	Barium sulfate
Calibration	Certified white standard and black reference
Dimensions	140 mm, Ø 70 mm
Weight	1,75 kg



d/0° Measurement geometry:

The d/0° probe heads MA38 and MA80 illuminate the sample with a diffuse LED light source on an area of 38 mm and 80 mm, respectively. The reflected light is measured at 0°.

This measurement geometry is not standardized.



Accessories MA38-VA

Name	Article No.	Description	Page
ACU38	E630503	Automatic calibration unit	32
LTS65	E630500	Laser Triangulations-Sensor	31
V-TRACK	E630803	Vertical linear guide without motor	35
H-GUIDE	E630806	Horizontal linear guide with motor	34

Reflection measurement of very inhomogeneous materials

Probe head MA80-P

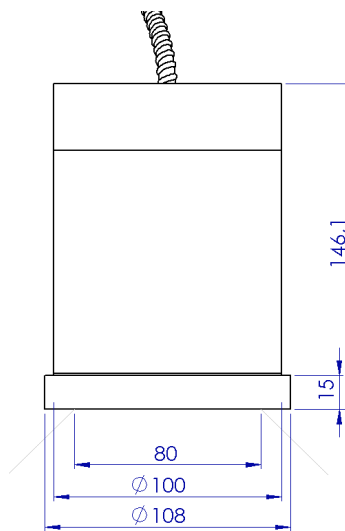
Suitable for the colour measurement of:

- Flakes
- Pellets
- Plastic granules
- Food products

Properties:

The MA80-P probe head scans the sample via a surface of 80 mm in diameter. This corresponds to 4.4 times the surface area of the MA38 probe head, which has a measuring surface of 38 mm in diameter.

The MA80-P probe head is the perfect solution for colour measurement of very inhomogeneous samples such as coffee beans, recycled PET flakes and lenses as well as plastic granules.



Technical Data

Designation	Probe head d/0° geometry
Name	MA80-P
Article No.	E630102
Measuring geometry	d/0°
Measuring surface	80 mm
Measuring distance	approx. 10 to 20 mm
Housing	Polyoxymethylen (POM)
Light source	White and blue LED's
Opening	Glass with non-reflective coating
Coating	Barium sulfate
Calibration	Certified white standard and black reference
Dimensions	150 x 100 mm
Weight	1,1 kg

Application example

Spectrophotometer

Probe heads

Accessories

Software

Service

Reflection measurement of very inhomogeneous materials

Probe head MA80-P

Application example:

ColorLite offers colour measurement systems as OEM-solution for well-known machine manufacturers. The measuring technology is installed in **PET plastic recycling** machines, for example. Colour deviations can be determined directly in the production process and communicated to the colour dosing system via a control loop, so that automatic colour adjustment is possible.

„In close cooperation with our customers, we continue to expand our key role in the recycling of plastics. We are pleased to be able to make a contribution to sustainable production.“



Accessories MA80

Name	Article No.	Description	Page
ACU38	E630503	Automatic calibration unit	31
LTS65	E630500	Laser Triangulations-Sensor	31
V-TRACK	E630803	Vertical linear guide without motor r	35
H-GUIDE	E630806	Horizontal linear guide with motor r	35
PMC	E631703	<p>Measuring chamber for plastic granules</p> <p>The material is picked up via a suction port and transported further into the measuring chamber via vacuum. The measurement is automatically triggered when a defined filling level is reached.</p> <p>Further information is available on request.</p>	

Reflection measurement with a measuring distance of up to 80 mm

Probe head MK200-R

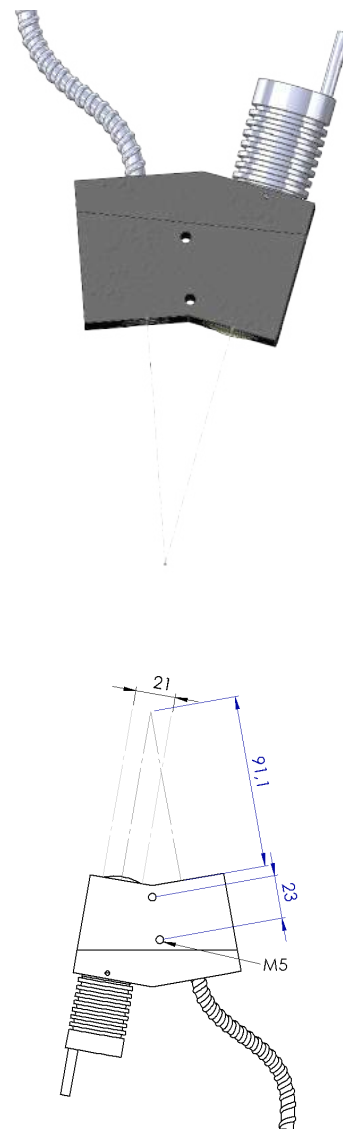
Suitable for the colour measurement of:

- Plastic sheets
- Floor coverings and building materials
- All flat, homogeneous surfaces

Properties:

The 20°/0° measurement geometry allows a relatively height-independent colour measurement with a distance to the sample of up to 80mm.

