Photoelectrics, Fibre Optic Sensor
Plastic Fibres
Type PD 60 CNX 20 BP .. T

CARLO GAVAZZI

- **Range: Fibre dependent**
  - **- Diffuse Reflective typ. 80 mm**
  - **- Through Beam typ. 200 mm**
- **Teach-In (keyboard or remote setup)**
- **Microprocessor controlled and EEPROM parameter storage**
- **Operational voltage 10 - 30 V DC**
- **Output 100 mA, NPN and PNP**
- **Light or dark switching selectable**
- **IP65 proctection**
- **Timer: ON-delay or OFF-delay**

CE UL cUL

Product Description

The PD60CNX20BP.. T is a fibre optic amplifier made specific for plastic fibres. The sensor is microprocessor based and has a buildin programmable functions such as Teach-In function for fast sensing distance optimising, NO or NC output, Time delay Onor OFF. The sensor output is build as a Push-pull output that performs both a NPN and PNP output which are fully protected against short-circuit, transients and wrong polarity. The sensor is build in a strong 13 x 30 x 60 mm polycarbonate housing for DIN-rail mounting.

The sensors are suitable for applications that require little space and high accuracy such as: Small part detection, tight locations, checking parts, counting, precise part positioning, material handling and assembly and robotics

Ordering Key

PD 60 CNX 20 BP M5 T

Type
Housing style
Housing size
Housing material
Not Used
Plastic fibres
Sensing distance cm
Output type
Output configuration
Connection type
Teach-In mode

Type Selection

Housing W x H x D	Range S_n (Fibre dependent)	Ordering no. NPN and PNP cable Make or break switching	Ordering no. NPN and PNP plug Make or break switching
13 x 30 x 60 mm	80 mm diffuse mode 200 mm through beam mode	PD 60 CNX 20 BP T	PD 60 CNX 20 BP M5 T

Specifications

Rated operating distance (S_n)	See optical fibre table	**No load supply current** (I_o)	≤ 40 mA
Diffuse mode	Up to 80 mm	**Voltage drop** (U_d)	
Through beam mode	Up to 200 mm	I_L = 100 mA	≤ 2 VDC
Sensitivity		I_L = 10 mA	≤ 1 VDC
Teach-In	Automatic threshold set-up	**Remote input**	
Manual fine tune	Sensitivity increase or sensitivity decrease	ON	≤ 1.4 VDC
		OFF	≥ 3.0 VDC
Temperature drift	< 0,4%/C°	**Timer**	
Hysteresis (H)		Range programmable	0 to 5 s in 11 steps
Differential travel	≤ 5%	First step	40 ms
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Following step	500 ms
		Protection	Short-circuit, reverse polarity, transients
Ripple (U_{rpp})	≤ 10%		
Output current		**Light source**	GaAlAs, LED 660 nm
Continuous (I_e)	100 mA	**Light type**	Red modulated
Short-time (I)	100 mA	**Ambient light**	
		Incandescent light	10'000 Lux
		Sunlight	20'000 Lux

CARLO GAVAZZI

Specifications (cont.)

Operating frequency	1 KHz	**Temperature**	
Response time		Operating	0° to +60°C (32° to +140°F)
OFF-ON (t$_{ON}$)	≤ 500 µs	Storage	-20° to +80°C (-4° to +176°F)
ON-OFF (t$_{OFF}$)	≤ 500 µs	**Vibration**	10 to 150 Hz, 0.5 mm/7.5 g
Power ON delay (t$_v$)	≤ 300 ms		(IEC60068-2-6)
Output function		**Shock**	2 x 1 m & 100 x 0.5 m
NPN and PNP	Available (Push-pull output)		(IEC 60068-2-6, 60068-2-32)
Make or break	Programming by keyboard	**Rated insulation voltage**	50 VAC (rms)
Indication function	Target detected, timer ON,	**Housing material**	
	sensitivity, alignment, low	Body	Polycarbonate
	signal, keyboard lock,	**Connection**	
	short circuit	Cable	PVC, grey, 2 m, 4 x 0,25 mm²
Environment		Plug	NPB, M8 x 1
Installation category	I (IEC 60664/60664A;60947-1)	Cables for plug (M5)	CONG5A-series
Pollution degree	3 (IEC 60664/60664A;60947-1)	**Weight**	24 g
Degree of protection	IP 65 (IEC 60529; 60947-1)	**Approvals**	cUL
		CE-marking	Yes

