

Photoelectrics

Retro-reflective, Polarized, for Transparent Objects

Type PD 60 CNG..BP.. T

CARLO GAVAZZI



- Range 80 cm or 140 cm
- Modulated, visible red light, polarized
- High immunity to shiny surfaces
- Teach-in (keyboard or remote setup)
- Keyboard setup and multifunction LED
- Keyboard lock
- Microprocessor controlled and EEPROM parameter storage
- Operational voltage 10 - 30 V DC
- Output 100 mA, NPN and PNP
- Light or dark switching selectable
- Cable or M8 standard plug
- IP67 protection
- Timer: ON-delay or OFF-delay
- cUL and CE approved

Product Description

The PD60CNG is a retro-reflective, polarized amplifier made specific for detecting transparent objects such as glass, PET etc. The sensor is microprocessor based and has built-in programmable functions such as Teach-In for fast sensing distance optimising, NO or NC output, time delay ON or OFF. The sensor output is 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 housing is a strong 13 x 30 x 60 mm polycarbonate housing and ready for DIN-rail mounting.

The sensor works with one optical axis which gives a more precise detection. The sensor is designed for use in the material handling and packaging industry as well as the plastic and rubber industry.

Ordering Key

PD 60 CNG 14 BP M5 T

Type	_____
Housing style	_____
Housing size	_____
Housing material	_____
Not used	_____
Transparent object detection	_____
Sensing distance cm	_____
Output type	_____
Output configuration	_____
Connection type	_____
Teach-In mode	_____

Type Selection

Housing W x H x D	Range S _n (ER 5060 reflector)	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 cm 140 cm	PD 60 CNG 08 BP T PD 60 CNG 14 BP T	PD 60 CNG 08 BP M5 T PD 60 CNG 14 BP M5 T

Note: Reflectors to be ordered separately

Specifications

Rated operating distance (S_n)	Up to 80 cm or 140 cm with ER 5060 reflector	Voltage drop (U_d) I _L = 100 mA I _L = 10 mA	≤ 2 VDC ≤ 1 VDC
Sensitivity Teach-In Manual fine tune	Automatic threshold set-up Sensitivity increase or sensitivity decrease	Remote input ON OFF	≤ 1.4 VDC ≥ 3.0 VDC
Temperature drift	< 0.4%/C°	Timer Range programmable First step Following step	0 to 5 s in 11 steps 40 ms 500 ms
Hysteresis (H) Differential travel	< 4%	Protection	Short-circuit, reverse polarity, transients
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Light source Light type Ambient light Incandescent light Sunlight	GaAlAs, LED 660 nm Red modulated 10'000 Lux 20'000 Lux
Ripple (U_{rp})	≤ 10%		
Output current Continuous (I _a) Short-time (I)	100 mA 100 mA		
No load supply current (I_o)	≤ 45 mA		



Specifications (cont.)

Operating frequency	1 KHz	Temperature	
Response time		Operating	0° to +50°C (32° to +122°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 (IEC60068-2-6)
Power ON delay (t _v)	≤ 300 mS	Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-6, 60068-2-32)
Output function	Available (Push-pull output) Programming by keyboard	Rated insulation voltage	50 VAC (rms)
NPN and PNP		Housing material	
Make or break		Body	Polycarbonate
Indication function	Target detected, timer ON, sensitivity, alignment, low signal, keyboard lock, short circuit	Connection	
Environment		Cable	PVC, grey, 2 m, 4 x 0,25 mm ²
Installation category	I (IEC 60664/60664A;60947-1)	Plug	NPB, M8 x 1
Pollution degree	3 (IEC 60664/60664A;60947-1)	Cables for plug (M5)	CONG5A-series
Degree of protection	IP 67 (IEC 60529; 60947-1)	Weight	24 g
		Approvals	cUL
		CE-marking	Yes

