INNOVATIONSPREIS
RHEINLAND-PFALZ

PREMOSYS®

lights colors electronics analytics liquids agrar

Sustainable products of optical metrology
to protect the environment and resources

PREISTRÄGER
Großer Preis des MITTELSTANDES

ISO 9001:2015

268405 QM15

Product overview

LED Analyzer

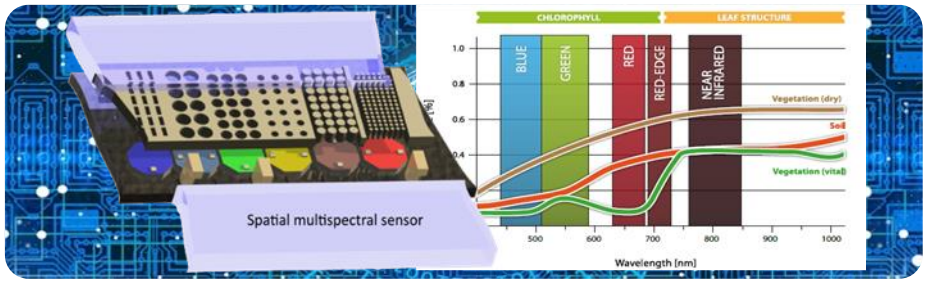
Inline color measurement systems

CIE Lab Color Sensors

Electronic development

Agriculture

Research



Premosys – optical measurement systems and electronics „Made in Germany“

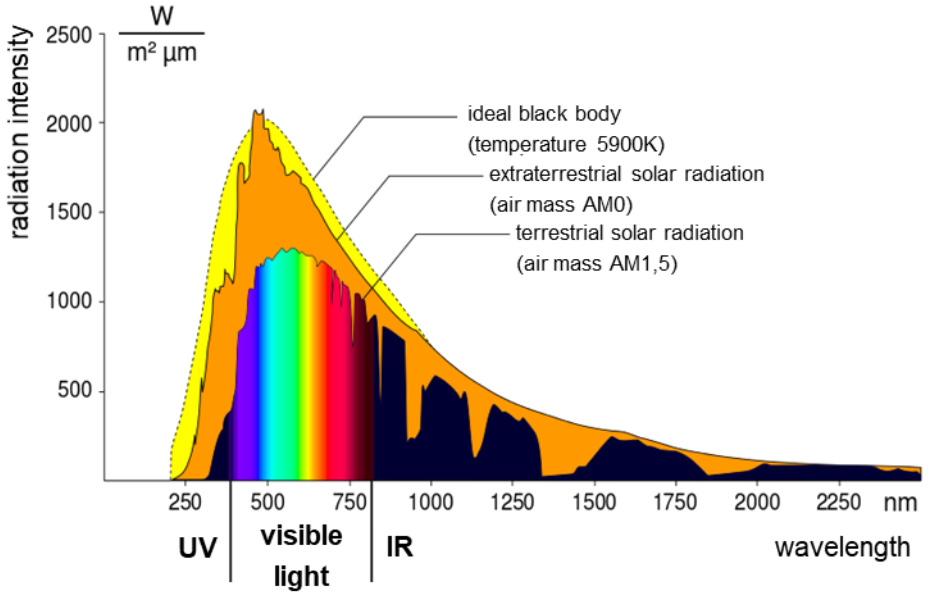
This is what our customers can expect

- All products and services are developed and manufactured in-house
- Active in research and development with years of experience
- An in-house test and calibration laboratory
- By concentrating all competences in one location Premosys is very flexible and can react individually to customer requierments
- Sustainable and resource-saving production through year-based production planning

Optical metrology from UV to NIR

Our products find their place in a variety of markets. Regardless of which industry, our solutions contribute to optimizing the end result and increasing efficiency.

- Agriculture
- Analytics
- Automation
- Automotive
- Research and development
- Plastics
- Medicine
- Foods
- and much more...



CIE Lab Color Sensors

PREMOSYS CIELab Color Sensors

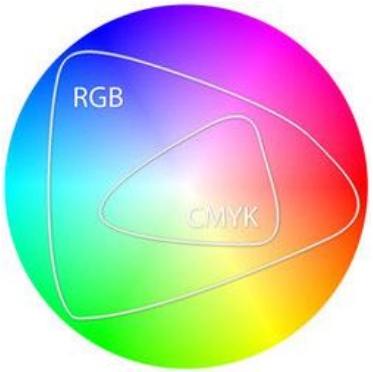
Advantages of Premosys CIELab Color Sensor Series

- Very fast and high-resolution color measurement sensors
- Enable automatic testing of the color of materials
- Detection range 380 nm – 700 nm
- Measuring frequency up to 20 kHz (depends on sensor type)
- Temperature compensation between 10°C to 60°C
- Ambient light compensation
- Color resolution ΔE < 0.1
- Repeatability < 0.5 ΔE
- Color calibration with very high agreement between sensors < 1 %
- Auto gain mode
- CIELab, Tristimuls XYZ, Yellowness Index, Whiteness Index and opacity measurement

Peculiarity of PREMOSYS CIELab Color Sensors

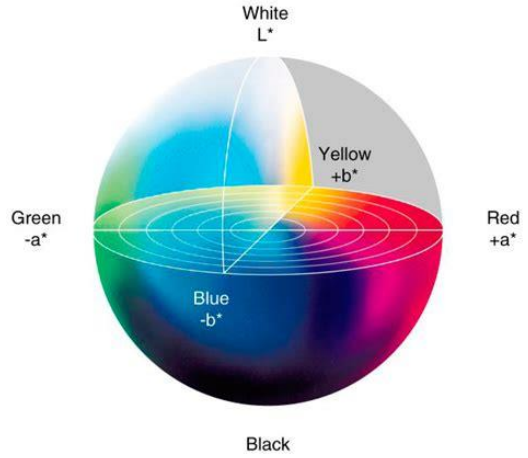
Conventional color sensors

- RGB color sensors use only a very small range of colors that can be perceived by humans
- RGB color sensors work with filters and only evaluate intensity changes, not real colors.
- RGB color spaces are not standardized, there are different and individualized color spaces for each application. It is very difficult to compare the results of different RGB sensors.
- There is no clear replicability across the entire supply chain.



PREMOSYS CIELab color sensor series and unique selling points

- Standardized color space that contains all colors that can be perceived by humans
- Standardized, equally spaced, device-independent, and based on human perception
- Enables lossless conversion of color information from one color system to others
- The RAL-Design-System uses the Lab-formalism, which is obligatorily prescribed by DIN 6174
- Enables a very accurate measurement in the entire color spectrum, especially in the blue/green range, where RGB color sensors show strong deficits
- Measured values between laboratory and production correlate and can very easily be transferred to laboratory values by the user (user calibration in the application)



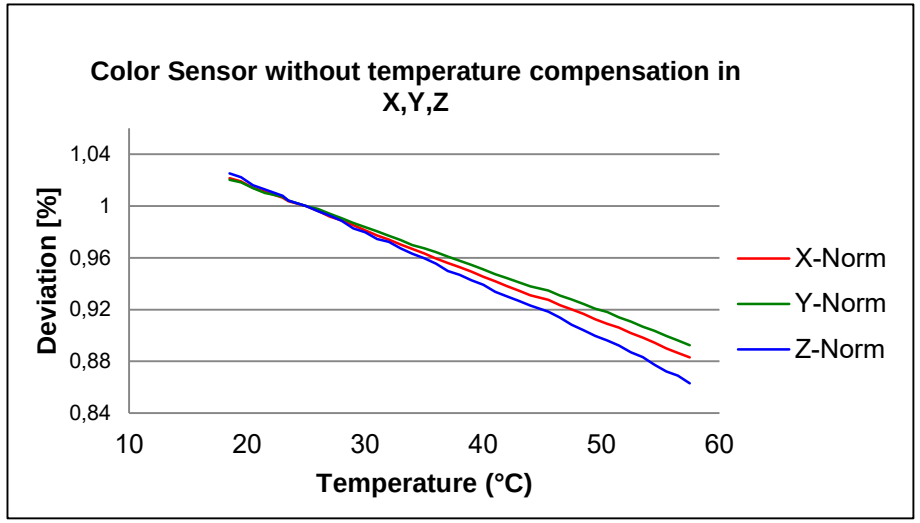
Peculiarity of PREMOSYS CIELab Color Sensors