Distances between the probe head and sample surface can be measured and compensated for smaller deviations. Alternatively, the measuring distance can be adjusted using a linear unit. (see page 35).



Technical Data

Designation	Probe head 20°/0° geometry
Name	MK200-R
Article No.	E630104
Measuring geometry	20°/0°
Measuring surface	10 mm
Measuring distance up to	80 mm
Housing	Aluminium black anodized
Light source	White and blue LED's
Measurement opening	Glass with non-reflective coating
Calibration	Certified white standard
Dimensions	88 x 53 x 33 mm
Weight	0,35 kg

Overview probe head variants:**MK200-R**

for reflection measurement $20^\circ/0^\circ$ measurement geometry

Mkd0-T

for transmission measurement $d/0^\circ$ measurement geometry
(additional light source required Article E630114)

Mk200-RT

for reflection and transmission measurement $20^\circ/0^\circ$ geometry and $d/0^\circ$ geometry

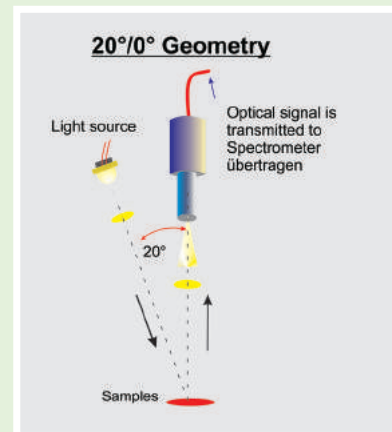
High-precision, non-contact colour measurement directly in the process. The spectrophotometers are very well suited for production lines with very short cycle times.

Due to an ambient light compensation the measurement is insensitive to ambient light.

Despite distance differences, the measured values remain accurate and stable.

 $20^\circ/0^\circ$ Measurement geometry:

The sample is illuminated at an angle of 20° with a direct light source and the diffuse reflected light is measured at 0° .

**Accessories MK200-R**

Name	Article No.	Description	Page
V-TRACK	E630803	Vertical linear guide without motor	35
V-GUIDE	E630805	Vertical linear guide with motor	35
H-GUIDE	E630806	Horizontal linear guide with motor	35
FRAME	E630808	Frame for horizontal linear guide	35
MKC Support	E630800	C-profile bracket	33
MKC-CAR	E630802	Movable carriage for C-profile	33
MKC-TRACK	E630801	Linear rail for C-profile	33

Transmission measurement with additional light source

Probe head MKd0-T

Suitable for the colour measurement of:

- Films
- Glass
- Acrylic glass

Properties:

In combination with an integrating sphere light source (UK35-AL Art. E630114), which is an ideal emits diffuse light, transmission values of plastic films can be measured.

**Technical Data**

Designation	Probe head d/0° geometry
Name	MKd0-T
Article No.	E630105 + E630114 (light source)
Measuring geometry	d/0°
Measuring surface	10 mm (smaller measuring area possible)
Measuring distance	80 mm
Housing	Aluminium black anodized
Measurement opening	Glass with non-reflective coating
Calibration	Open beam path
Dimensions	88 x 35 x 33 cm
Weight	0,35 kg

Transmission measurement and reflection measurement

Probe head MK200-RT

Features of the MK200-RT probe head:

The MK200-RT probe head can be switched between reflection and transmission measurement, depending on the sample properties.

If required, measurements can be made within short distances in both modes.

For technical data see MK200-R and MKd0-T



Accessories MKd0-T and MK200-RT

Name	Article No.	Description	Page
MA35-UK-AL	E630114	Additional light source	31
H-GUIDE	E630807	Horizontal linear guide with motor	35
FRAME	E630808	Frame for horizontal linear guide	35
MKC Support	E630800	C-profile bracket	33
MKC-CAR	E630802	Movable carriage for C-profile	33
MKC-TRACK	E630801	Linear rail for C-profile	33

Reflection measurement with d/8° geometry

Probe head MKd8-AL

Suitable for the colour measurement of:

- Textiles
- Metal strips and foils
- Automotive Components
- Metallic coated surfaces

Properties:

The use of the standardized d/8° geometry guarantees the comparability of measured values in production, incoming goods or in the laboratory.

Usually the MKd8-AL probe head is equipped without a gloss trap, so that measurements are made in SPIN mode. Without a gloss trap, the measurement is relatively insensitive to changes in gloss.

The MKd8-AL-GF probe head is available with a gloss trap (SPEX). With this the measurement is more sensitive to changes in gloss.