Operation Diagram

tv = Power ON delay

Dimensions

CARLO GAVAZZI
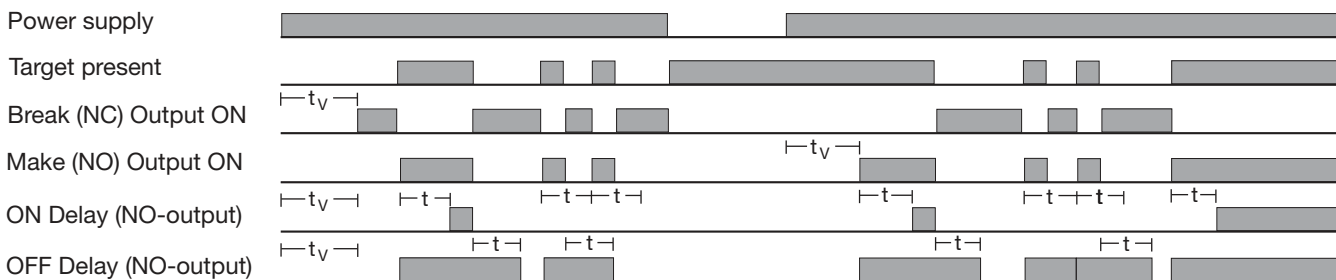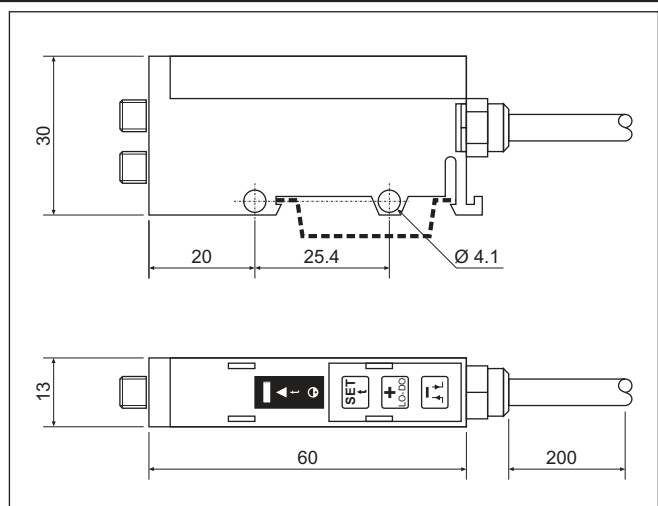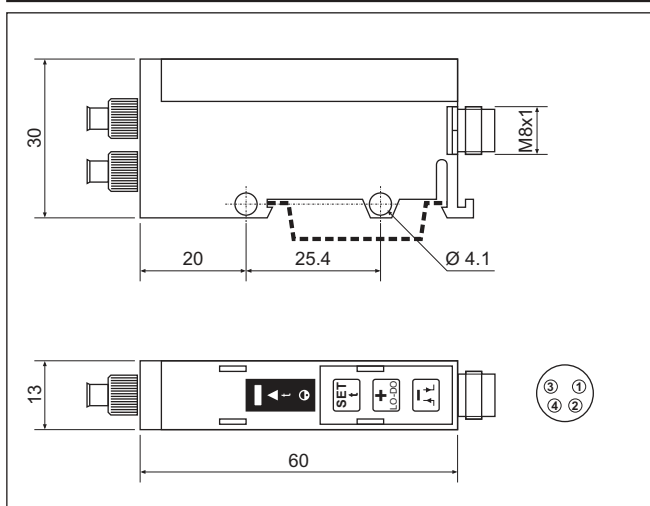
Programming Functions

Keyboard				Timing functions			
Unlock	Press	[+ LO-DO] & [↓↑]		ON delay	Press	[SET t]	for 4 sec.
	for 4 sec. and the indicator turns OFF			Set timer (timer ON)	Until the △ flashes		
Lock	Press	[+ LO-DO] & [↓↑]		Increase time (500 mS/step)	Press	[+ LO-DO]	N times
	for 4 sec. and the indicator turns ON			Decrease time (500 mS/step)	Press	[↓↑]	N times
Self-Teach operation				ON or OFF delay (toggle)	Press	[↓↑]	for 4 sec.
Coarse set-up mode	Press	[SET t]	one time				
Fine set-up mode (Similar to Remote Input)	Press	[SET t]	two times	Reset timer (timer OFF)	Press	[SET t]	once
Sensitivity adjustment				Exit timer setting	Press	[SET t]	for 4 sec.
To increase	Press	[+ LO-DO]	N time	**Alignment help**			
To decrease	Press	[↓↑]	N times	Enter alignment help	Press	[SET t]	for 4 sec.
Light or dark operation				Until the △ flashes Three frequencies proportional to the signal strength			
Change the output function	Press	[+ LO-DO]	for 4 sec.	Exit alignment help	Press	[SET t]	for 4 sec.

Wiring Diagram

When remote input is not used, connect the (2WH) wire to the +input (1BN)

Keyboard and LED

[1] The LED's flash if a short-circuit occurs on the static output and emitter is turned off.

CARLO GAVAZZI
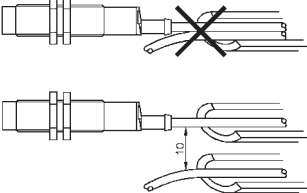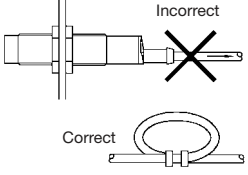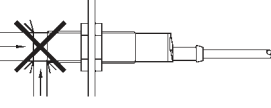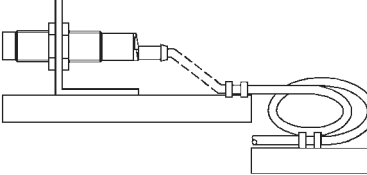
Installation Hints

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

Delivery Contents

- Photoelectric switch: PD60CNX20BP..T
- Installation instruction
- **Packaging:** Cardboard box

Accessories

- Plastic fibres type FPD.., FPT..
- Connector type: CONG5A../CON.54NF

For further information refer to "Accessories"

Specifications are subject to change without notice (15.06.2010)