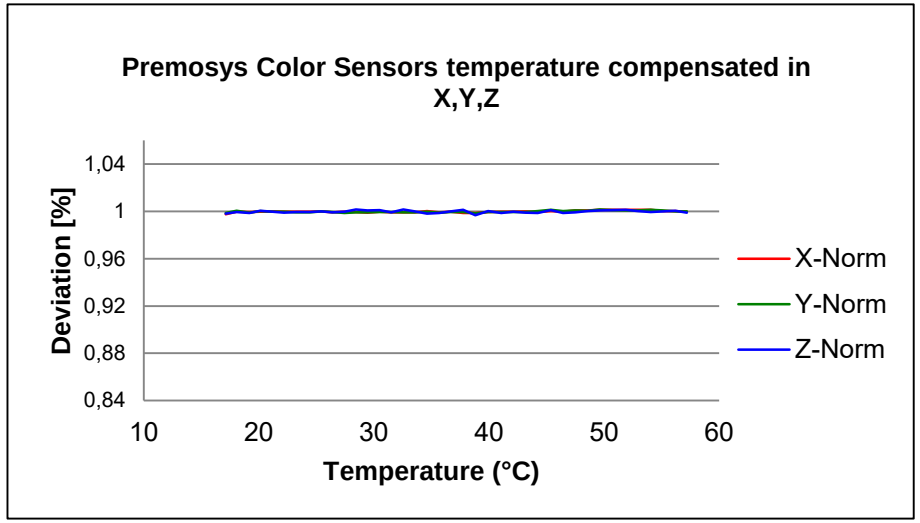
Advantages of Premosys CIELab Color Sensor Series

- True color sensor (use of the entire standardized CIELab color range)
- Reproduction of natural, human color perception
- Temperature compensated
- Long-term stable
- Process-safe
- Calibrated and traceable to standards
- Very high measuring frequencies (therefore suitable for many applications)
- Can be combined with many PREMOSYS accessories
- Very long lifetime >10 years
- Maintenance free

Unique selling propositions

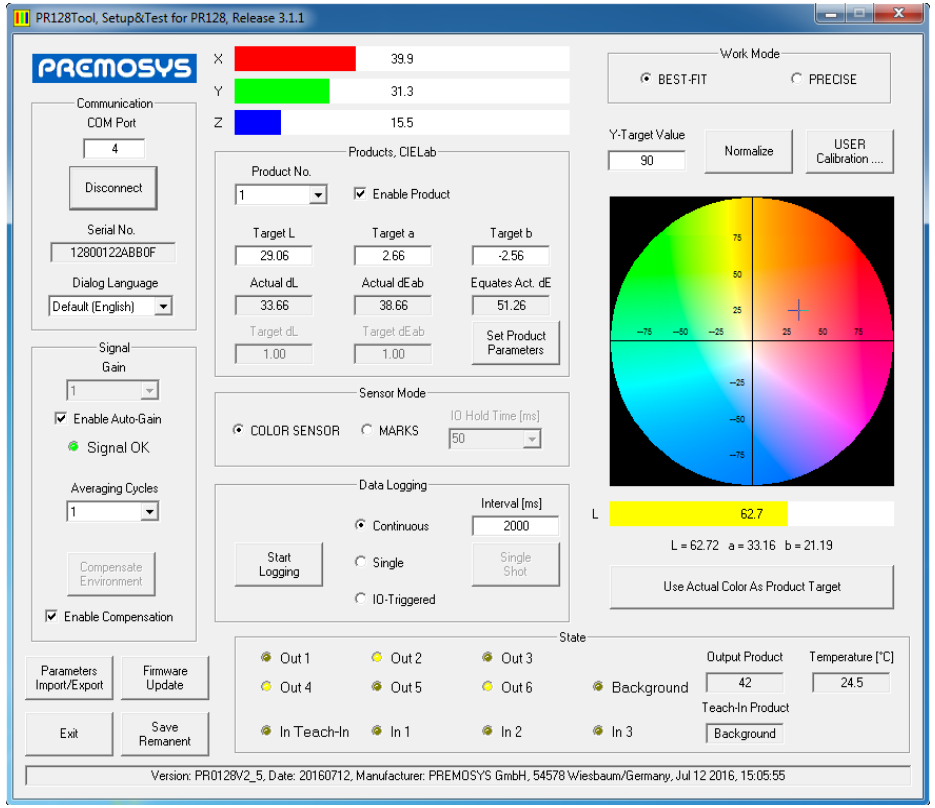
- Temperature compensation in the range 10°C to 60°C
- Very stable over the entire temperature range
- Color calibration in own calibration laboratory, absolutely replicable
- Standardization for quality assurance via reference plate by the user possible at any time
- Extremely high cross-device consistency
- No annual calibration costs





CIELab Color Sensor PR0126-C & PR0128

The CIELab Color Sensor PR0126-C and PR0128 is used to realize the most demanding industrial color detection applications.

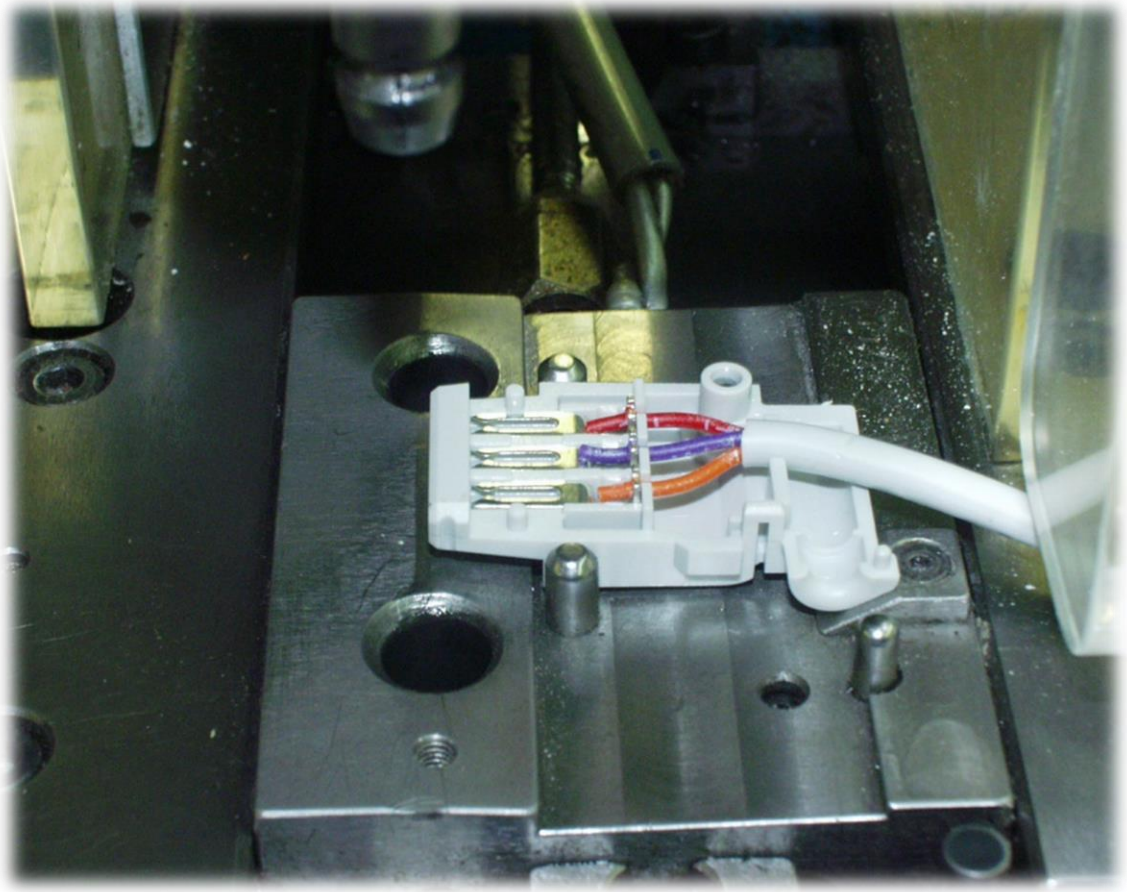


Features:

- Up to 63 products which can be stored
- Detection range 380 nm – 700 nm
- Color resolution ΔE < 0.1
- Repeatability < 0.5 ΔE
- Switching frequency 500 Hz (up to 1.6 kHz)
- Separate evaluation of ΔL and Δab possible (PR0128)
- Temperature compensation in the range 10°C to 60°C
- Color calibration with very high cross-device consistency < 1 %
- CIELab for colors "ab" and intensity "L"

CIELab Color Sensor PR0126-C and PR0128 - Applications

Checking whether the correct cable color is in the intended position with a PR0126 CIELab color sensor.