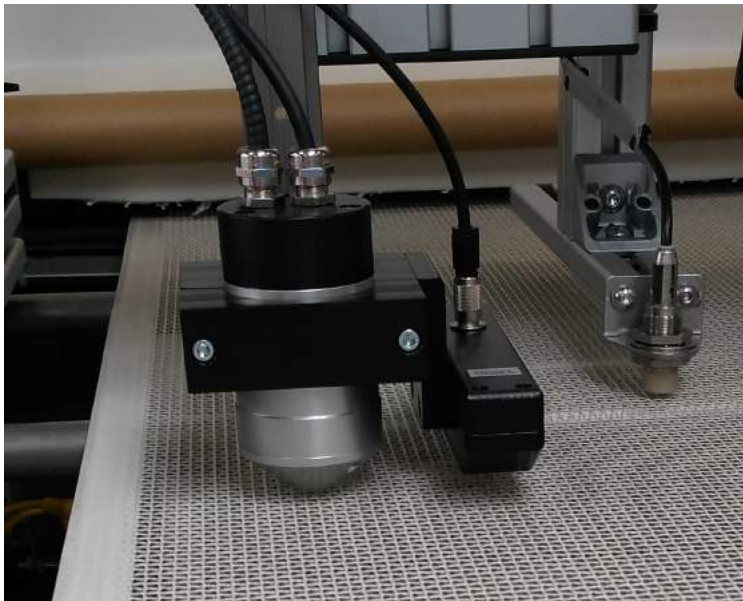


Technical Data

Designation	Probe head d8/0° geometry
Name	MAd8-AL (SPIN) (Version with gloss trap MKd8-AL-GL - SPEX)
Article No.	E630107 (Version with gloss trap E630109)
Measuring geometry	d/8° SPIN (Specular included) or d/8° SPEX (Specular excluded)
Measuring surface	3 -12 mm
Measuring distance	3 - 5 mm
Housing	Aluminium
Light source	White and blue LED's
Measurement opening	Optional : Glass with non-reflective coating
Coating	Integrating sphere with barium sulphate
Calibration	Certified white standard
Dimensions	105 x 55 mm 0,45 kg

Reflection measurement with $d/8^\circ$ geometry

Messkopf MKd8-AL & MKd8-AL-R



$d/8^\circ$ geometry (according to DIN 5033)

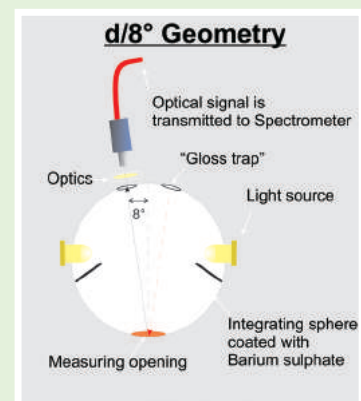
The sample is diffusely illuminated and measured at 8° . The so-called integrating sphere is coated with a barium sulphate which reflects the light diffusely.

As for the colour measurement (SPIN-mode) no differentiation is made between specular and diffuse light, the colour as the sole characteristic cannot be represented. To compensate for the gloss component, the sphere can be equipped with a gloss trap (SPEX mode).

Option with reference channel MKd8-AL-R Art. E630108

The $d/8^\circ$ measuring head is modified so that the light source is directly detected in the sphere. This reference is made possible by a second spectrometer. Prerequisite is the use of the **sph9i-II** or **sph ipm-II spectrophotometers**. The measured values are used for each measurement to calibrate the measurement technology. This „working calibration“ is compared with the basic calibration by the certified white standard.

(Technical data see MKd8-AL)



Accessories MKd8-AL

Name	Article No.	Description	Page
H-TRACK	E630804	Horizontal linear guide without motor	35
H-GUIDE	E630806	Horizontal linear guide with motor	35
V-TRACK	E630803	Vertical linear guide without motor	35
V-GUIDE	E630805	Vertical linear guide with motor	35
FRAME	E630808	Frame for horizontal linear guide	35

Reflection measurement with 45°/0° geometry

Probe head MKi 6010

Suitable for the colour measurement of:

- Injection moulded parts
- Extrudates
- Strand measurements

Properties:

The non-contact colour measurement with the MKi6010 is performed at a distance of 30 mm. The measured colour values come remarkably close to visual perception.

The compensation of ambient light is done by the ColorDaTra software.

Optionally, an infrared sensor can be adapted on the side to record the sample temperature. (Article-No. 630501, page 31)



Technical Data

Designation	Probe head 45°/0° geometry
Name	MKi 6010
Article No.	E630110
Measuring geometry	45°/0°
Measuring area	10 mm
Measuring distance	30 mm
Housing	Polyoxymethylen (POM)
Light source	White and blue LED's
Measurement opening	Glass with non-reflective coating
Calibration	Certified white standard
Dimensions	66 x 140 mm
Weight	0,4 kg



Application example: Injection moulded components

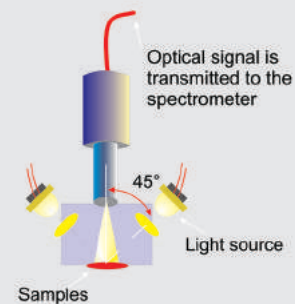
The handling system removes the injection moulded components from the mould and positions it in front of the probe head.

The colour measurement is triggered by a trigger sensor. Depending on the result of the colour measurement, the robotic handling system receives information as to whether the specified values are within the tolerance. Defective parts can be separated directly by the handling system.

45°/0° Geometry

The 45°/0° measuring geometry is standardized in DIN 5033. The sample is illuminated at an angle of 45° with a direct light source, and the reflected light is measured at 0°. The measured values of this measuring geometry come closest to the human visual perception.

