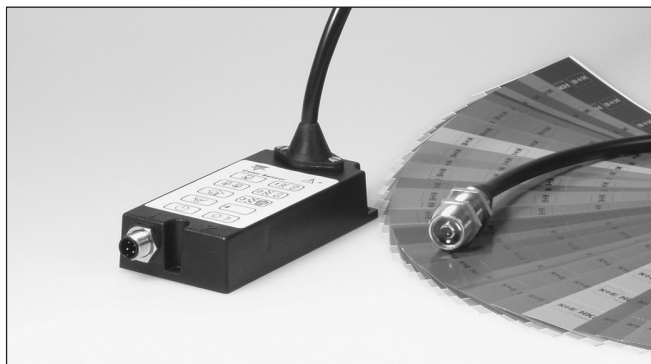


Photoelectrics, Fibre Optic Sensor Colour Sensor Type PD12CNC0.BPM1T

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 - 4 mm	12 mm Needle-nose tip	1000 mm	FPDC04SCC100
2 - 4 mm	40 mm Needle-nose tip	1000 mm	FPDC05SCC100

Specifications

Detection distance (S_n)	2 to 60 mm, (fibre-dependent)	Voltage drop (U_d)	
Analysis type	True RGB analysis	I _L = 100 mA	≤ 2.2 VDC
Teach input	Active	I _L = 10 mA	≤ 0.5 VDC
	Not active		
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_{rp})	≤ 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	
No load supply current (I_o)	120 mA	Incandescent light	3'000 Lux
		Sunlight	5'000 Lux

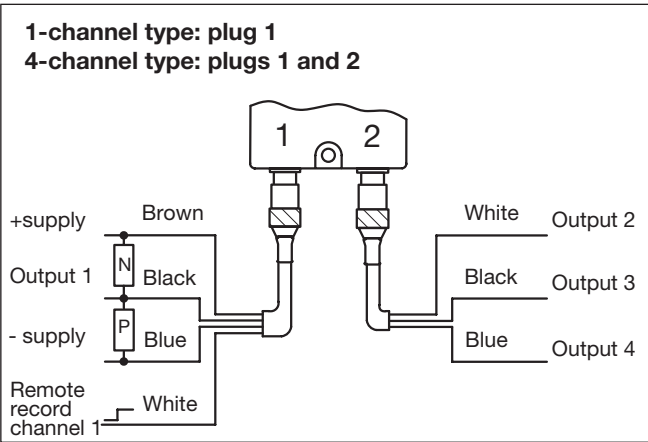


Specifications (cont.)

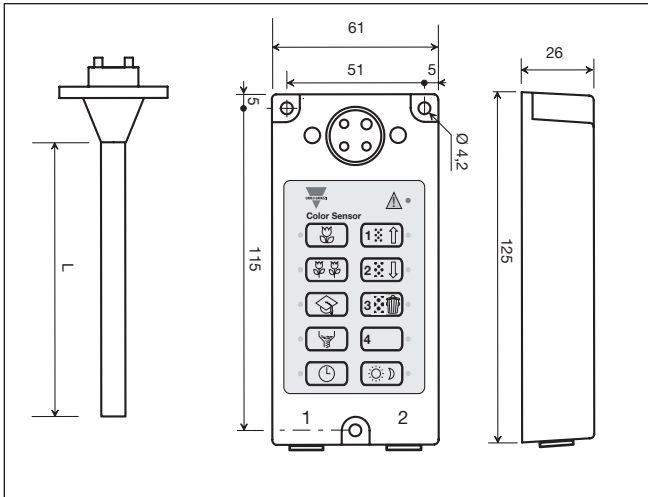
Switching frequency Mode "short distance" Mode "long distance"	500 Hz 25 Hz
Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	1 ms 20 ms
Power ON delay (t_v)	≤ 300 ms
Output function NPN and PNP	Available (Push-pull output)
Indication function	Signal, Teach-in, Output ON
Environment Installation category 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

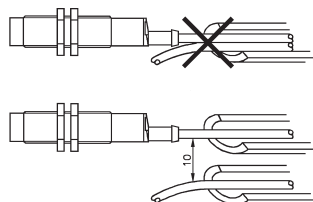
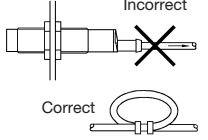
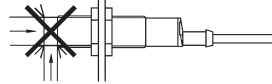
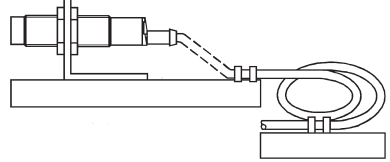
Fibre heads	Tip	SPOT mm	Distance	TR	Application
FPDC01...100	M18	1.5	18 mm	1 mS	Fine detection with focus spot
FPDC02...100	M18	6	40-60 mm	20 mS	Fine detection at fluctuating distance
FPDC03...100	M8	1.5	4-6 mm	1 mS	Fine detection with small tip dimensions
FPDC04...100	M4 + extension 1.8 x 12	2-3	2-4 mm	1 mS	Fine detection with the smallest head
FPDC05...100	M4 + extension 1.8 x 40	2-3	2-4 mm	1 mS	Fine detection with the smallest head and pliable extension

Programming Functions

Teach-in^{*)}	Place the object under the tip of the fibre and press  for short distance or  for long distance The respective LED flashes	Light or dark operation Change the output function	Press  for 4 s
Output	Select the output by pressing    or 	Timing function To clear the Timer Increase time (50 ms/1st step, following steps: 250 ms/step) Decrease time (50 ms/1st step, following steps: 250 ms/step)	Press  The LED "Timer" flashes Press  Press  Press 
Sensitivity adjustment For fine sensitivity For medium sensitivity For low sensitivity	Sensitivity assigned for the selected output Press  Press  Press 	Exit timer setting	Press  The timer LED remains ON if the time > 0
Record colour	Place the object in position Press  Select the output by pressing    or  The colour is recognized, and the corresponding LED goes ON	Filter function To clear the filter value Increase the filter value Decrease the filter value Exit filter setting	Press  The "Filter" LED flashes Press  Press  Press  Press 

^{*)}To get started, unlock the keyboard by pressing  and 
 To lock the keyboard, press the same two keys.

Installation Hints

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 	Relief of cable strain  The cable should not be pulled	Protection of the sensing face  A proximity switch should not serve as mechanical stop	Switch mounted on mobile carrier  Any repetitive flexing of the cable should be avoided
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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