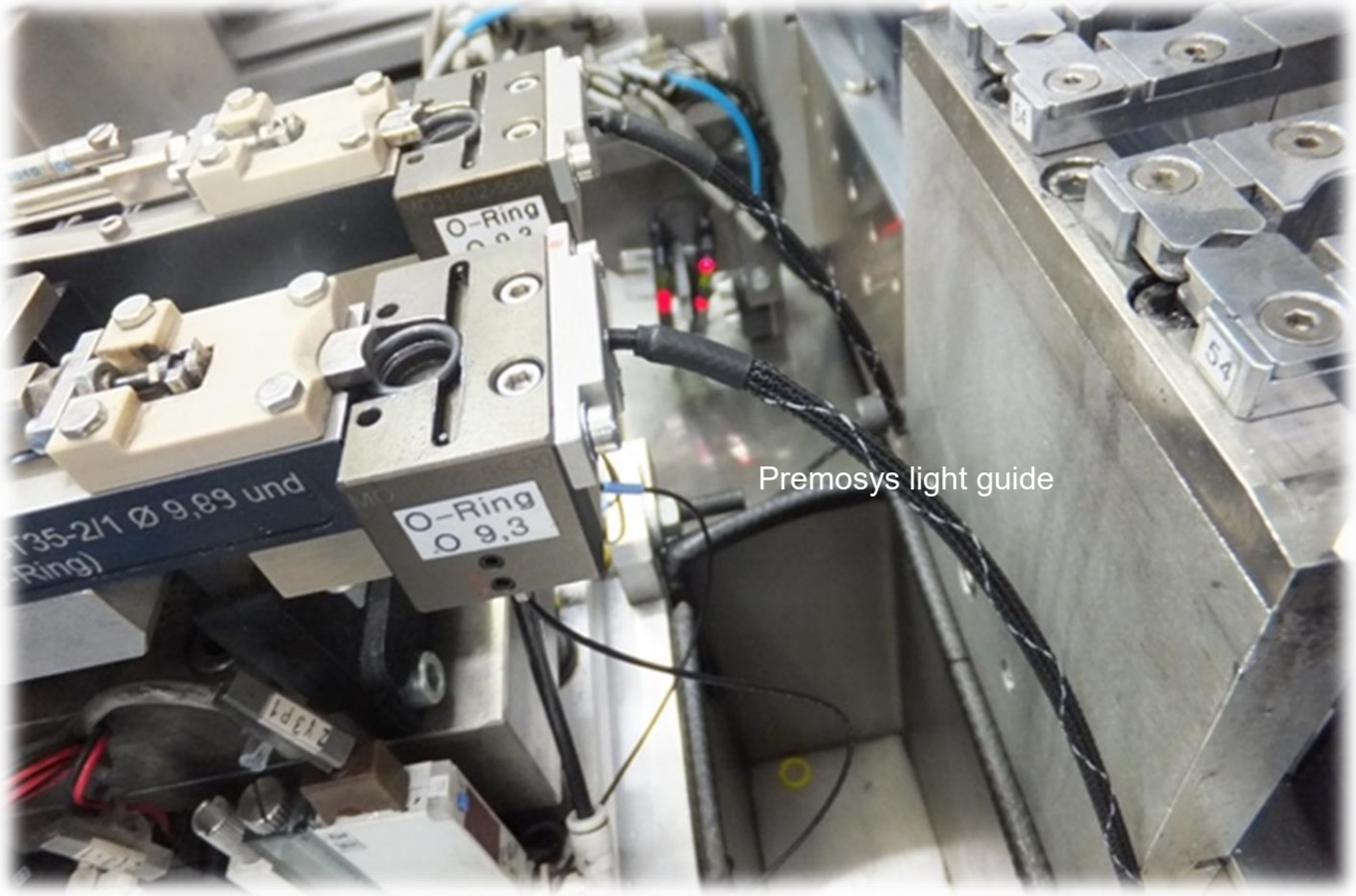


CIELab Color Sensor PR0126-C and PR0128 - Applications

Color inspection of inlays of high-quality dials to ensure that the coloring
of all inlays match
(CIELab color sensor PR0126)

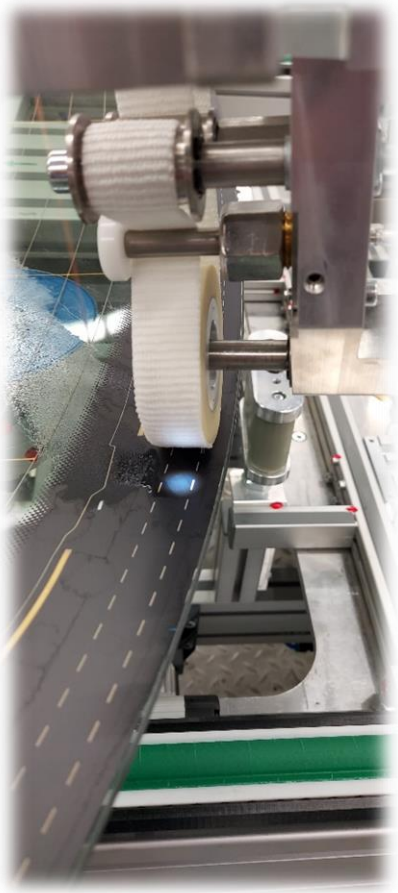
CIELab Color Sensor PR0126-C and PR0128 - Applications

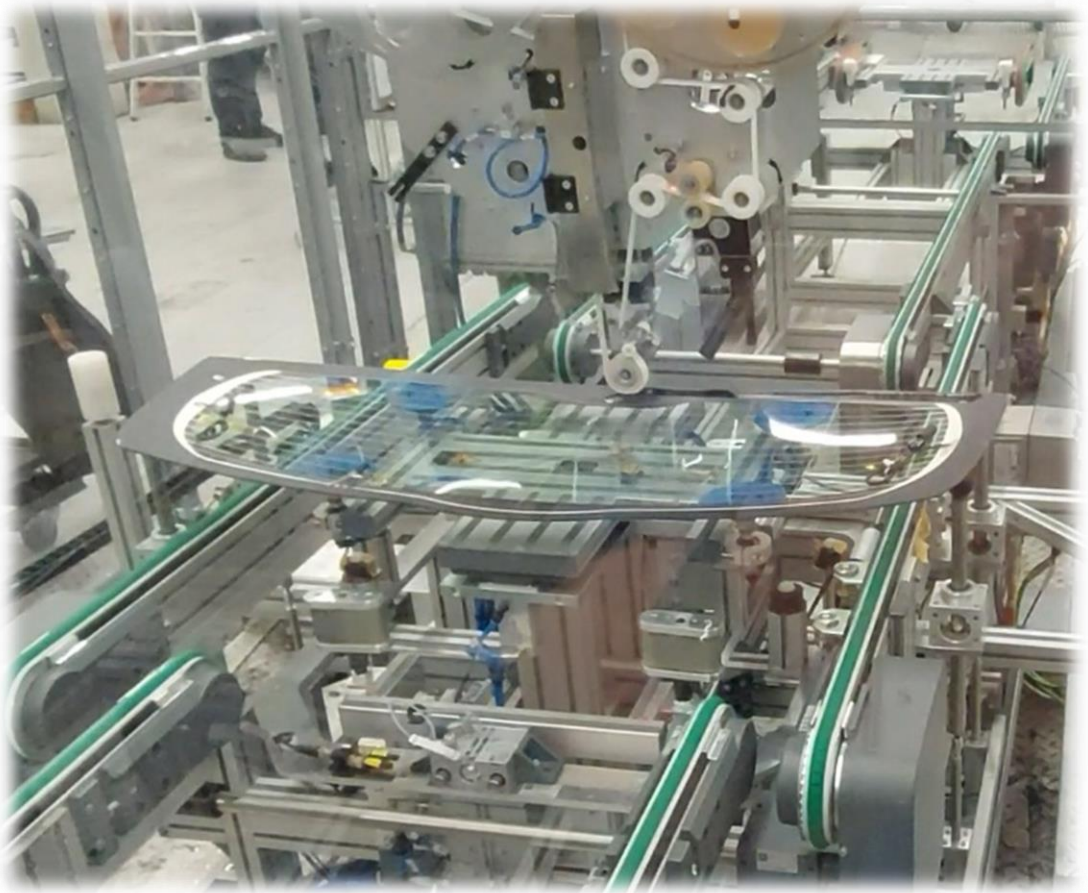
Checking whether a component is inserted in a fixture with a PR0128
CIELab color sensor (presence check of components).