45°/0° Geometry



Accessories MKi 6010

Name	Article No.	Description	Page
IR-SENSOR	E630501	Infrared sensor	31
H-TRACK	E630804	Horizontal linear guide without motor	35
H-GUIDE	E630806	Horizontal linear guide with motor	35
V-TRACK	E630803	Vertical linear guide without motor	35
V-GUIDE	E630805	Vertical linear guide with motor	35
FRAME	E630808	Frame for horizontal linear guidance	35

Probe for colour measurement of liquids and powder

Submersible probe

Properties

The ColorLite immersion probe was developed for direct colour measurement of liquids or powders in production. In the chemical industry, colour analysis plays an especially important role, since colour saturation often allows conclusions to be drawn about the concentration of a solution.

The immersion probe is installed directly in the vessel and connected to the spectrophotometer via a fibre optic cable.

For the measurement of transparent liquids, the immersion probe is equipped with a reflector. (Article-No. E630116 to E630118)



Technical data:

Designation	Submersible probe TS
Article No. Versions:	Reflection measurement:
	E630111 TS800-35 Length 800 mm, Ø 35 mm
	E630112 TS1200-35 Length 1200 mm, Ø 35 mm
	E630113 TS300-25 Length 300 mm, Ø 25 mm
Article No. Versions:	Transmission measurement:
	E630116 TS800-35 -T Length 800 mm, Ø 35 mm
	E630117 TS1200-35 -T Length 120 m mm, Ø 35 mm
	E630118 TS300-25 -T Length 300 mm, Ø 25 mm
Measurement geometry	0°/0°
Measuring area	approx. 5 mm
Measuring distance	0 mm
Housing	Stainless steel (VA)
Light source	White and blue LED's
Measurement opening	Sapphire glass hermetically sealed
Calibration	Certified white standard

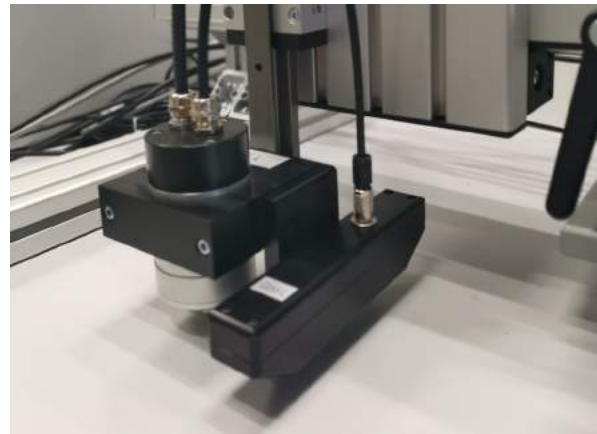
60° gloss measurement according to DIN EN ISO 2813 (old DIN 67530)

60° Gloss measurement

Properties

The influence of gloss is decisive for the visual assessment of the colour of a product. With the 60° universal measuring angle, a wide variety of coated surfaces such as paints, plastics and metals can be measured.

In gloss measurement, the intensity of a directed, reflecting light beam is measured. A high-gloss surface reflects the incident light only in one direction. With matt surfaces, the light is reflected diffusely in all angles. With the same colouring, a matt black appears much brighter than a glossy black.



Technical data

Designation	Gloss sensor
Name	GS-60
Article No.	E630115
Measurement geometry	60°
Measuring area	10 mm
Measuring distance	10 mm
Housing	Aluminium (black anodised)
Light source	White and blue LED's
Calibration	Reference Standard 93.3 GT Zero reference
Dimensions	160 x 30 x 40 mm
Weight	0,45 kg



Inline density measurement during the running process

Density measurement

Scope of application:

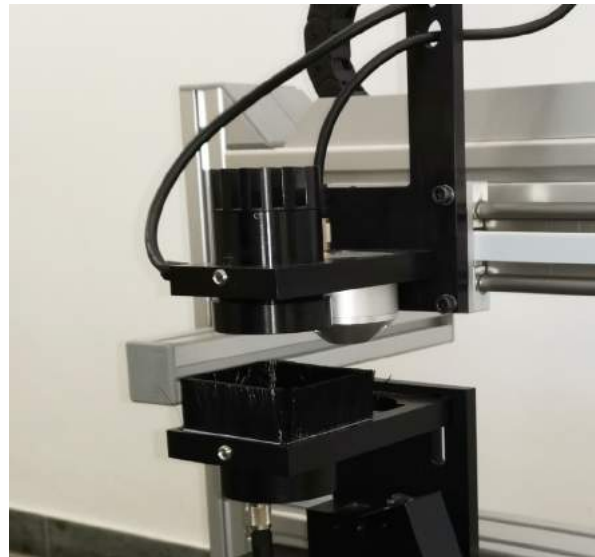
Control of the colour dosage to ensure opacity.

For example, foils are used in the later production process, but they must remain opaque.

Without additional sensor technology, inline density measurement is possible in a density range from 0 to 3.

With sensor technology, a density range of up to 5 is possible. A density value of 5 means that only the 100,000th part of the light is transmitted.

The system consists of a focused light source and a sensitive light sensor.



