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

CARLO GAVAZZI

- **Range: Fibre dependent**
  - **Diffuse Reflective typ. 80 mm**
  - **Through Beam typ. 200 mm**
- **Manual distance set-up by keyboard +/-**
- **Sensitivity bar graph LEDs**
- **Keyboard lock**
- **Microprocessor controlled and EEPROM parameter storage**
- **Operational voltage 10 - 30 V DC**
- **Output 100 mA, NPN and PNP**
- **Light or dark seitching selectable**
- **Cable or M8 standard plug**
- **IP65 protection**
- **cUL and CE approved**

Product Description

The PD60CNX20BP.. is a fibre optic amplifier made specific for plastic fibres. The sensor is microprocessor based and has a manual distance set-up by keyboard. NO or NC (light or dark mode) output are selectable by wiring. 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

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

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**	**PD 60 CNX 20 BP M5**

Specifications

Rated operating distance (S_n)	See optical fibre table
Diffuse mode	Up to 80 mm
Through beam mode	Up to 200 mm
Sensitivity	
Manual distance setup	Sensitivity increase or decrease by pressing + or - keyboard
Temperature drift	< 0,4%/°C
Hysteresis (H)	
Differential travel	≤ 5%
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)
Ripple (U_{rpp})	≤ 10%
Output current	
Continuous (I_e)	100 mA
Short-time (I)	100 mA
No load supply current (I_o)	≤ 40 mA

Voltage drop (U_d)	
I_L = 100 mA	≤ 2 VDC
I_L = 10 mA	≤ 1 VDC
Remote input	
ON	≤ 1.4 VDC
OFF	≥ 3.0 VDC
Protection	Short-circuit, reverse polarity, transients
Light source	GaAlAs, LED 660 nm
Light type	Red modulated
Ambient light	
Incandescent light	10'000 Lux
Sunlight	20'000 Lux
Operating frequency	1 KHz
Response time	
OFF-ON (t_{ON})	≤ 500 µS
ON-OFF (t_{OFF})	≤ 500 µS
Power ON delay (t_v)	≤ 300 mS

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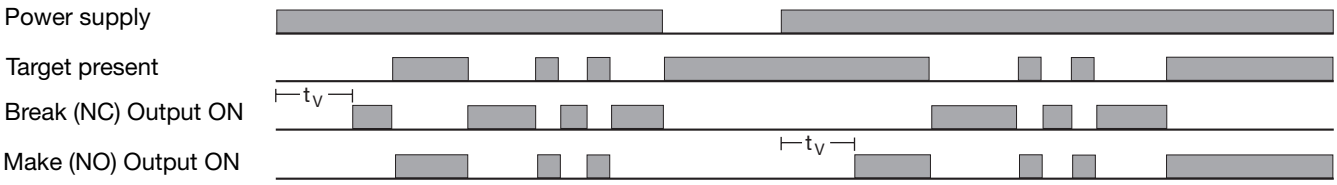
Specifications (cont.)

Output function	
NPN and PNP	Available (Push-Pull output)
Make or break	Programming by wirring
Indication function	
Output	Green LED
Sensitivity	Bar graph, red
Environment	
Installation category	II (IEC 60664/60664A;60947-1)
Pollution degree	3 (IEC 60664/60664A;60947-1)
Degree of protection	IP 65 (IEC 60529; 60947-1)
Temperature	
Operating	0° to +60°C (32° to +140°F)
Storage	-20° to +80°C (-4° to +176°F)

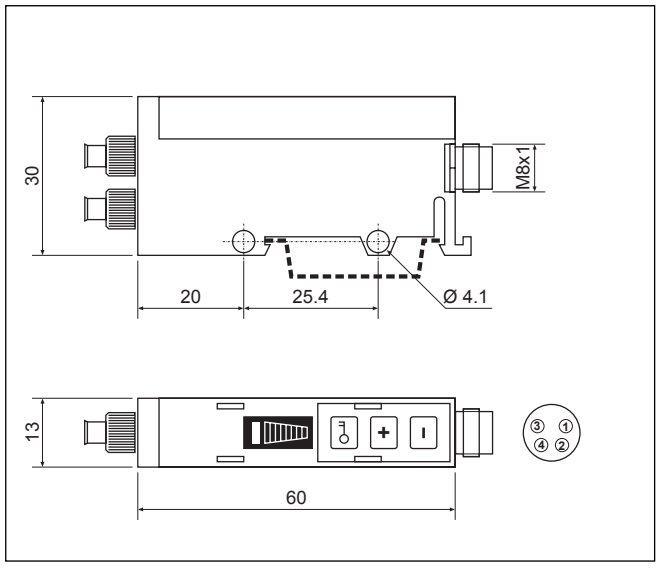
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC60068-2-6)
Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-6, 60068-2-32)
Rated insulation voltage	50 VAC (rms)
Housing material	
Body	Polycarbonate
Connection	
Cable	PVC, grey, 2 m, 4 x 0,25 mm²
Plug	NPB, M8 x 1
Cables for plug (M5)	CONG5A-series
Weight	24 g
Approvals	cUL
CE-marking	Yes

