

Industrial Colorimeter

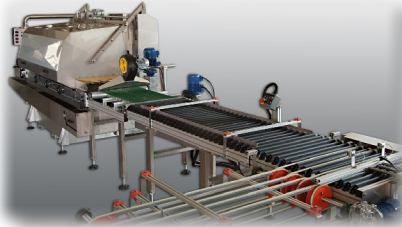
CLM-195

Benefits

- Rugged device suitable for industrial environment
- 60x more accurate than human eye
- Reliable results on various types of materials and surfaces.

Applications

- Defective products detection
- Classification and sorting
- In-line colorimetric inspection.



EOPTIS offers a device for touchless colorimetric measurement, able to provide accurate and repeatable information about the colour of the surface under inspection.

CLM-195 is a rugged system, designed to be installed in production lines and suited to 24/7 operations in industrial environment. Colour measurements can be performed on the surface of a wide range of matte and glossy materials, thanks to a ($45^{\circ}c:0^{\circ}$) measurement geometry and the very uniform illumination provided by integrated LEDs.

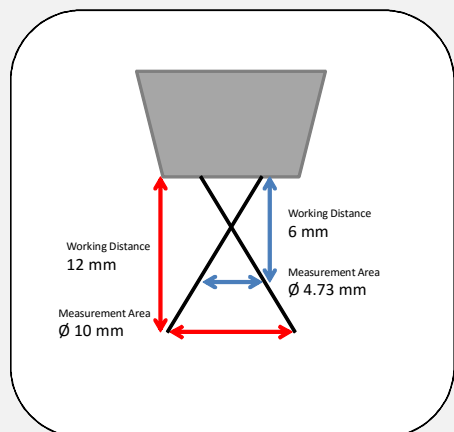
Measured data (last valid measure or moving average) can be analyzed on-board, to have an immediate pass/fail result, that is also made available on the digital I/Os. Data can also be sent to a remote calculator for deeper analysis, storage (datalogger feature) or for report generation.

The CLM-195 Colorimeter features two modes of operation:

- **FINE** mode, that provides absolute colorimetric data in the CIELAB color space with typical repeatability of $0.03 \Delta E^*ab$
- **FAST** mode, that delivers differential colorimetric data at a measurement rate up to 1 data per second.

Standard colour database is encoded in the software provided with the product while a custom or application-specific colour database can be added by the user or with Eoptis's support on request. A NIST-traceable factory calibration service and software interface and report template customisation services are available on request.

Product Code	Description
CLM-195.P001A	Color Measurement System
CLM-195.Cbl2	External cable, 2 meters length
CLM-195.Cbl5	External cable, 5 meters length
CLM-195.Supp	Colorimeter Mechanical Support



Technical Specifications

Sensor	Based on the standard spectral value of the CIE 1931 color matching functions	
Illuminator	Integrated LEDs	
Target type	Reflective (matte or glossy)	
Measurement geometry	(45°c:0°) according to CIE15:2004, ASTM E1164	
Measurement area	see Working Distance vs. Measurement Area tab	
Working distance	see Working Distance vs. Measurement Area tab	
Illuminant	D65, D55, D50, A, C, FL2, FL7, FL11	
Observer	CIE1931-2° and CIE1964-10	
Color coordinates	CIE-L*a*b*	
Dimensions	74 x Ø 100mm	
Weight	707 g	
Enclosure type	IP54 per IEC 60529	
Ambient temperature	0°C ; +45°C	
Supply voltage	+24VDC nominal, Voltage range +9 ; +36 VDC	
Interface	RS-485 + 1 digital input (trigger) + 2 digital outputs	
Connection	panel male connector M12 8poles	
Repeatability	0.03 ΔE*ab typ	
Gpout1	GPout1 high = value within the threshold	
Acquisition mode	FINE	FAST
Measuring speed	0,2 Hz - maximum speed	1 Hz - constant
Output values	L*a*b and ΔE*ab vs color REF	ΔE*ab vs color REF

Working Distance vs. Measurement Area

Working Distance [mm]	12	11	10	9	8	7	6
Measurement Area [mm]	10	9,2	8,3	7,4	6,5	5,6	4,7

Your COLOUR under control

Verify the colour on your production line

POWDERS LIQUIDS SOLIDS

CLM-195

The smart industrial Colorimeter

CONCEIVED, DEVELOPED AND MANUFACTURED IN ITALY

Discriminate your product by homogeneous colors

Attest your work quality with a report

EOPTIS designs and manufactures **innovative vision systems** for special applications and **optoelectronic instruments** for the in-line control of products and monitoring of manufacturing processes. Our customers use EOPTIS' products in the industrial, biomedical, security and food sectors. Our know-how in **electronics, optics, mechanics and analysis algorithms** is used to design products available off-the-shelf or for custom OEM solutions.