CIELab Color Sensor PR0126-C and PR0128 - Applications

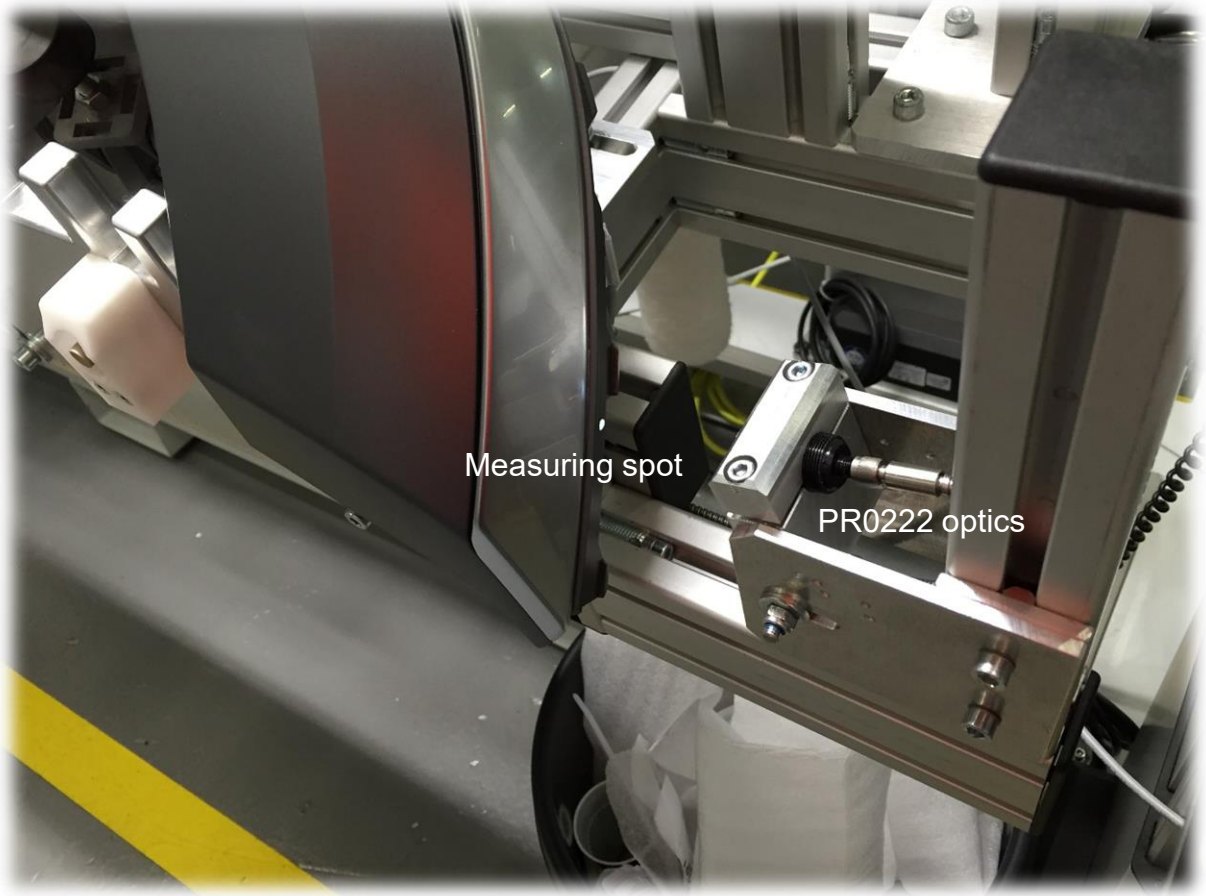
Full automated detection of cleaner on a car window with Premosys PR0128 CIELab color sensor on a robotic arm.





CIELab Color Sensor PR0126-C and PR0128 - Applications

Color check whether the correct plastic panel has been installed on the dashboard with a PR0126 CIELab color sensor.

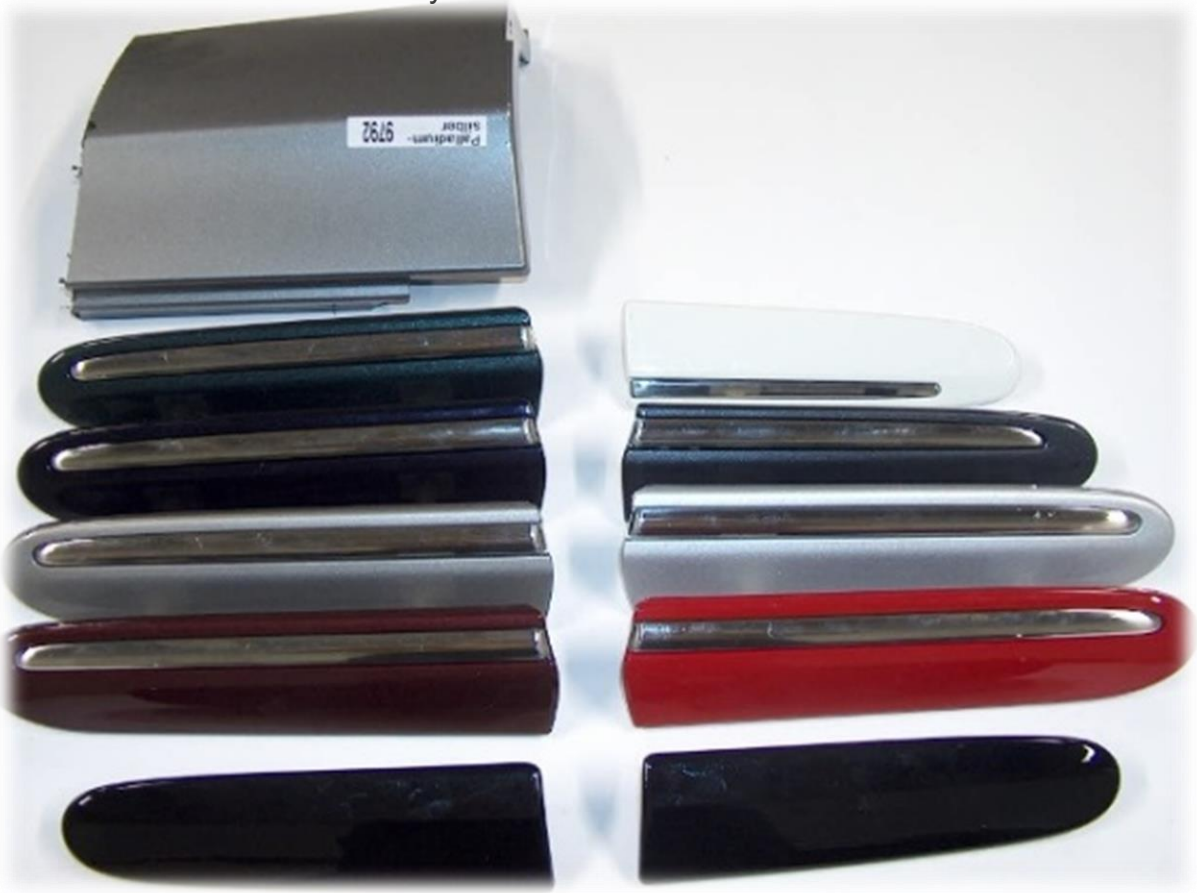


CIELab Color Sensor PR0126-C and PR0128 - Applications

Presence check of adhesive on a white plastic component with a PR0128 CIELab color sensor.

CIELab Color Sensor PR0126-C and PR0128 - Applications

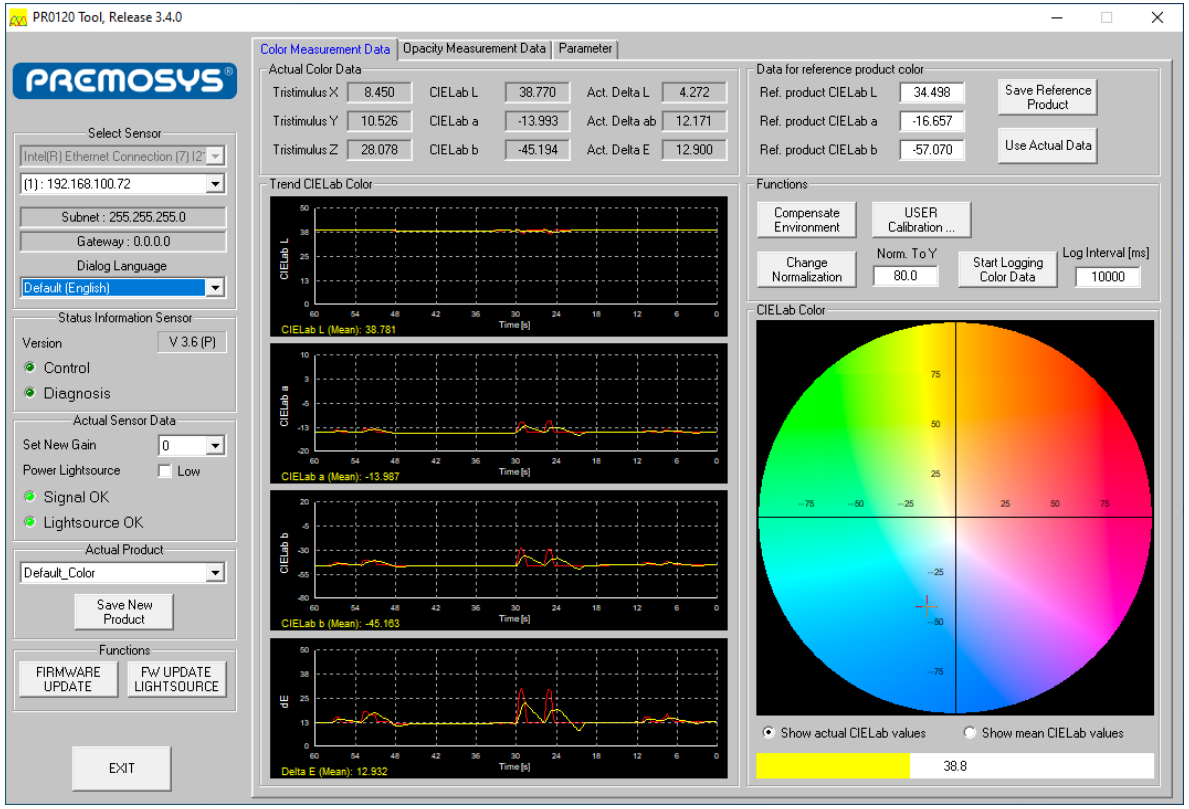
All types of colored attachments, assemblies and products can be distinguished. Furthermore, a pure presence detection of components, applications or liquids is possible.
The possibilities for the use of a Premosys CIELab color sensor are very diverse.



