



Compact Reflex colour sensor

Series WLCS-CP3

- 3 Colour channels
- Teach-In, LCD-Display
- Operating distance typ. 5-45 mm
- Colour and intensity detection (C and C+I)
- PNP / NPN /RS485 (optional)

Description

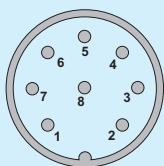
The series **WLCS-CP3** sensor provides a comprehensive reflex colour sensor in a compact 50x50 mm housing with a width of only 25 mm, especially designed for use in automation industry.

The WLCS-CP3 is able to detect 3 different colours, each stored in a separately output channel. Every channel can be configured separately with **10 tolerance levels** and operating mode type "C" (colour) or "C+I" (colour and intensity). Every channel detects the colour values stored in the EEPROM and activates an output type PNP or NPN (depending on selected type).

An adjustable delay timer (0-40 ms), KEYLOCK and an external SYNC input (for detection at specified point of time) extend the functionality of the sensor.

Via the RS485 connection, commands can be sent and complete information can be received. (Only available on types with serial interface)

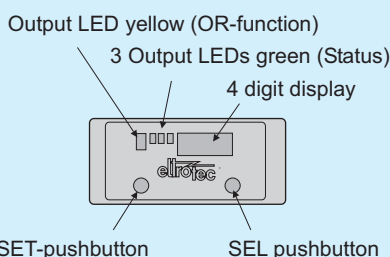
Connections



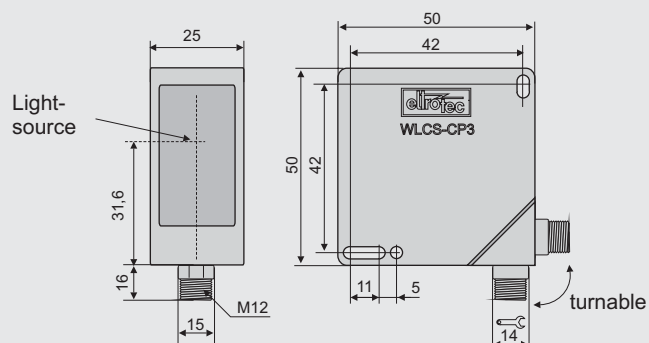
Plug M12

- | | | |
|---|------|-----------|
| 1 | wh | Rx/Tx - |
| 2 | bn | +10-30VDC |
| 3 | gn | OUT 1 |
| 4 | ye | OUT 2 |
| 5 | gr | OUT 3 |
| 6 | pink | Rx/Tx + |
| 7 | bl | GND |
| 8 | rt | SYNC |

Operating and display elements



Dimensions



All dimensions in mm

Technical data

| | |
|--------------------------|---|
| Operating distance | Working range 5-45 mm, best range 20-35 mm on dark surfaces 15-25 mm |
| Spot diameter | app. 4 mm Ø at 20 mm operating distance |
| .Light source | LED white, wavelength 400-700 nm Approx. life-time typ. 100.000 h at TA=+25°C |
| Power supply | 10-30 VDC limit values |
| Res. ripple | 2 Vpp max. |
| Current consumption | typ. 60 mA at 24V |
| Output | 3x NPN or PNP, depends on type overload and short-circuit protected (N.O.) |
| Output current | max. 100 mA / channel |
| Saturation voltage | ≤ 2V |
| Response time | 335 µs |
| Switch. frequency | 1500 Hz |
| Tolerance level | selectable in 10 steps, 9 bit resolution |
| Operating mode | C and C+I, independent for each channel |
| Timing function | selectable: 5, 10, 20, 30 and 40 ms |
| Additionally functions | external synchronisation Keylock RS485 (optional, depends on type) |
| Indicators | 4-digit display 3 Output-LEDs green 1 Output-LED yellow, "OR"-function |
| Connections | M12 plug, 8 pin turnable 90° |
| Protection | IP67 |
| Housing | ABS, lenses: glass |
| Weight | 100 g max. |
| Operating temperature | -10 °C to +55 °C |
| Storing temperature | -25 °C to +70 °C |
| Ambiente light rejection | according to EN 60947-5-2 |

Bedienung

The Reflex colour sensor series **WLCS-CP3** enables adjustment of channel, operating mode and tolerance for each of the 3 channels separately.