Technical data

Designation	Inline density measurement
Name	DS-5
Article No.	E630502
Housing	Aluminium
Description	Includes an external light source and a highly sensitive light sensor. density range: 3 to 5
Dimension	88 x 88 x 84 mm
Weight	0,4 kg

Additional light source, distance and temperature measurement

Accessories for probe heads

Designation	Extension for transmission measurement Additional light source
Name	MA35-UK-AL
Article No.	E630114
Housing	Aluminium
Description	Integrating sphere with barium sulphate coating. White high-power LED's
Dimensions	48 mm, Ø 56 mm
Weight	0,2 kg



Designation	Infrared sensor
Name	IR-Sensor
Article No.	E630501
Housing	Stainless steel
Description	Temperature measurement of the sample
Dimension	55 mm, Ø 29 mm
Weight	0,04 kg



Designation	Distance sensor LTS Laser triangulation sensors
Name	LTS65
Article No.	E630500
Laser	1 mW max. optical power, laser class 2 according to DIN EN 60825
Description	Scratch-resistant filter cover Analogue access 0 .. 10 V High dynamic range



Calibration units for 24 hours continuous operation

Calibration units

The automatic calibration units allow constant colour measurement in 24h continuous operation.

In order to ensure exact colour measurement, the spectrophotometer must be calibrated manually at certain intervals - or you can equip your colour measurement system with an automatic calibration system!

The advantages at a glance:

- Constant measured values at all times
- Particularly good long-term stability and reproducibility of measured values
- No downtimes due to manual calibration
- Savings in working time



Designation	Automatic calibration unit for MKi 6010 and MK200 versions
Name	ACU200
Article No.	E630504
Description	Only possible in combination with linear guide
Dimension	Adaptation to probe head variant



Designation	Automatic calibration unit for MA38-VA probe heads
Name	ACU38
Article No.	E630503
Air connection	Compressed air to ISO 8573-1:2010 (7:4:4)
Operating pressure	> 2 bar
Dimension	235 x 120 x 480 mm



Designation	Automatic calibration unit for MKC-ACU (C-profile units)
Name	MKC-ACU
Article No.	E630505
Air connection	Compressed air to ISO 8573-1:2010 (7:4:4)
Operating pressure	> 2 bar
Dimension	Adaptation to linear guide

C-Frame system for stationary and mobile use

C-Frame systems

Depending on the application, for the C-profile frame the following probe heads can be used:

- MK200-R** Reflection mode
- MKd0-T** Transmission mode
- MK200-RT** Reflection and transmission mode

The spectrophotometer sph9i with Opti-Panel Stand-Mobile is ideal for mobile use in production. (see page 36)



Name	MKC Support
Article No.	E630800
Description	C-profile for probe head MK1200 Positions probe head and light source for film measurement directly after extrusion.



Name	MKC-CAR (carriage)
Article No.	E630802
Description	Carriage for MKC Support Easy installation. MKC Support can be mounted on any line with a holding track. (MKC Track).



Name	MKC-Track
Article No.	E630801
Description	Linear track for MKC-CAR Support track for fixed mounting on the production line.

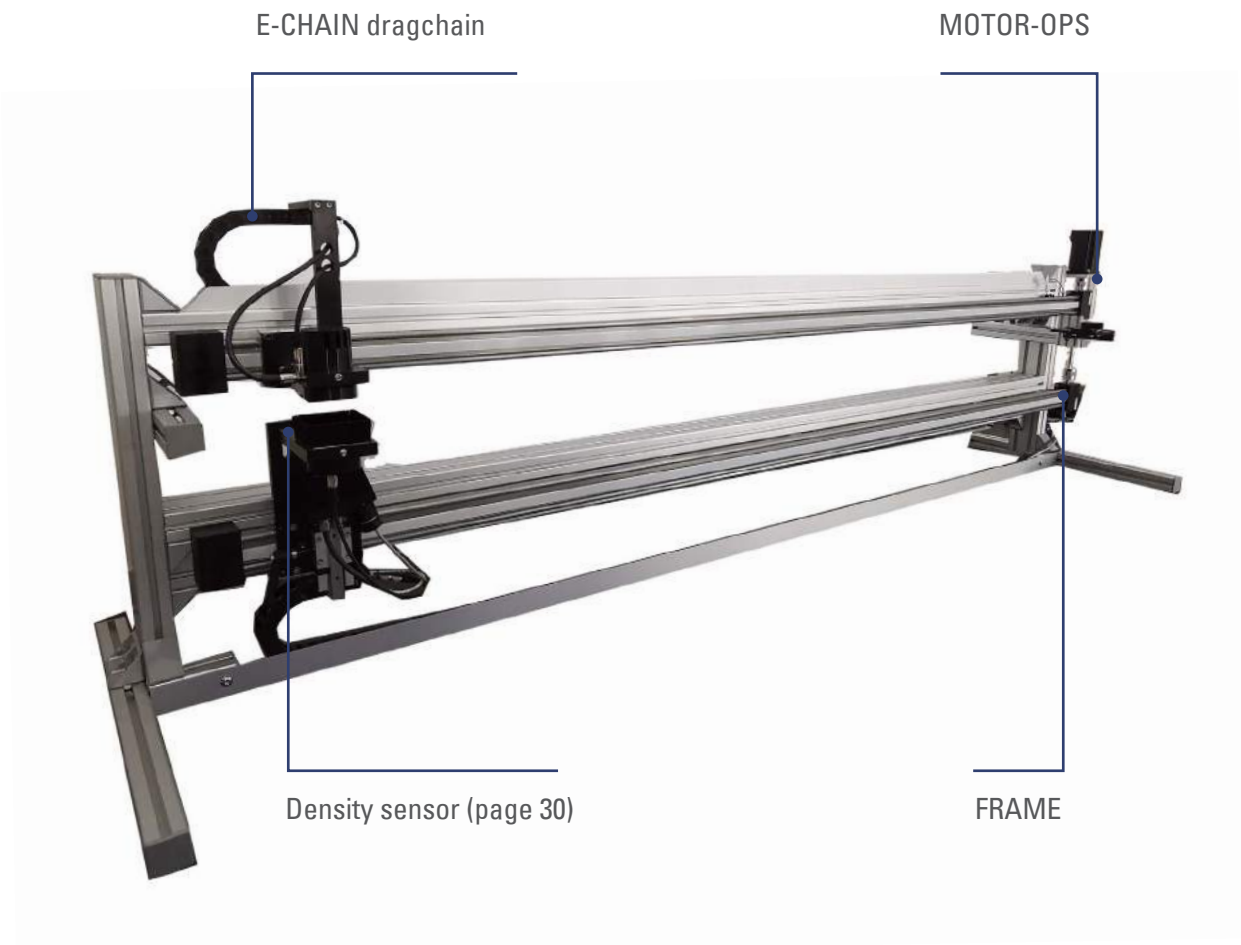
Customized solutions for your application

