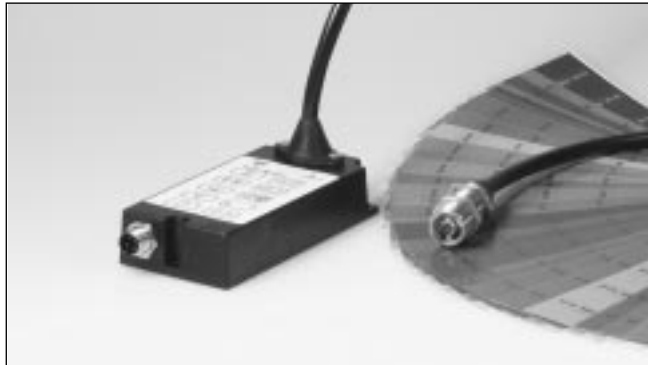


# Photoelectrics, Fibre Optic Sensor Colour Sensor Type PD12CNC0.BPM1T



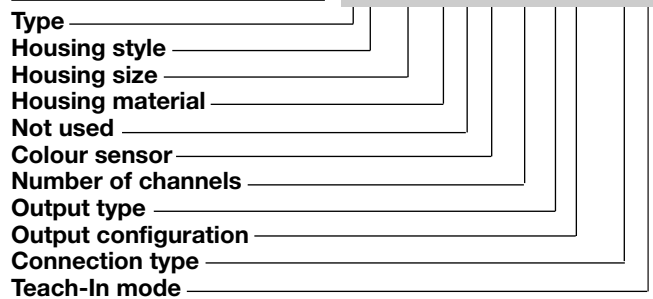
- Range: From 2 to 60 mm, fibre dependent
- Teach-In (keyboard or remote setup)
- Keyboard lock
- Detection of 1 or 1 to 4 recorded colours
- Microprocessor controlled and EEPROM parameter storage
- Operational voltage 24 V DC
- Output 100 mA, NPN and PNP
- Light or dark switching selectable
- M12 standard plug
- IP65 protection
- Timer: ON-delay or OFF-delay
- cUL and CE approved

## Product Description

The Colour Sensor is a fibre optic amplifier made specifically for recognition of 1 or 1 to 4 colours. Teaching of the colours is easily performed by means of the "Teach-in" function. Each colour has a separate output which can be delayed up to 5 sec by means of the built-in timer. The output function can also be programmed to be either NO or NC. The colour sensor is used for detection of coloured labels, marks, tags, wires, liquids, etc.

## Ordering Key

**PD12CNC04BPM1T**



## Type Selection Amplifier

Housing W x H x D	Range	Ordering no. 1-channel	Ordering no. 4-channel
61 x 115 x 26 mm	2 to 60 mm	PD12CNC01BPM1T	PD12CNC04BPM1T

## Type Selection Fibres

Detection distance	Spot	Cable length	Ordering no.
18 mm	Ø 1.5 mm	1000 mm	FPDC01SCC100
40 - 60 mm	Ø 6.0 mm	1000 mm	FPDC02SCC100
4 - 6 mm	Small tip	1000 mm	FPDC03SCC100
2 - 6 mm	Needle-nose tip	1000 mm	FPDC04SCC100

## Specifications

Detection distance (S <sub>n</sub> )	2 to 60 mm, (fibre-dependent)	No load supply current (I <sub>o</sub> )	120 mA
Analysis type	True RGB analysis	Voltage drop (U <sub>d</sub> )	
Teach input	Active Not active	I <sub>L</sub> = 100 mA I <sub>L</sub> = 10 mA	≤ 2.2 VDC ≤ 0.5 VDC
Recording time	1 sec	Timer	
Levels of sensitivity	Fine, medium and low	Range programmable	0 to 5 s
Temperature drift	< 0,4%/C°	First step	50 ms
Rated operational volt. (U <sub>B</sub> )	24 VDC ±10% (ripple included)	Following steps	250 ms
Ripple (U <sub>rpp</sub> )	≤ 10%	Protection	Short-circuit, reverse polarity, transients
Output current		Light source	LED, red, green and blue
Continuous (I <sub>e</sub> )	100 mA	Spot diameter	0.5 mm
Short-time (I)	100 mA	Ambient light	
		Incandescent light	3'000 Lux
		Sunlight	5'000 Lux

