

# Photoelectrics Through-beam Type PD32CNT60

CARLO GAVAZZI



- Miniature sensor range
- Range: 6 m
- Sensitivity of receiver adjustable by Teach-In programming
- Modulated, red light 660 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP preset
- Make and break switching function programmable
- LED for output indication, signal stability and power ON
- Protection: reverse polarity, short circuit and transients
- Cable and plug versions
- Compact housing
- Excellent EMC performance

## Product Description

The PD32CNT60 family comes in a compact reinforced PMMA/ABS-housing. The sensors are useful in applications where high-accuracy detection as well as small size is required. The Teach-In function for

adjusting the sensitivity of the receiver makes the sensors highly flexible. The output type is preset (NPN or PNP), and the output switching function is programmable (NO or NC).

## Ordering Key

**PD32CNT60PPM5T**

Type	
Housing style	
Housing size	
Housing material	
Housing length	
Detection principle	
Sensing distance	
Output type	
Output configuration	
Connection type	
Teach-In	

## Type Selection

Housing W x H x D	Range S <sub>n</sub>	Connection	Ordering no. Receiver NPN & PNP cable Make & break switching	Ordering no. Emitter
12 x 32 x 20 mm	6 m	Cable Plug Cable Plug	PD 32 CNT 60 NPT PD 32 CNT 60 NPM5T PD 32 CNT 60 PPT PD 32 CNT 60 PPM5T	PD 32 CNT 60 PD 32 CNT 60 M5

## Specifications Emitter

Rated operational volt. (U <sub>B</sub> )	10 to 30 VDC	Light source	GaAs LED, 660 nm
Ripple (U <sub>rp</sub> )	≤ 10%	Light type	Red, modulated
Supply current	≤ 25 mA @ 24 VDC	Beam angle	± 3°
Protection	Reverse polarity, transients	Indication function	LED, green
		Power supply ON	

## Specifications Receiver

Rated operating distance (S <sub>n</sub> )	Up to 6 m	Output current	
Blind zone	None	Continuous (I <sub>a</sub> )	≤ 100 mA
Sensitivity	Adjustable by Teach-In (push button or wire)	Short-time (I)	≤ 100 mA (max. load capacity 100 nF)
Temperature drift	≤ 1%/°C	No load supply current (I <sub>o</sub> )	≤ 25 mA @ 24 VDC
Hysteresis (H) (differential travel)	≤ 10%	Minimum operational current (I <sub>m</sub> )	0.5 mA
Rated operational volt. (U <sub>B</sub> )	10 to 30 VDC (ripple included)	OFF-state current (I <sub>r</sub> )	≤ 100 μA
Ripple (U <sub>rp</sub> )	≤ 10%	Voltage drop (U <sub>d</sub> )	≤ 2.4 VDC @ 100 mA
		Protection	Reverse polarity, short-circuit and transients



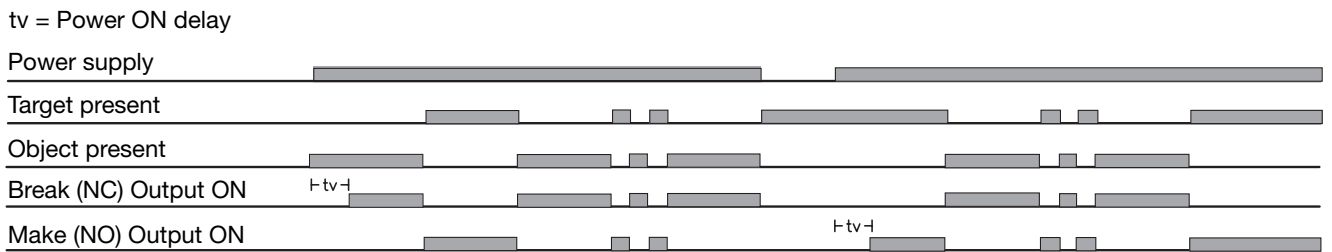
Specifications Receiver (cont.)

Light source	GaAlAs, LED, 660 nm	Output function	NPN and PNP NO/NC switching function	Preset	Set up by button
Light type	Infrared, modulated	External Teach	Same function as button Locked (disable teach function) Operating mode	10 to 30 VDC 0 to 2.5 VDC Not connected	
Sensing angle	± 3°	Indication	Output ON Signal stability ON and power ON	LED, yellow LED, green	
Ambient light	5,000 lux				
Operating frequency	500 Hz				
Response time					
OFF-ON (t <sub>ON</sub> )	≤ 1 ms				
ON-OFF (t <sub>OFF</sub> )	≤ 1 ms				
Power ON delay (t <sub>v</sub> )	≤ 300 ms				

