CR210PN
Color Sensor

The CROMLAVIEW® CR210PN color sensor processes colors in a perceptual way (i.e. according to human perception) and assesses color distances with the precision of the human eye. Color distances are measured and assessed the same way humans would do.

This sensor offers a maximum of flexibility, as it can be combined with a large number of optical fibers and focus optics by means of an optical fiber connection. On the other hand, multiple interfaces leave nothing to be desired. The color sensor, for example, can be connected with the computer via RS232 or USB interfaces. The freeware software CR-Tool, supplied with all CROMLAVIEW® color sensors, facilitates the parameterization and the visualization of color values. Besides that, the color sensor can also be operated using the buttons.

For easy integration in industrial automation, the CR210PN has been equipped with a Profinet interface. This interface, is frequently used for the control of sensors and actuators in production engineering. The control itself is performed by a central control (SPS), which often plays an important role in standard diagnostic options.

As all the other CROMLAVIEW® color sensors, the CR210PN is also equipped with the CROMLASTAB® technology, which protects it from temperature and age drift and thus ensures secure and reliable operation in the whole life cycle.

Key Features

- **Up to 350 colors can be stored**
- **Quick response time from 50 µs**
- **12 channels, with binary encoding 4096 output combinations**
- **Long-term stability of color recognition without new teach-in by CROMLASTAB®-technology**
- **Finest color differences can be detected (ΔE < 1)**
- **Standard interfaces: USB, RS232, 12 push-pull outputs (24V/100mA)**
- **Field bus interface: Profinet IO**
- **PC software CR-Tool for parameterization and visualization of color values**

Applications

- Print mark detection
- Check the presence of assembly parts
- Checking functional and color coatings
- Color inspection for quality assurance
- Sorting tasks

Options and accessory

- Fiber optics
- Optics
- Fiber spacer
- USB cable

Technical Data

Sensing channels	1 Sensing channel
	1 Internal stabilization channel
Drift stabilization	CROMLASTAB®, can be switched off
Receiving detector	Three range photo diode
Sensitivity	Adjustable by user
Sensitivity steps	8 (1x, 4x, 20x, 40x, 80x, 200x, 400x, 800x)
Receiving signal resolution	3 x 4096 steps
Object illumination	High-power white light LED,
	Adjustable (4096 steps)
	Can be switched off
Ambient light compensation	Can be switched off
Standard Interfaces	12 Switching outputs
	2 Control inputs
	Serial (RS232)
	USB
Field bus interface	Profinet IO
Displays	20 LEDs for outputs and status
Buttons	3 buttons for Teach-In
Color resolution	$\Delta E_{Lab} < 1$
Response time	≥ 50 µs [1]
On-/Off-Delay	0 ms … 65535 ms
Hysteresis	0 % … 250 %
Color output channels	12, up to 350 with binary encoding
Protection standard	IP 54
Power supply	18 … 28 VDC, max 500 mA
Case temperature during operation	-10 °C … 55 °C
Coupling in signal path	Via optical fiber
Case material	Aluminium, anodized
Case size	100 mm × 70 mm × 30 mm
Weight	Approx. 295 g

[1] Limited functionality

Vers. 1.0 (2015-02-27), 18-3021-02, Datasheet_CR210PN_EN_V1.0.docx