CIELab Color Sensor PR0120 with light source PR0108

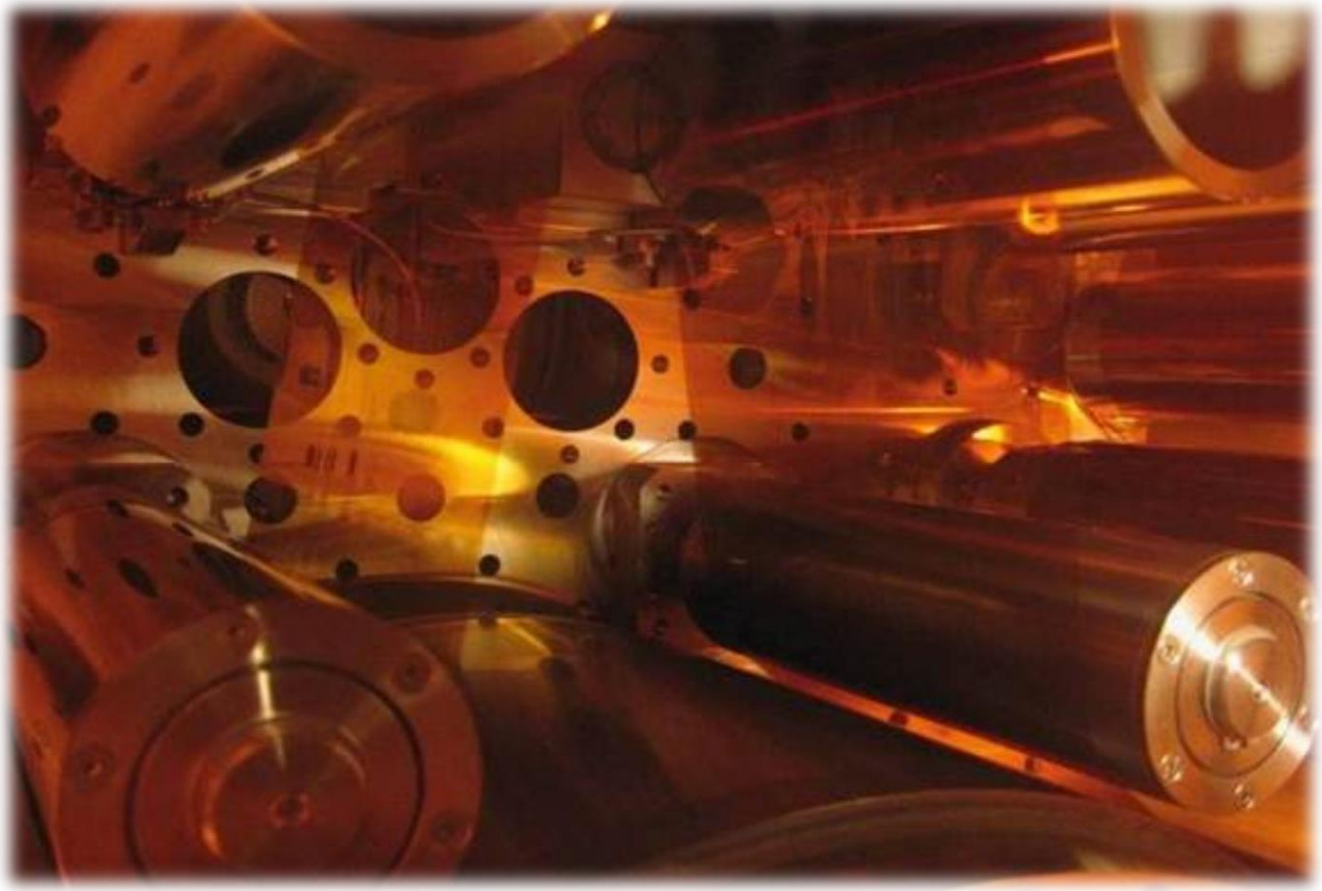
Features:

- Sampling rate 2 kHz selective (up to 20kHz)
- Detection range 380 nm – 700 nm
- Ambient light compensation
- Resolution 16 bits in 11 gain stages
- Synchronous detection of all color channels
- 100 Mbit Ethernet interface UDP
- Intelligent broadband light source PR0108
- Various lenses for variable measuring distances



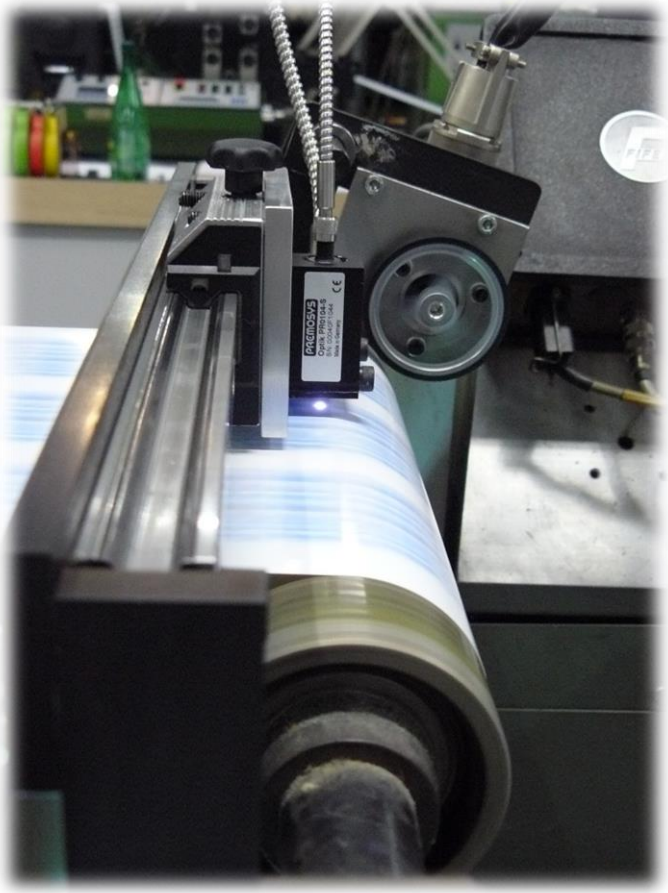
CIELab Color Sensor PR0120 with light source PR0108 - Applications