Linear guides

The advantages at a glance:

- Robust technology for use in production operations
- Setup for reflection and transmission measurement possible
- Positioning of the probe heads via motorized and non-motorized horizontal linear guide
- Automated calibration - probe heads move to the calibration station at defined intervals and carry out white balance
- Maintenance-friendly due to open overall structure

Horizontal linear guide



Vertical linear guide for height adjustment



Horizontal and vertical linear guides

Name	Article No.	Description	Version
H-TRACK	E630804	Horizontal linear guide without motor Measuring position is fixed at one point	Reflection measurement
V-TRACK	E630803	Vertical linear guide without motor For manual height adjustment of the probe head	Distance
H-GUIDE-1	E630806	Single horizontal linear guide with motor. Several measuring positions can be approached	Reflection measurement
H-GUIDE-2	E630807	Double horizontal linear guide with motor. Several measuring positions can be approached	Transmission measurement
V-GUIDE	E630805	Vertical linear guide with motor For automated height adjustment of the probe head	Distance
FRAME	E630808	Frame structure for horizontal linear guidance according to customer requirements	General structure

Accessories linear guides

Name	Description
REF-SWITCH	Reference switch
E-CHAIN	Drag chain
MOTOR-MPS	Motor with positioning sensor
MOTOR-OPS	Motor without positioning sensor
M-CABLE	Motor cable