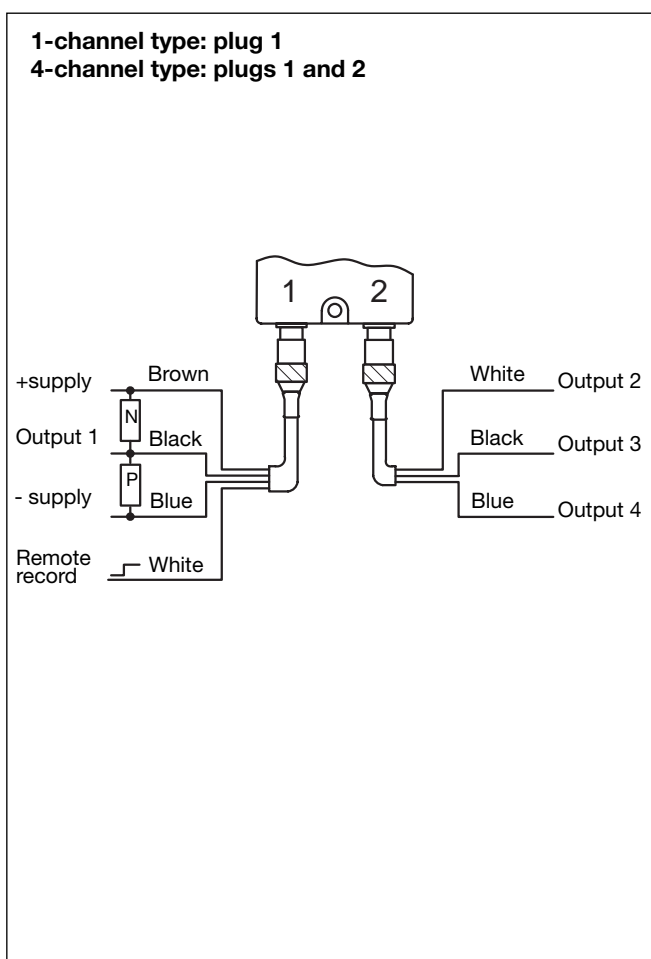


## Specifications (cont.)

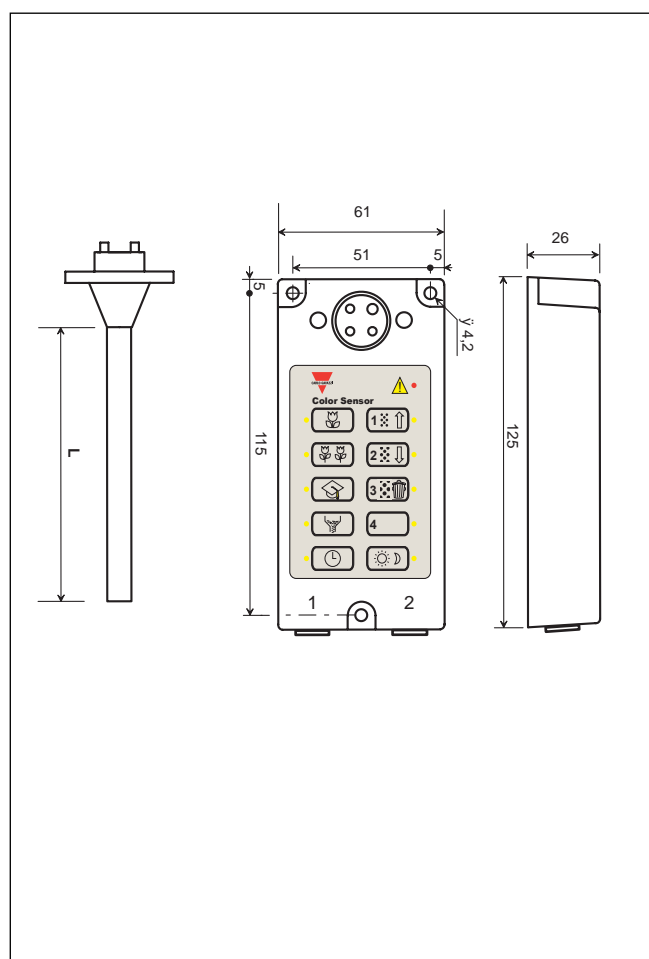
<b>Switching frequency</b> Mode "short distance" Mode "long distance"	500 Hz 25 Hz
<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	1 ms 20 ms
<b>Power ON delay (t<sub>v</sub>)</b>	≤ 300 ms
<b>Output function</b> NPN and PNP	Available (Push-pull output)
<b>Indication function</b>	Signal, Teach-in, Output ON
<b>Environment</b> Installation category Pollution degree Degree of protection	I (IEC 60664/60664A;60947-1) 3 (IEC 60664/60664A;60947-1) IP 65 (IEC 60529; 60947-1)
<b>Temperature</b> Operating Storage	0° to +40°C (32° to +104°F) -20° to +60°C (-4° to +140°F)
<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC60068-2-6)
<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-6, 60068-2-32)