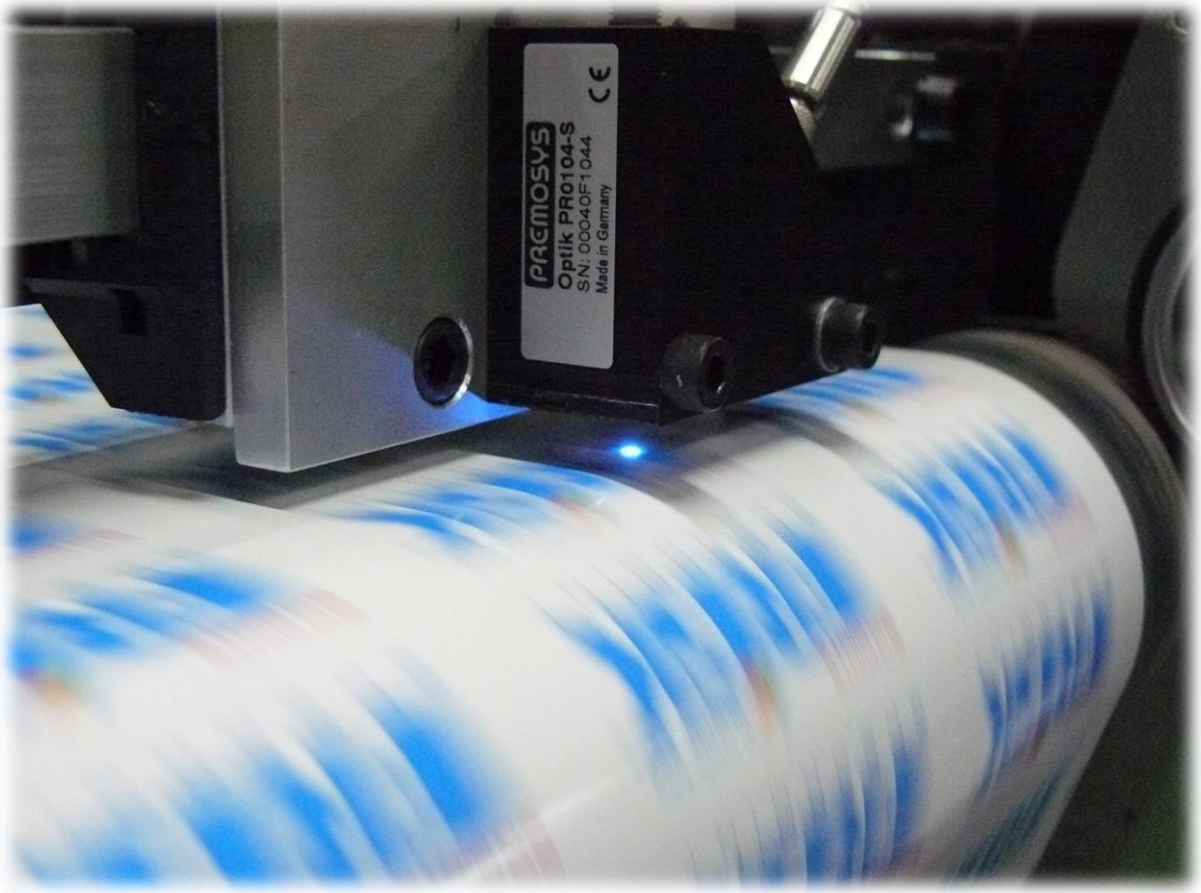
With the help of transmission measurement, transparent foil is illuminated from one side and it is measured how much light is still received on the other side, thickness of foil can be determined. At the same time, the color values of the foil can be checked.



CIELab Color Sensor PR0120 with light source PR0108 - Applications

With a measuring speed of up to 20 kHz, print marks on paper are detected in order to adjust the alignment of the printing units to an accuracy of 0.01 mm (Patented system).





CIELab Color Sensor

Inline-quality testing of granulates, plastics and liquid colors

PR0086-S - CIELab Color Checker

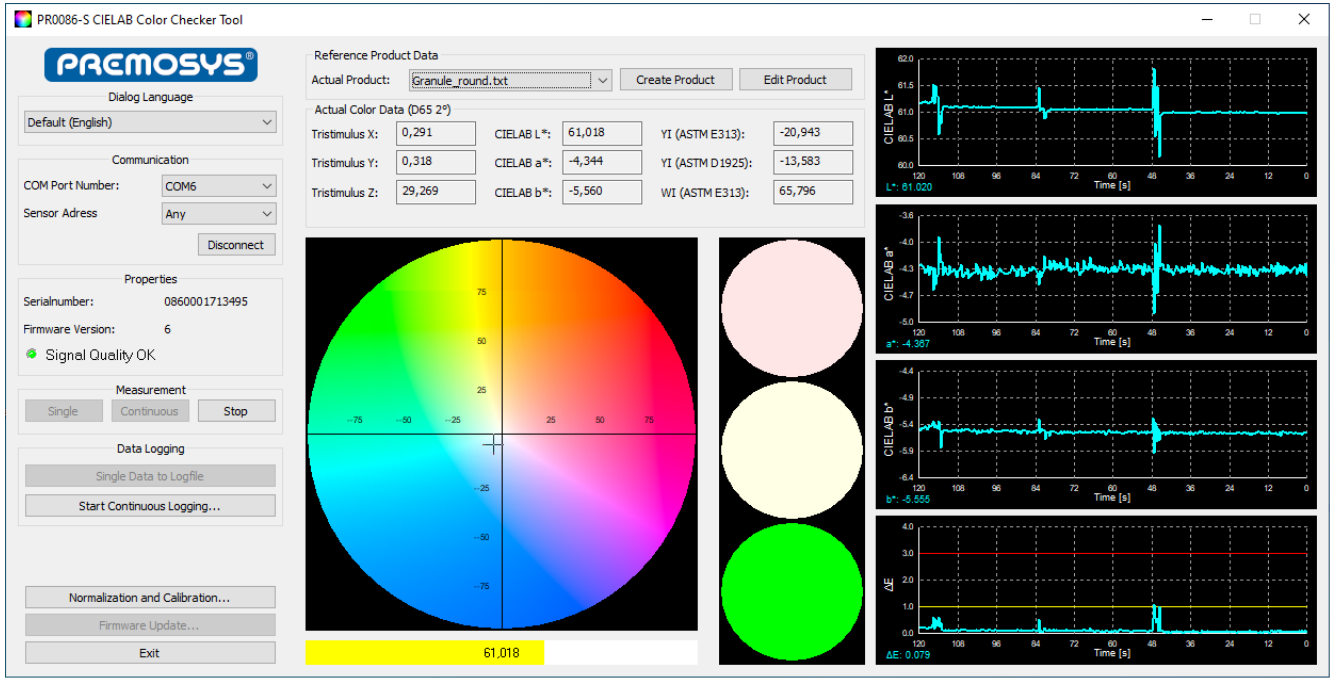
Features:

- Integrated LED light source
- Detection range 380 nm – 700 nm
- Measuring frequency ~10 Hz
- Measuring method: Differential measurement
- Temperature compensation in the range of 10°C to 60°C over all gain levels
- Output: CIELab, Chromaticity and Tristimulus via RS485 interface
- Relative accuracy < 0,5 ΔE (between systems)
- Repeatability < 0,05 ΔE
- SDK (WIN32DLL) for direct communication with a wide range of PC systems

PR0086-S - CIELab Color Checker

PC Software:

- Easy data acquisition and recording in real time
- Freely adjustable color and intensity tolerances
- Definition of limit values for individual color values
- Definition of limit values for color intensity
- User interface with traffic light function good/critical/bad
- Color and intensity trends transparently traceable via diagram progressions
- Log function of the measured values



PR0086-S - CIELab Color Checker

Advantages:

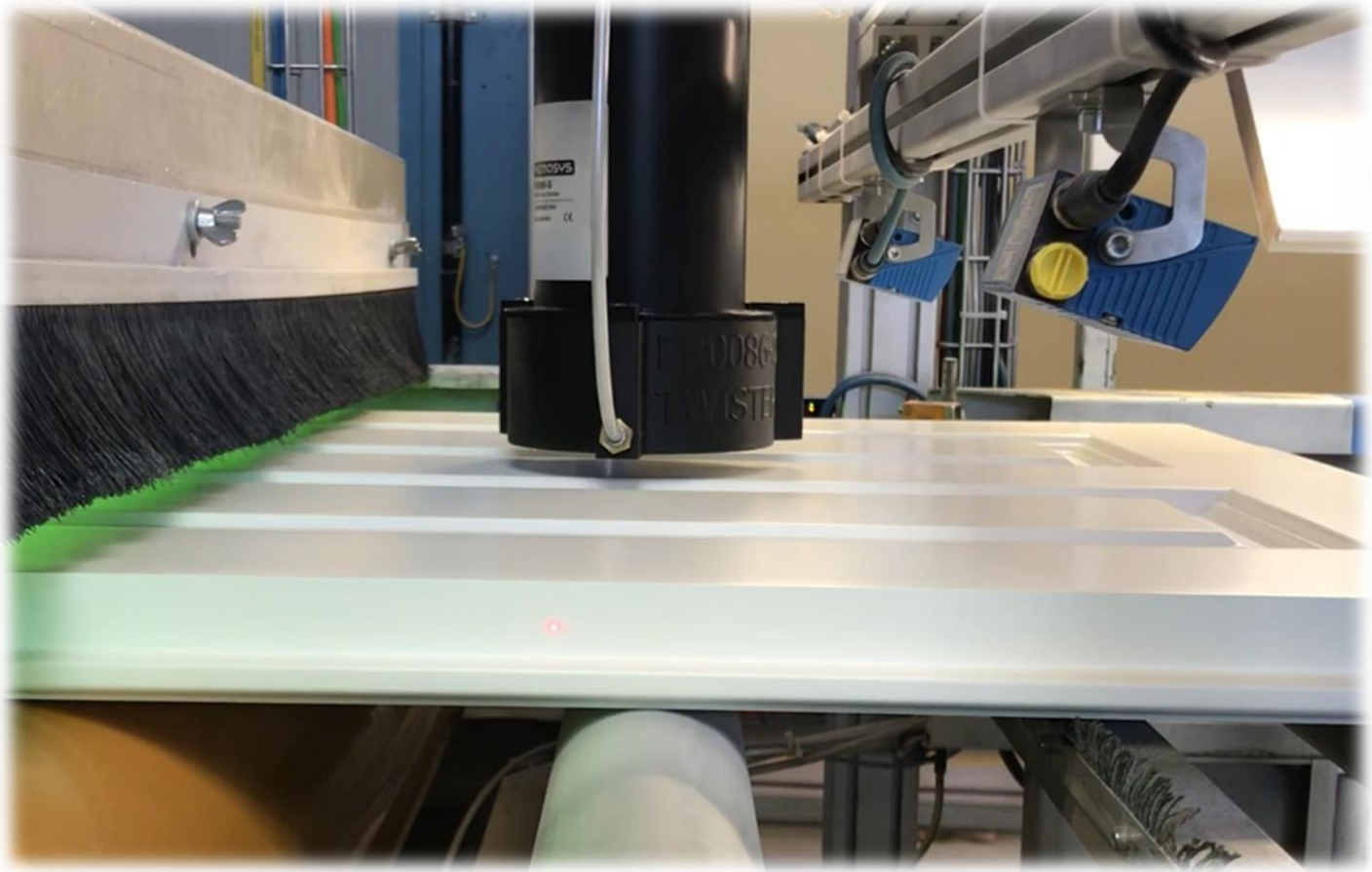
- Inline color measurement, designed for harsh production and environmental conditions
- Process-safe color detection of inhomogeneous or crystalline surfaces / products
- Very high absolute color accuracy Repeatability < 0.05 ΔE
- Relative accuracy < +/-0.5 ΔE (also between systems)
- By means of factory or user calibration, absolute values are achieved that are comparable to values of spectrometers

