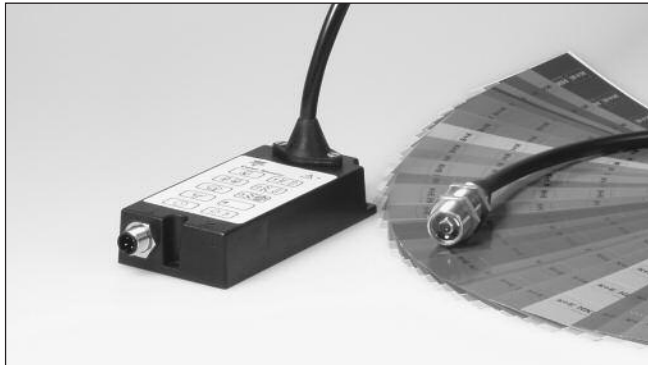


Photoelectrics, Fibre Optic Sensor Colour Sensor Type PD12CNC0.BPM1T

CARLO GAVAZZI



- 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: One shot function 0.05 to 5 s



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	_____
Housing style	_____
Housing size	_____
Housing material	_____
Not used	_____
Colour sensor	_____
Number of channels	_____
Output type	_____
Output configuration	_____
Connection type	_____
Teach-In mode	_____

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 _n)	2 to 60 mm, (fibre-dependent)	No load supply current (I _o)	120 mA
Analysis type	True RGB analysis	Voltage drop (U _d)	
Teach input	Active Not active	I _L = 100 mA I _L = 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 _B)	24 VDC ±10% (ripple included)	Following steps	250 ms
Ripple (U _{rpp})	≤ 10%	Protection	Short-circuit, reverse polarity, transients
Output current		Light source	LED, red, green and blue
Continuous (I _e)	100 mA	Spot diameter	0.5 mm
Short-time (I)	100 mA	Ambient light	
		Incandescent light	3'000 Lux
		Sunlight	5'000 Lux

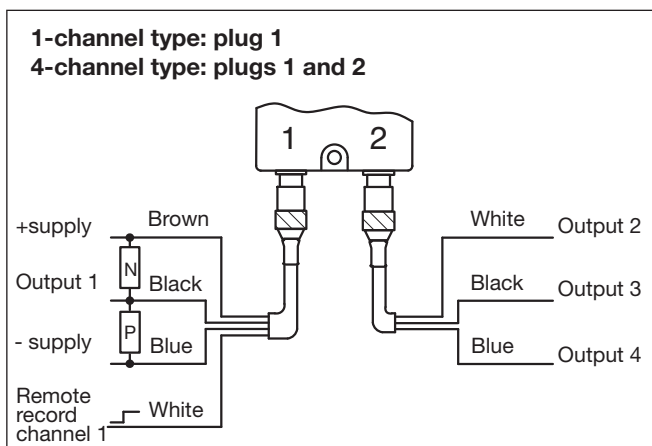


Specifications (cont.)

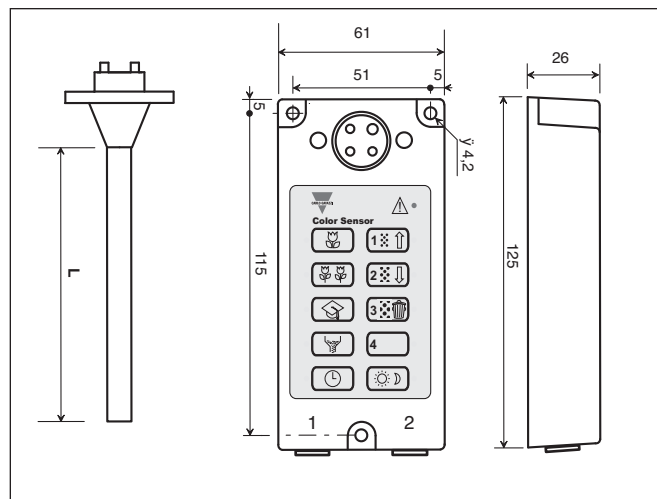
Switching frequency Mode "short distance" Mode "long distance"	500 Hz 25 Hz
Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	1 ms 20 ms
Power ON delay (t_v)	≤ 300 ms
Output function NPN and PNP	Available (Push-pull output)
Indication function	Signal, Teach-in, Output ON
Environment Installation category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

Rated insulation voltage	50 VAC (rms)
Housing material 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
Connection Plug	M12
Weight	150 g
Approvals	cUL
CE-marking	Yes

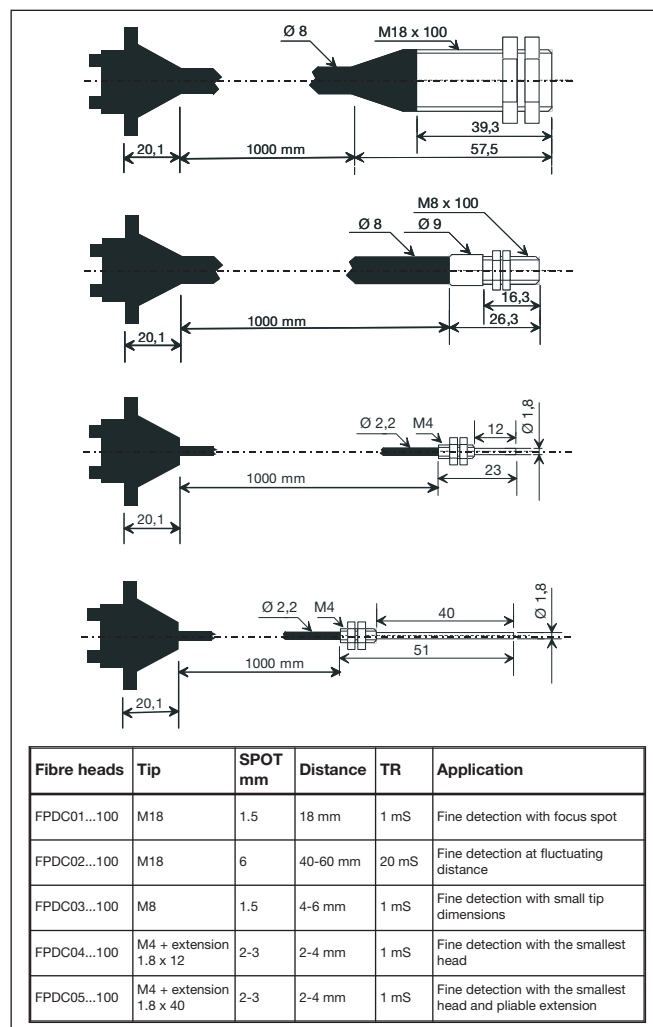
Wiring Diagram



Dimensions



Fibers Dimensions and Specifications



Programming Functions

<p>Teach-in^{*)}</p>	<p>Place the object under the tip of the fibre and press</p> <p> for short distance or for long distance</p> <p>The respective LED flashes</p>	<p>Light or dark operation Change the output function</p>	<p>Press for 4 s</p>
<p>Output</p>	<p>Select the output by pressing</p> <p> or </p>	<p>Timing function</p>	<p>Press </p>
<p>Sensitivity adjustment</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>Record colour</p>	<p>Place the object in position</p> <p>Press </p> <p>Select the output by pressing</p> <p> or </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>Filter function</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>^{*)}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../CON.14NF.. series