OPTI-PANEL Control panels

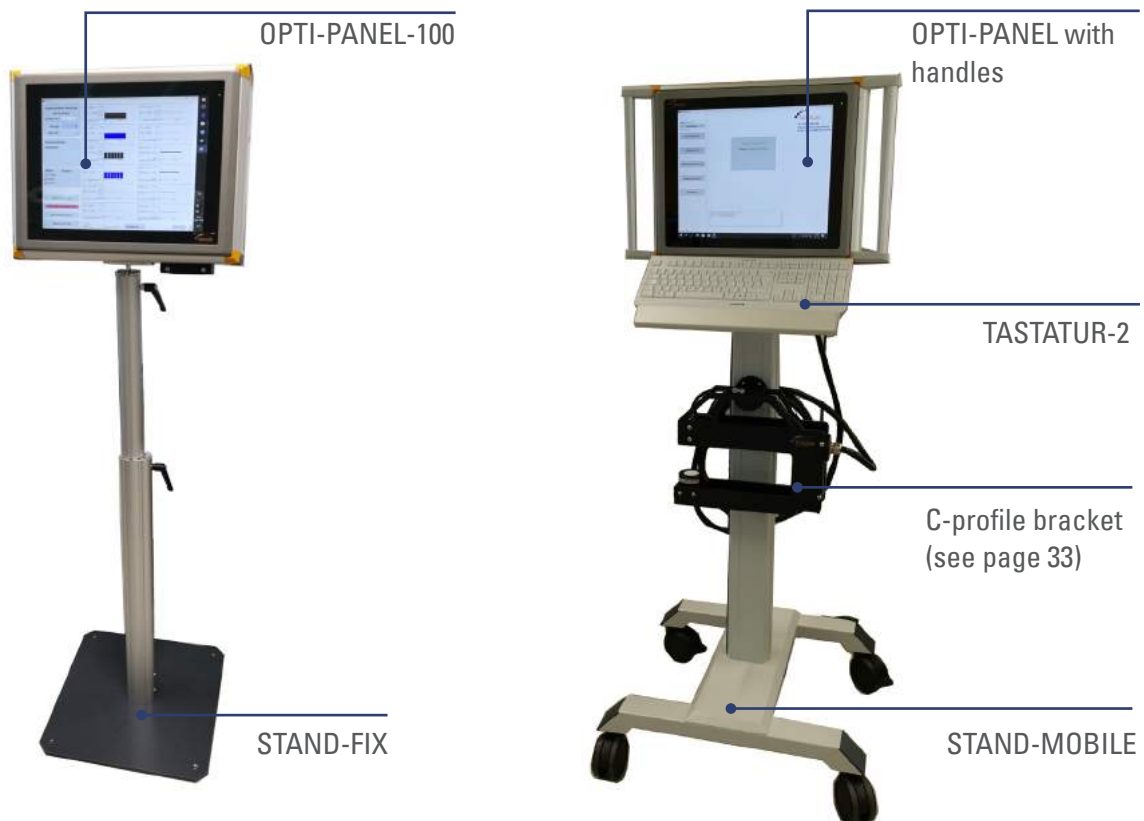
Operating elements

OPTI-PANEL-100:

- Housing for 15" and 17" Panel PCs including power supplies, fuses and circuits.
- The sph9i spectrophotometer is used in separate control cabinet

OPTI-PANEL-150:

- Housing for 15" and 17" Panel PCs including power supplies, fuses and circuits.
- The spectrophotometer sph9i is integrated in the OPTI-PANEL-150. An additional control cabinet is not necessary.



Application example

Spectrophotometer

Probe heads

Accessories

Software

Service

Individual configuration according to your needs

ARM-SYSTEM Supportarm

For wall mounting or directly on the production line. The dimensioning of the support arm is done according to the customer's requirements or wishes.



CABINET-L Painted control cabinet



Control cabinets and operating panel

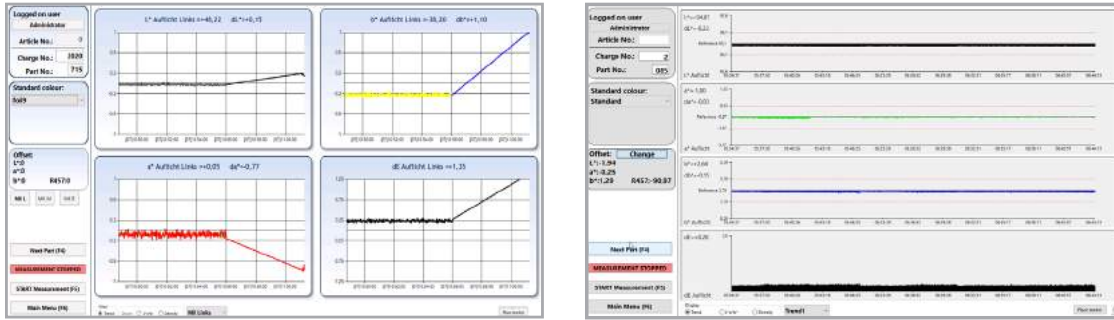
Name	Article No.	Description	Version
CAB-L	E631500	Control cabinet Size: 60 x 38 21 cm	Painted
CAB-VA	E631501	Control cabinet Size: as required	Stainless steel
OPTI-PANEL-100	E631502	Control panel Size: 56 x 45 x 10 cm	Aluminium
OPTI-PANEL-150	E631503	Control panel Size: 56 x 45 x 15 cm	Aluminium
OPTI-PANEL-GRIFF	E631507	Control panel with handles Size: 70 x 45 x 15 cm	Aluminium
ARM-SYSTEM	E631506	Supportarm-System IP67, Load range 400 to 1800 N	Aluminium
SF-FIX	E631504	Fixed base loadable up to 15 kg	Aluminium
SF-M	E631505	Mobile and swivel base loadable up to 15 kg	Aluminium

Accessories for control cabinets and operating

Name	Article No.	Description
TASTATUR-1	E631700	Basic version
TASTATUR-2	E631701	with holder
SIGNAL-RYG	E631702	Signal lamp, red, yellow, green, various
STOP-SWITCH	E631704	Emergency stop

SQL database software for professional monitoring

Software



Technical Data

Name	ColorDaTra IPM Software for Inline applications CDT-IPM	ColorDaTra Professional CDT-PRO	Windows Operating system WIN-OS	Customized Software adaptation CDT-CUSTOMER
Article No.	E620100	E12152	E620101	E620102
Description	Customer-specific database and visualization software for PC. Acquisition and display of measured values on a local computer. Monitoring of colour values and display of deviations when variable limit values are exceeded. Display either by message on the PC monitor or by flashing of a control lamp. Creation and printing of a measuring protocol is possible	Alternative for smaller data volumes: The PC program enables data review, visualization of the measured results, quality check, statistical functions, and printing of graphics and the measurement report. Extensive search function	Operating System	