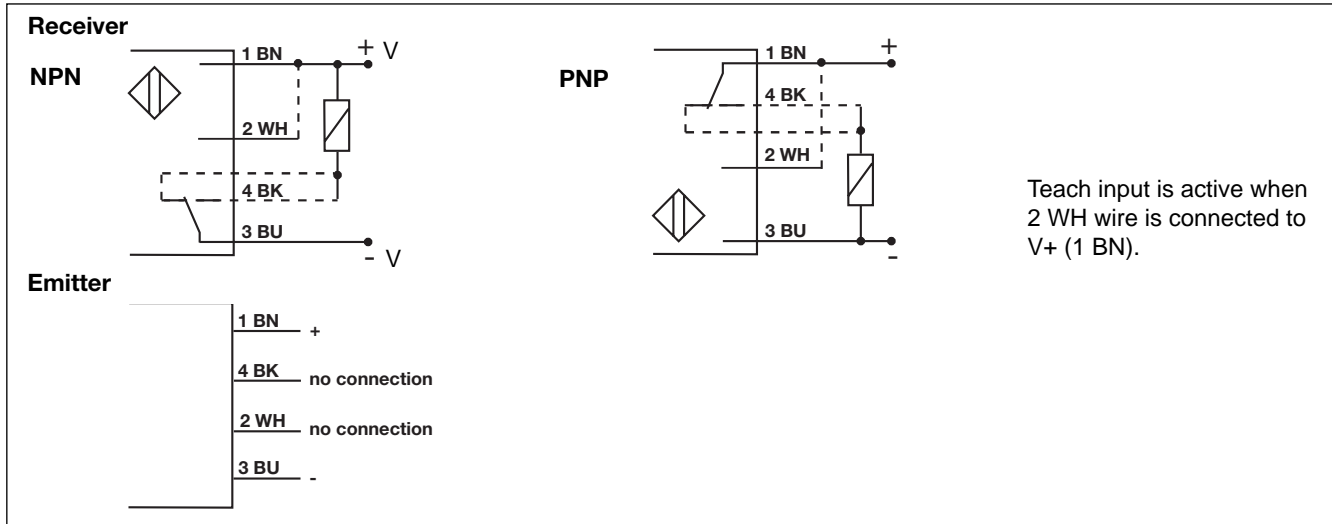
General Specifications

Environment		Housing material	
Installation category	II (IEC 60664/60664A, 60947-1)	Body	ABS, black
Pollution degree	3 (IEC 60664/60664A, 60947-1)	Front glass	PMMA, red
Degree of protection	IP 67 (IEC 60529, 60947-1)	Connection	
Ambient temperature		Cable	PUR, black, 2 m 4 x 0.14 mm <sup>2</sup> , Ø = 3.6 mm M8, 4-pin
Operating	-0° to +50°C (-32° to +122°F)	Plug	
Storage	20° to +80°C (-4° to +176°F)	Weight	With cable: 40 g With plug: 10 g
Vibration	10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	CE-marking	Yes
Shock	30 g / 11 ms, 3 pos, 3 neg per axis	Approval	cUL
Rated insulation voltage	500 VAC (rms)		