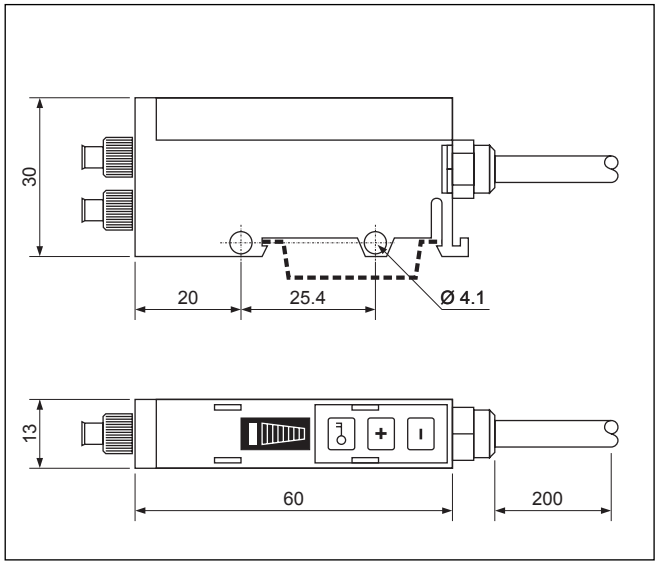
Operation Diagram

tv = Power ON delay



Dimensions





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Detection Diagram

Keyboard

Unlock — Press [⊓O] for 3 sec. until the bar graph stops flashing

Lock — Press [⊓O] for 3 sec. until the bar graph stops flashing

Sensitivity adjustment

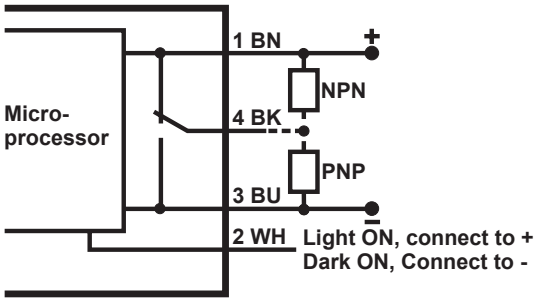
To increase — Press [+] step by step or continuous action.

Upper LED will flash (2 sec.) when maximum sensitivity is reached.

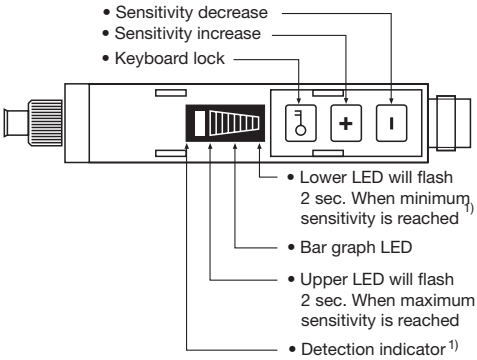
To decrease — Press [−] step by step or continuous action

Lower LED wil flash (2 sec.) when minimum sensitivity is reached

Wiring Diagram



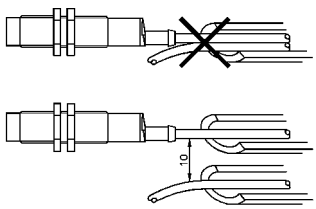
Keyboard and LED



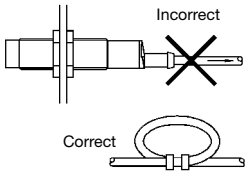
1) The LED's flash if a short-circuit occurs on the static output and emitter is turned off.

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

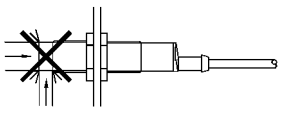


Relief of cable strain



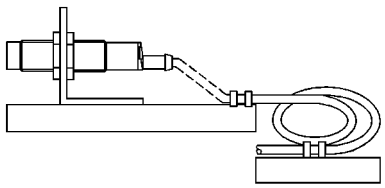
The cable should not be pulled

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

Delivery Contents

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

Accessories

- Plastic fibres type FPD.., FPT..
- Connector type: CONG5A..

For further information refer to “Accessories”