<b>Rated insulation voltage</b>	50 VAC (rms)
<b>Housing material</b> Body Tip Tip dimensions Sheath Length (for each reference)	Polycarbonate NPB or anodized aluminium Ø 1.8 - Ø 18 mm PVC 60 cm and 100 cm
<b>Connection</b> Plug	M12
<b>Weight</b>	150 g
<b>Approvals</b>	cUL
<b>CE-marking</b>	Yes

## Wiring Diagram



## Dimensions



## Programming Functions

<p><b>Teach-in<sup>*)</sup></b></p>	<p>Place the object under the tip of the fibre and press</p> <p> for short distance or</p> <p> for long distance</p> <p>The Teach LED flashes</p>	<p><b>Light or dark operation</b> Change the output function</p>	<p>Press  for 4 s</p>
<p><b>Output</b></p>	<p>Select the output by pressing</p> <p>   or</p> <p></p>	<p><b>Timing function</b></p>	<p>Press </p>
<p><b>Sensitivity adjustment</b></p> <p>For fine sensitivity</p> <p>For medium sensitivity</p> <p>For low sensitivity</p>	<p>Sensitivity assigned for the selected output</p> <p>Press </p> <p>Press </p> <p>Press </p>	<p>To clear the Timer</p>	<p>The LED "Timer" flashes</p>
<p><b>Record colour</b></p>	<p>Place the object in position</p> <p>Press </p> <p>Select the output by pressing</p> <p>   or</p> <p></p> <p>The colour is recognized, and the corresponding LED goes ON</p>	<p>Increase time (50 ms/1st step, following steps: 250 ms/step)</p>	<p>Press </p>
		<p>Decrease time (50 ms/1st step, following steps: 250 ms/step)</p>	<p>Press </p>
		<p>Exit timer setting</p>	<p>Press </p>
		<p><b>Filter function</b></p>	<p>Press </p>
		<p>To clear the filter value</p>	<p>The "Filter" LED flashes</p>
		<p>Increase the filter value</p>	<p>Press </p>
		<p>Decrease the filter value</p>	<p>Press </p>
		<p>Exit filter setting</p>	<p>Press </p>
		<p><sup>*)</sup>To get started, unlock the keyboard by pressing  and </p>	
		<p>To lock the keyboard, press the same two keys.</p>	

## Installation Hints

<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p>	<p>Relief of cable strain</p> <p>Incorrect </p> <p>Correct </p> <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p> <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p> <p>Any repetitive flexing of the cable should be avoided</p>
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## Delivery Contents

- Photoelectric switch: PD12CNC04
- Installation instruction
- **Packaging:** Cardboard box

## Accessories

- Plastic fibres type FPDC0.SCC103
- Connector type: CON.1A