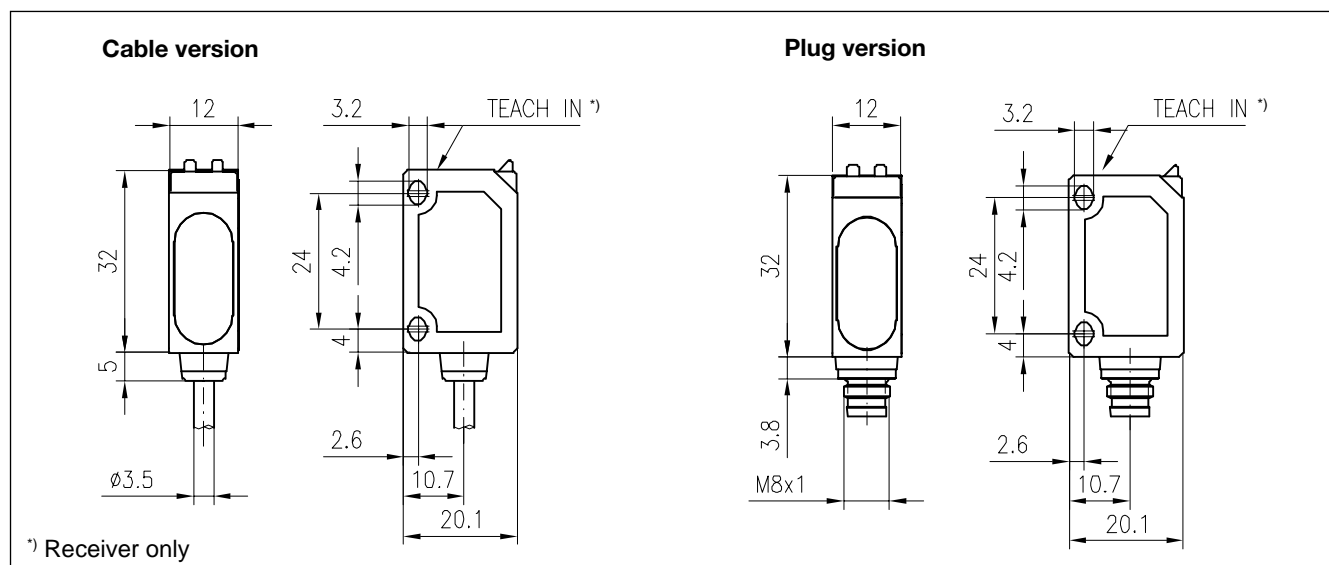
Operation Diagram



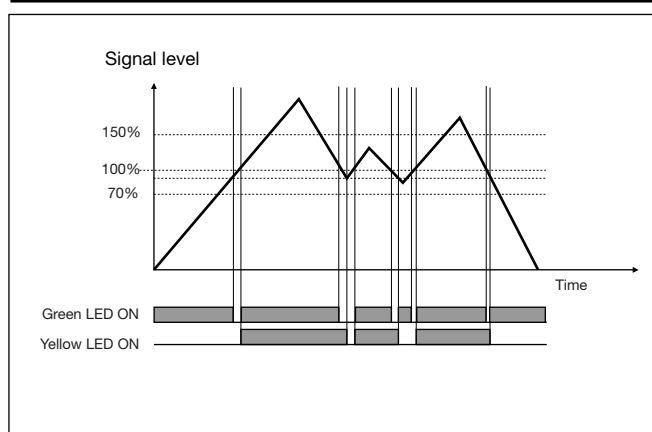
Wiring Diagrams



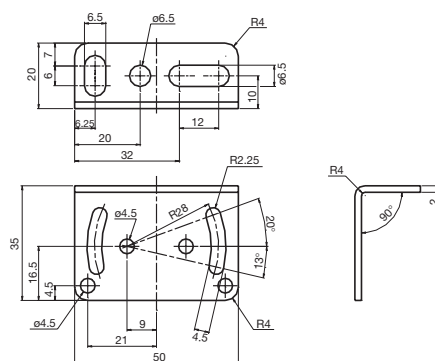
## Dimensions



### Signal Stability Indication



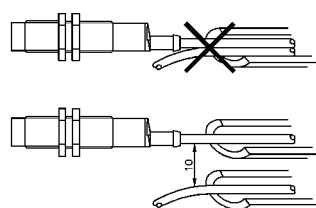
## Accessories



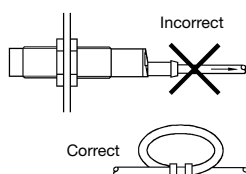
For further information refer to “Accessories”

## 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

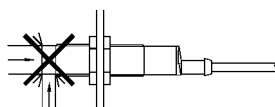


Relief of cable strain



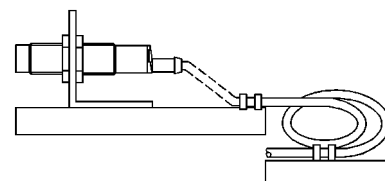
The cable should not be pulled

### 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

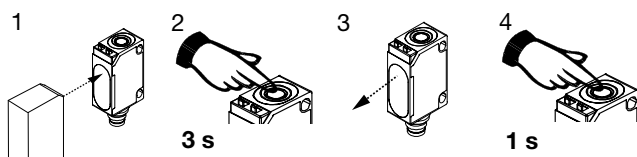
## Delivery Contents

- Photoelectric switch: PD 32 CNT 60 ...
- Installation instruction
- **Packaging:** Cardboard box

## Adjustment

### Sensitivity adjustment, with static object (needed for transparent objects only)

1. Line up the transmitter with the receiver. Yellow LED and green LED are ON.
2. Press the button for 3 s until both LED's flash simultaneously (the first switching point is stored).
3. Place the object in the detection area.
4. Press the button for 1 s.
  - a) The green LED flashes and stays ON: the second switching point is stored, and the sensor is ready to operate.
  - b) Both LED's flash simultaneously: the sensor cannot detect the object, no switching points are stored.



### Programming of make and break switching function

1. Press the button for 13 s. 13 s  
Both LED's flash alternately.
2. Release the button: the green LED flashes.
3. While the green LED flashes, the output is inverted each time the button is pressed. This is indicated by the yellow LED.  
When the button is not pressed for 10 s, the current output function is stored.  
The sensor is now ready for operation.

### Default setting

1. Cover light emitter and receiver: Press the button for 3 s, until both LED's flash simultaneously. 3 s
2. Keep light emitter and receiver covered: Press the button for 1 s. 1 s  
The sensor is set to maximum sensitivity.

**NB!** The Teach Input (2 WH) will work similarly to the push button, active High.

### Sensitivity adjustment, with a running process (needed for transparent objects only)

1. Line up the transmitter with the receiver. Green LED is ON. At this stage the status of the yellow LED can be ignored.
2. The running process must be the only "object" within the detection area. Press the button for 3 s until both LED's flash simultaneously. 3 s
3. Press the button for at least the duration of one process cycle. 1 cycle
  - a) The green LED flashes and stays ON: both switching points have been stored, and the sensor is ready to operate.
  - b) Both LED's flash simultaneously: the sensor cannot detect the object, no switching points are stored.