Unique selling points:

- Long-term stability of the LED unit through special prefabrication
- Temperature compensation in the range of 10°C to 60°C
- System is absolutely stable in this temperature range
- No annual calibration costs
- Standardization for quality assurance via reference plate by the user possible at any time

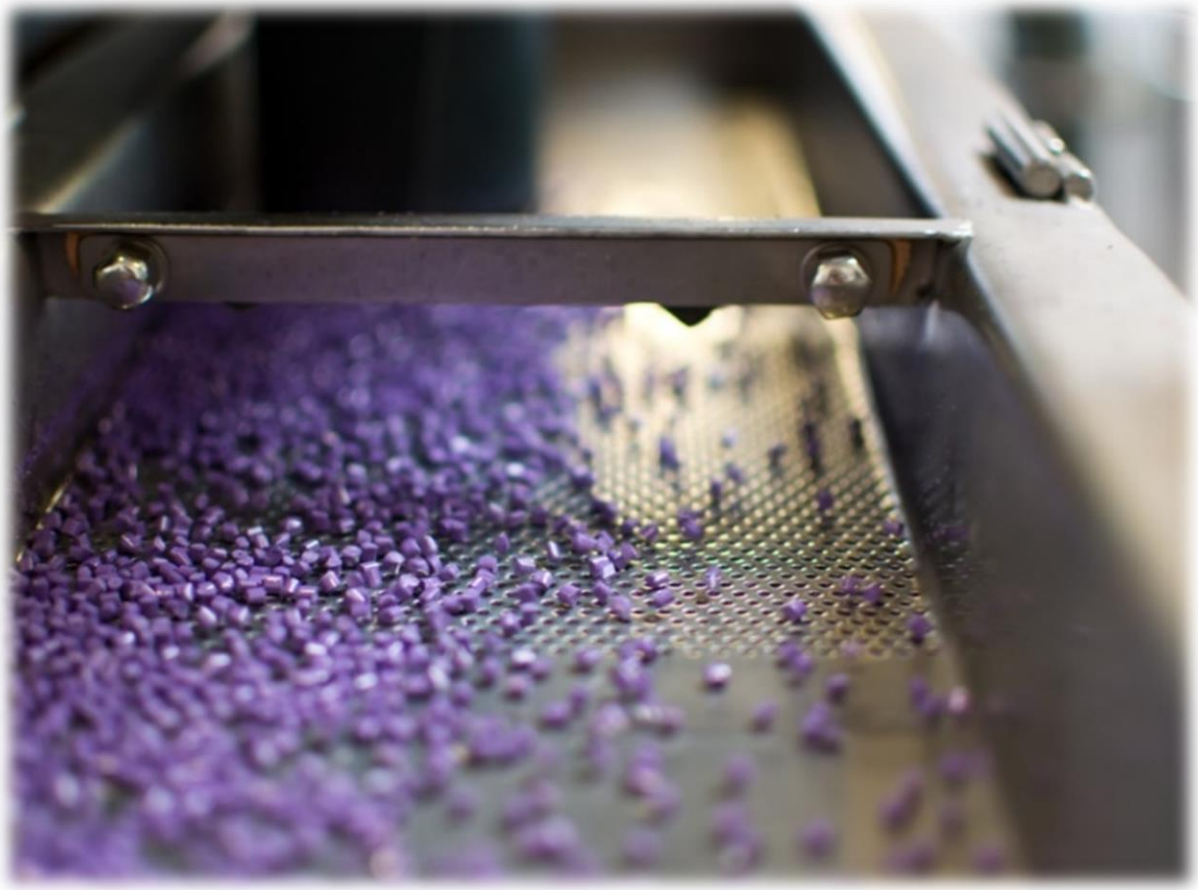
PR0086-S - CIELab Color Checker - Applications

Automated testing of the homogeneous color of front doors with the PR0086-S CIELab Color Checker.



PR0086-S - CIELab Color Checker - Applications

Testing the color of plastic granules on the conveyor belt after production with a PR0086-S CIELab Color Checker.



PR0086-S - CIELab Color Checker - Applications

Checking whether the UV protective coating is continuously applied to the produced glass pane with the PR0086-S CIE Color Checker.

PR0086-S - CIELab Color Checker - Applications

Determining the degree of seasoning of potato chips by checking the color of the seasoning mix.

QuickMatch - Inline color measurement

Continuous process control in the plastics, food and paint industry

Features:

- QuickMatch inline color measurement for process control in the plastics, food and color industries
- Application-oriented and practical development with partners from the industry
- Quality control of liquid and pasty materials up to 360°C
- Reflectance measurements in extruders or in liquids (QuickMatch I)
- Transmission measurements in extruders (QuickMatch II)
- Long-term stable results due to intelligent broadband light source
- Application-specific and matched accessories for high-precision true color detection

QuickMatch I

QuickMatch II

QuickMatch - Inline color measurement

Continuous process control in the plastics, food and paint industry

DLL

High temperature resistant optical fibers

Extruder insert

- Extruder insert with sapphire lens
- Screw-in thread ½ - 20 UNF (Dynisco)
- Temperature resistant up to 360 °C
- Pressure resistant to 500 bar

Immersion probe food industry

- Immersion probe with sapphire lens
- Temperature range -40 to 120° C
- Pressure resistant to 2 bar

Immersion probe for paints/coatings

- Immersion probe with glass lens
- Temperature range -40 to 120° C
- Pressure resistant up to 2 bar

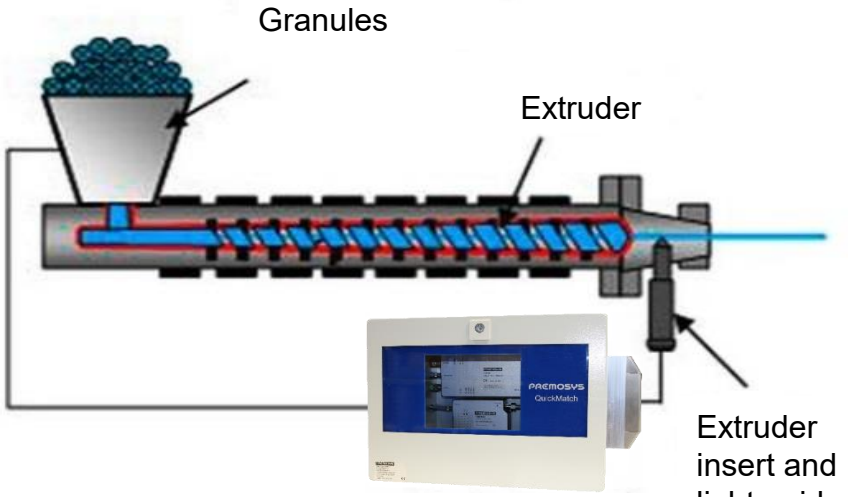
QuickMatch - Inline color measurement

Continuous process control in the plastics, food and paint industry

The QuickMatch is a real-time inline measuring system for checking color fidelity of molten plastic in extruders of coatings, paint, pasta products and beverages.