Operation Diagram

t_v = Power ON delay

Power supply

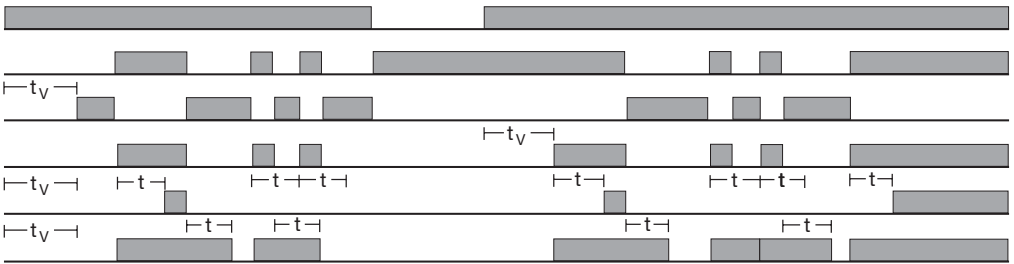
Target present

Break (NC) Output ON

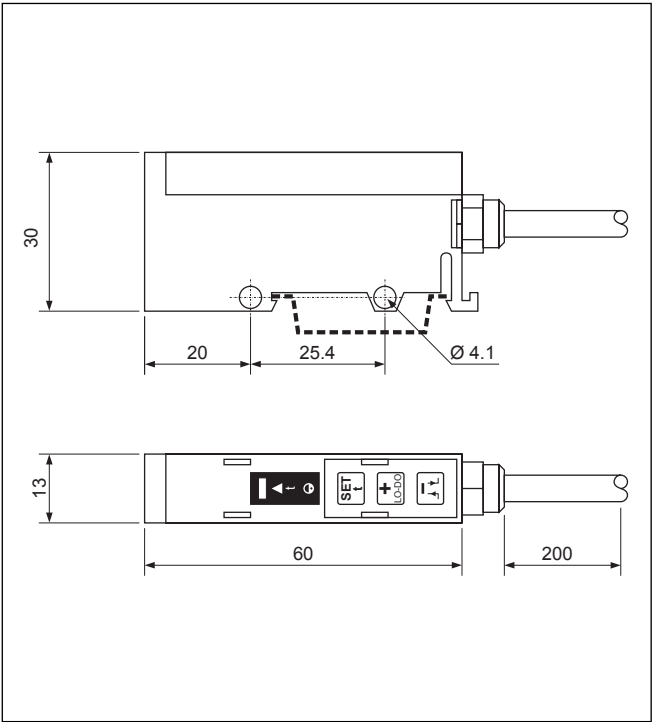
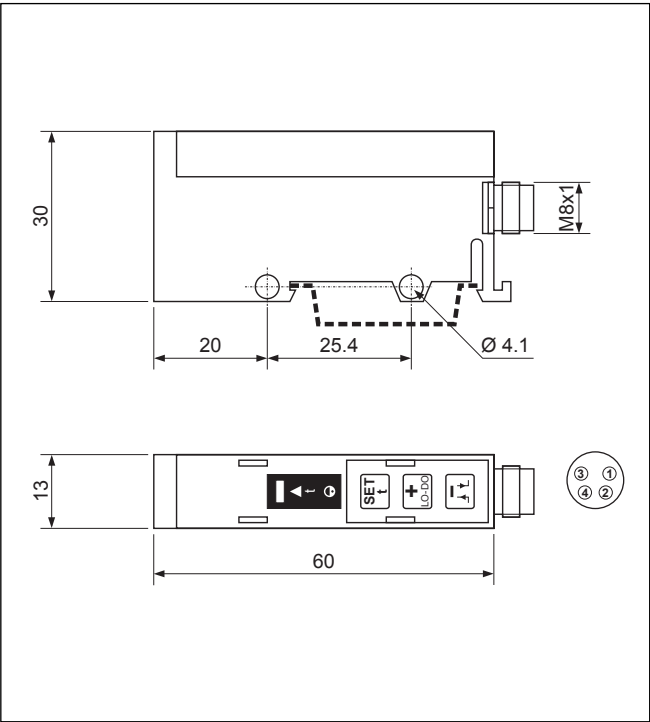
Make (NO) Output ON

ON Delay (NO-output)

OFF Delay (NO-output)



Dimensions



Programming Functions

Keyboard

Unlock

Press  & 

for 4 sec. and the indicator turn OFF 

Lock

Press  & 

for 4 sec. and the indicator turn ON 

Self-Teach operation

Coarse set-up mode

Press  one time

Fine set-up mode
(Similar to Remote Input)

Press  two times

Sensitivity adjustment

To increase

Press  N time

To decrease

Press  N times

Light or dark operation

Change the output function

Press  for 4 sec.

Timing functions

ON delay

Press  for 4 sec.