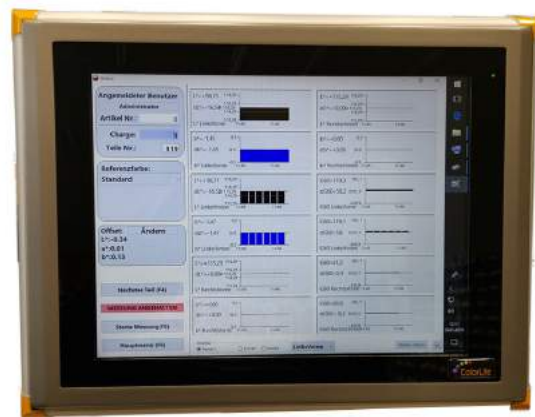
PC equipment according to your requirements

Panel-PC and Shuttle PC

Shuttle-PC



Touch-Panel PC



Technical Data

Name	Article No.	Description	Version
SHUTTLE-PC	E631203	Shuttle.PC	without keyboard, monitor, mouse
INDUSTRIE-PC 1730	E631205	Industrial-PC	Metal housing with aluminium heatsink
TPC-15	E631201	Touch-Panel PC	15"
TPC-17	E631201	Touch-Panel PC	17"

- All PCs are equipped without fans
- Includes SSD hard drives
- 24V power supply

SERVICE

is a BIG issue for us!

The ColorLite-Team



Our SERVICE-offer:

- Competent advice before purchase
- Full-Service Installation of colour measurement systems
- Instruction and training of employees
- Spare parts service
- Remote Service
- Repair
- Maintenance with basic calibration and certificate
- With annual maintenance 1 year warranty on the function of the device.

For a permanently high system availability, we recommend that a regular maintenance interval is specified. We would be pleased to inform you about our services and maintenance contracts.

With ColorLite you get immediate qualified support!



Remote Maintenance - Remote Service

Through the remote service we can access the hardware and software of your ColorLite spectrophotometer via Internet.

On-site service visits are reduced, saving travel and personnel costs.



On-site service

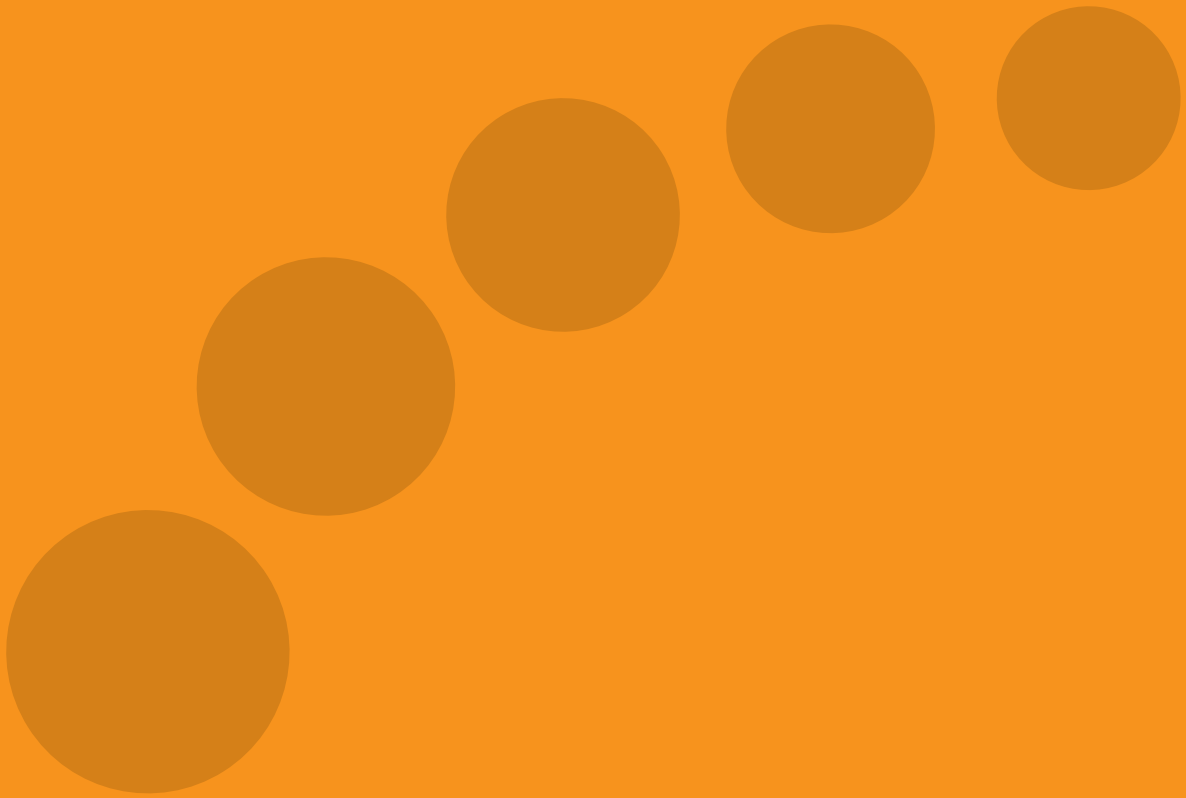
Of course, we are also personally there for you! From the first consultation to the installation up to a comprehensive After-sales service.

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Buy your complete solution directly from the manufacturer!
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