Settings are realized by pressing the pushbuttons **SET** and **SEL** and are shown in LCD-display.

Run mode

Setting mode

Place the object inside the operating distance, in the front of the sensor.

By pressing the **SET** button (min. 2 sec.) you will enter the setting mode

Use the **SEL** button to select the channel to detection

Press the **SET** button again to confirm the selection. The sensor then automatically passes into the operating mode selection.

Press **SEL** to select the required operating mode.

Press the **SET** button again to confirm the selection.

The "updt" text blinks for 2 sec. in the display

The sensor then automatically passes into the tolerance selection.

Press **SEL** to select the required value.

Press the **SET** button to confirm the selection

The "FAIL" alternates with "LO" or "HI" is visualised if the detection is not correct, please repeat the procedure starting from the operating mode..

Delay setting

The delay value setting is in common for all three outputs. When a delay value, different from zero, is set the outputs will be maintained to be active for a minimum time, which is equal to the number of milliseconds visualised in the display.

(In run mode "rund" is shown on display, when a delay d>00 is set.)

Setting: Press the **SET** button (min 6 sec.) to access to the delay setting mode. Press **SEL** to select the required value. Press the **SET** button to confirm the selection

Status visualisation

This function allows a rapid control of the three sensor channel adjustments

By pressing the **SEL** button for at least 2 seconds you will enter the status visualisation mode. Pressing **SEL** again the channel, operating mode and tolerance are visualised in a sequential manner.

Non-initialised E2PROM

If the display indicates "E2Pr" the sensor does not have any of the channels initialised. In this case it is sufficient to program one single channel to obtain the "run" or "rund" visualisation on the display.

KEYLOCK

If at sensor power-up the SYNC wire is connected to +Vcc (HIGH) for at least 1 sec. the keylock function is activated and the pushbuttons are no longer active.

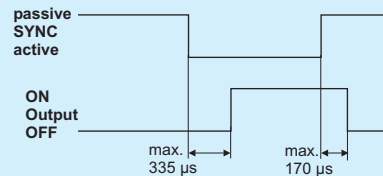
(After the first second, the SYNC input is available for normal operating modes)

To deactivate the keylock has to be turned off and re-powered with the SYNC wire not connected or ground connected.

SYNC Input

The SYNC can exactly determine the beginning and end of the colour identification. The outputs are updated max. 335 µs after the activated SYNC. All the outputs are deactivated after max. 170 µs from an active passage to a passive one.

(SYNC passive=Vcc, SYNC active=GND or open)



4- digit display

rund with delay
run without delay

SET1 channel1
SET2 channel 2
SET3 channel 3

C colour
C-I colour + intensity
updt colour is teached

TOL0 tolerance=0
TOL1 tolerance=1
...
TOL9 tolerance=9

d-00 without delay
d-05 5 ms
d-10 10 ms
d-20 20 ms
...
d-40 40 ms

Ch-1 channel 1
C-I operating mode
TOL2 tolerance
Ch-2 channel 2
...

E2Pr

Ordering information

| Product | Output | Serial interface | Part No. |
|----------------------|------------|------------------|-----------------|
| Reflex colour sensor | | | |
| WLCS-CP3* | PNP | - | 10232656 |
| WLCS-CP3 | PNP | RS485 | 10232657 |
| WLCS-CP3 | NPN | - | 10232654 |
| WLCS-CP3 | NPN | RS485 | 10232655 |

| Accessories | Part No. |
|---|----------|
| Connection cable | |
| CP03 , cable, 3m, 8 pin, M12 plug | 11232658 |
| CP05 , cable 5 m, 8 pin, M12 plug | 11232659 |
| * Stock type | |