Set timer (timer ON)

Until the  flashes

Increase time (500 mS/step)

Press  N times

Decrease time (500mS/step)

Press  N times

ON or OFF delay (toggle)

Press  for 4 sec.

Reset timer (timer OFF)

Press 

Exit timer setting

Press  for 4 sec.

Alignment help

Enter alignment help

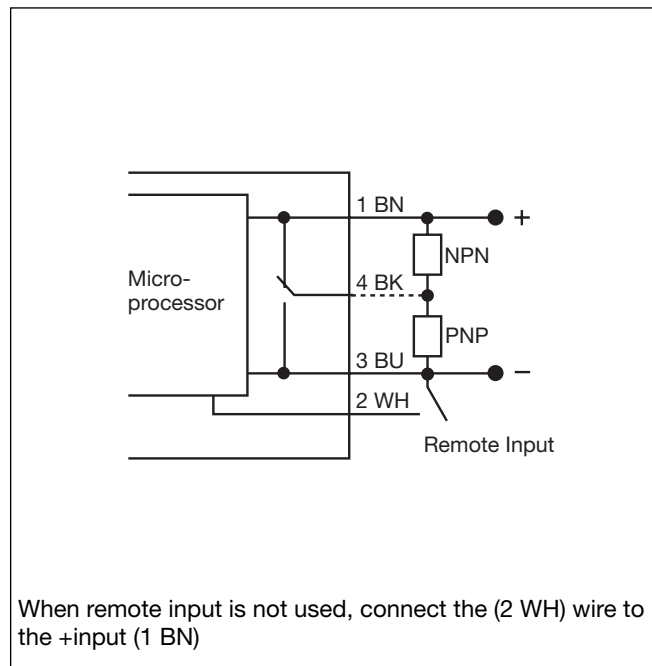
Press  for 4 sec.

Until the  flashes
Three frequencies proportional to the signal strength

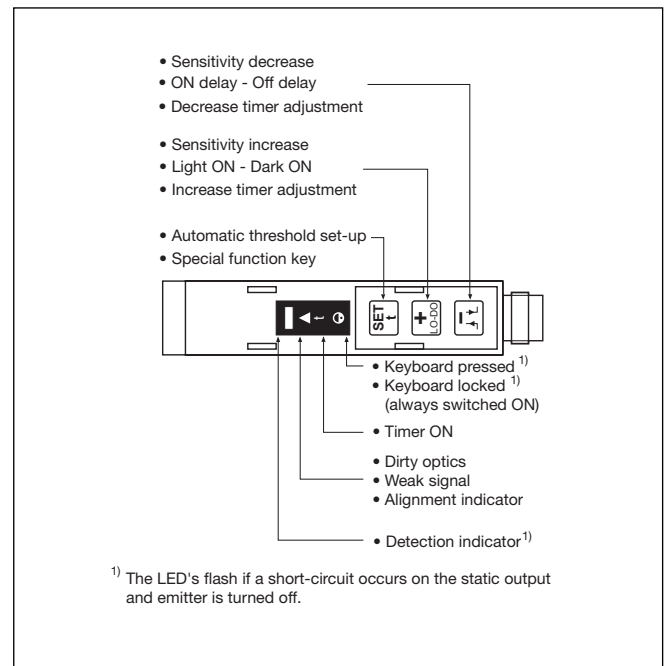
Exit alignment help

Press  for 4 sec.

Wiring Diagram

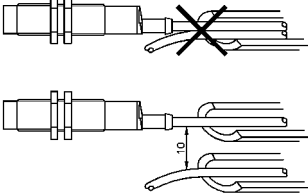
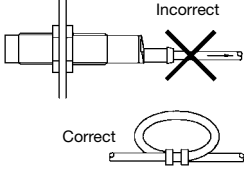
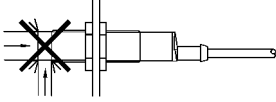
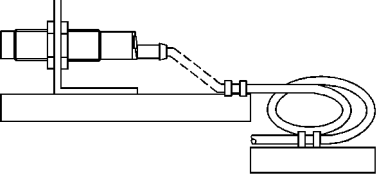


Keyboard and LED





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: PD60CNG..BP..T
- Installation instruction
- **Packaging:** Cardboard box

Accessories

- Reflector ER series

For further information refer to “Accessories”