Thus, deviations can be detected early in the process, even before the material is extruded.

Rejects and costs can be reduced concisely by such early quality inspections.



High temperature resistant light guide

Pressure and temperature resistant titanium extruder insert

QuickMatch - Inline color measurement

Continuous process control in the plastics, food and paint industry

PC Software:

- Easy data acquisition as well as recording in real time
- Freely adjustable color and intensity tolerances
- Limit setting for individual color values
- Limit value definition of the color intensity
- Color change of the user interface when limit values are exceeded
- Color and intensity trends transparently traceable via diagram progressions

QuickMatch - Inline color measurement

Continuous process control in the plastics, food and paint industry

Advantages and unique selling points:

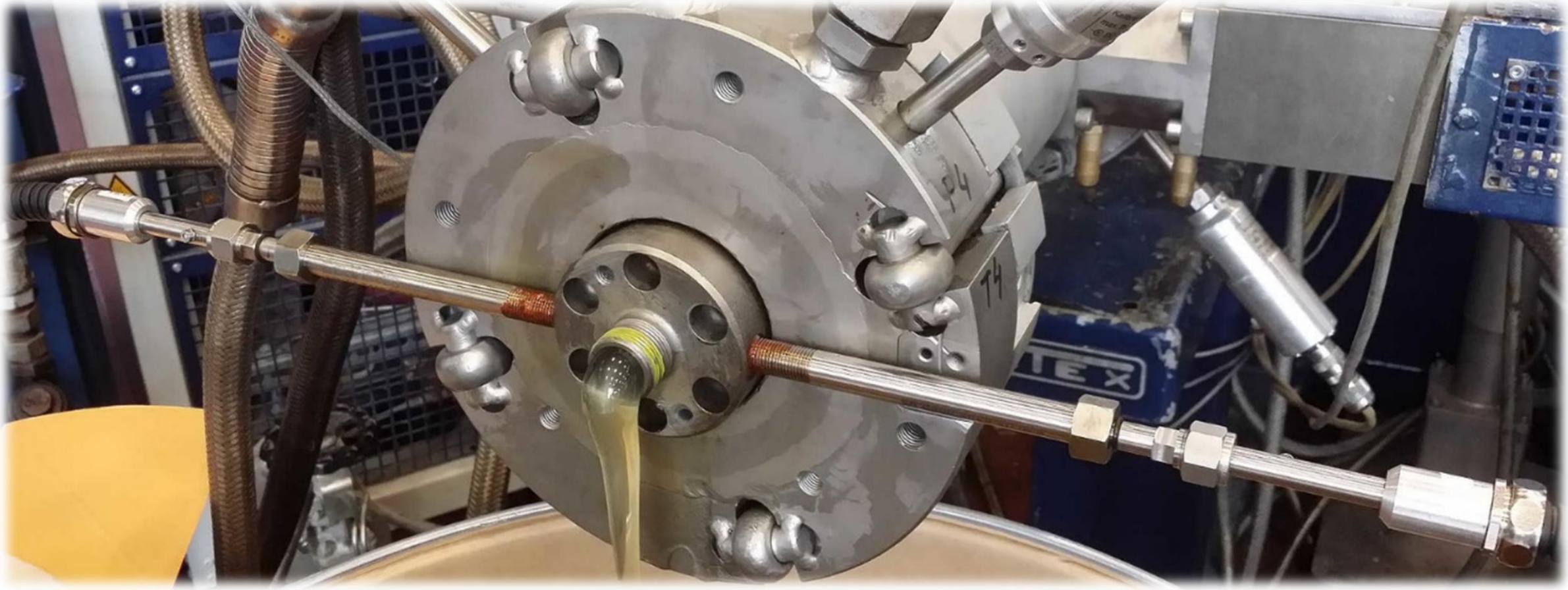
- Reliable color detection of liquid or pasty products
- Long-term stability at high process temperatures up to 360°C
- Monitoring of homogeneity of product colors in the process and holistic control of process stability
- Color resolution <0,1 ΔE
- Repeatablitiy < 0,2 ΔE
- Intelligently controlled light source to compensate for spectral fluctuations

QuickMatch I

QuickMatch II

QuickMatch Inline color measurement system - Applications

Transmission measurement of transparent liquid plastic to determine the yellowness index with QuickMatch II.



QuickMatch Inline color measurement system - Applications

Incident light measurement to check the color of the liquid plastic with the QuickMatch I.

QuickMatch Inline color measurement system - Applications

Incident light measurement to check the color of dough with the QuickMatch I. When the color is within a certain tolerance range, The stirring process will be stopped.

QuickMatch Inline color measurement system - Applications

Incident light measurement to check the color of wall paint with the QuickMatch I. When the color is within a certain tolerance range, The mixing process will be stopped.

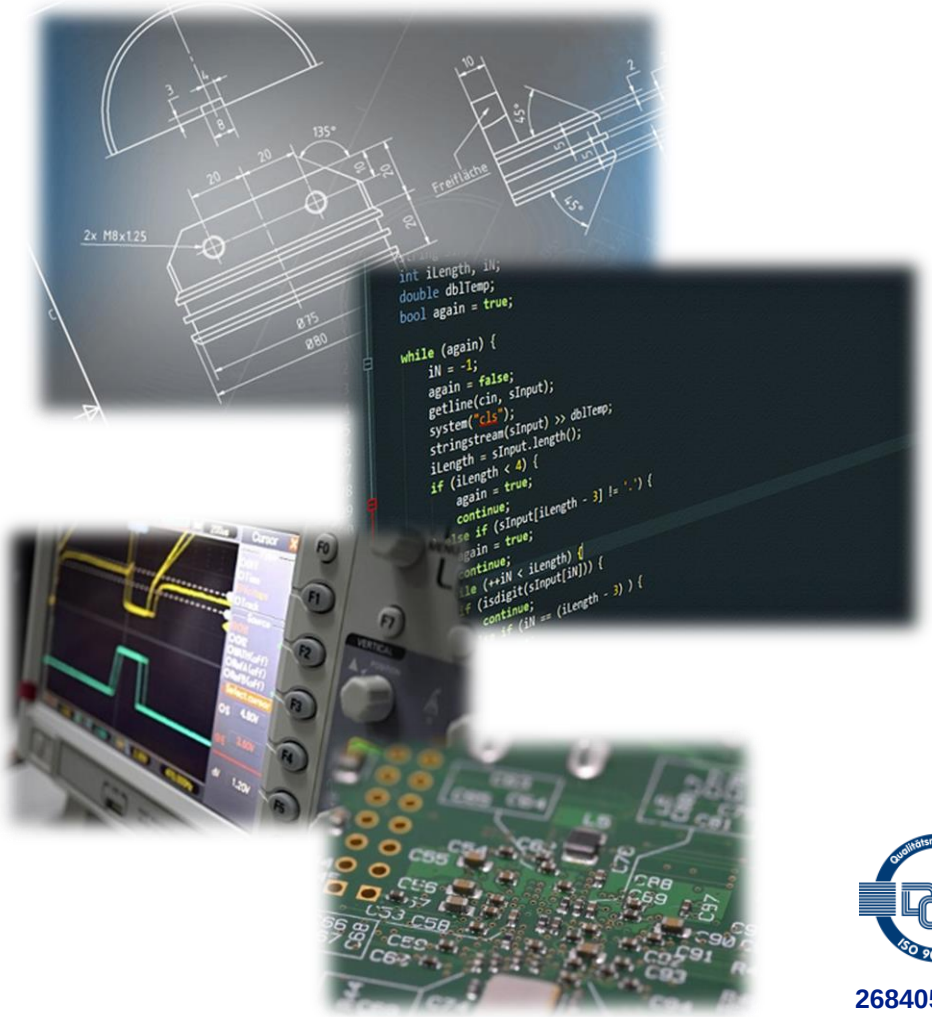
Premosys as a competent partner

Advantages of Premosys color measurement systems:

- High-resolution color measurement sensors
- Measuring frequency up to 20 kHz
- Detection range 380 nm - 700 nm
- Ambient light compensation
- Temperature compesnation range 18 °C to 60 °C over all gain levels
- Long-term stable measurement results
- High color resolution
- High repeatablitity
- Factory calibrated
- Matched accessories
- Individual control and evaluation via SDK (WIN32DLL)

Premosys as a competent partner

- Active in research & development of new technologies
- All products are developed and manufactured in-house
- By concentrating all competences Premosys is flexible and can react individually to markets
- Fast reaction times due to good internal organization of all employees
- Sustainable and resource-saving production through year-based production planning



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