

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 _n	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 _B)	10 to 30 VDC	Light source	GaAs LED, 660 nm
Ripple (U _{rip})	≤ 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 _n)	Up to 6 m	Output current	≤ 100 mA
Blind zone	None	Continuous (I _e)	≤ 100 mA
Sensitivity	Adjustable by Teach-In (push button or wire)	Short-time (I)	(max. load capacity 100 nF)
Temperature drift	≤ 1%/°C	No load supply current (I _o)	≤ 25 mA @ 24 VDC
Hysteresis (H) (differential travel)	≤ 10%	Minimum operational current (I _m)	0.5 mA
Rated operational volt. (U _B)	10 to 30 VDC (ripple included)	OFF-state current (I _r)	≤ 100 μA
Ripple (U _{rip})	≤ 10%	Voltage drop (U _d)	≤ 2.4 VDC @ 100 mA
		Protection	Reverse polarity, short-circuit and transients



Specifications Receiver (cont.)

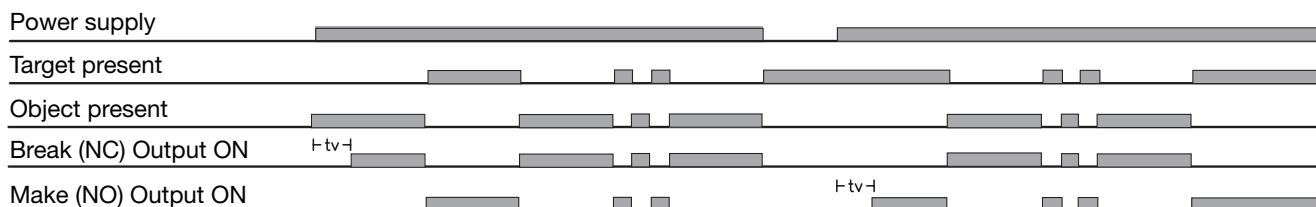
Light source	GaAlAs, LED, 660 nm	Output function	Preset
Light type	Infrared, modulated	NPN and PNP	Set up by button
Sensing angle	± 3°	NO/NC switching function	
Ambient light	5,000 lux	External Teach	
Operating frequency	500 Hz	Same function as button	10 to 30 VDC
Response time		Locked (disable teach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

General Specifications

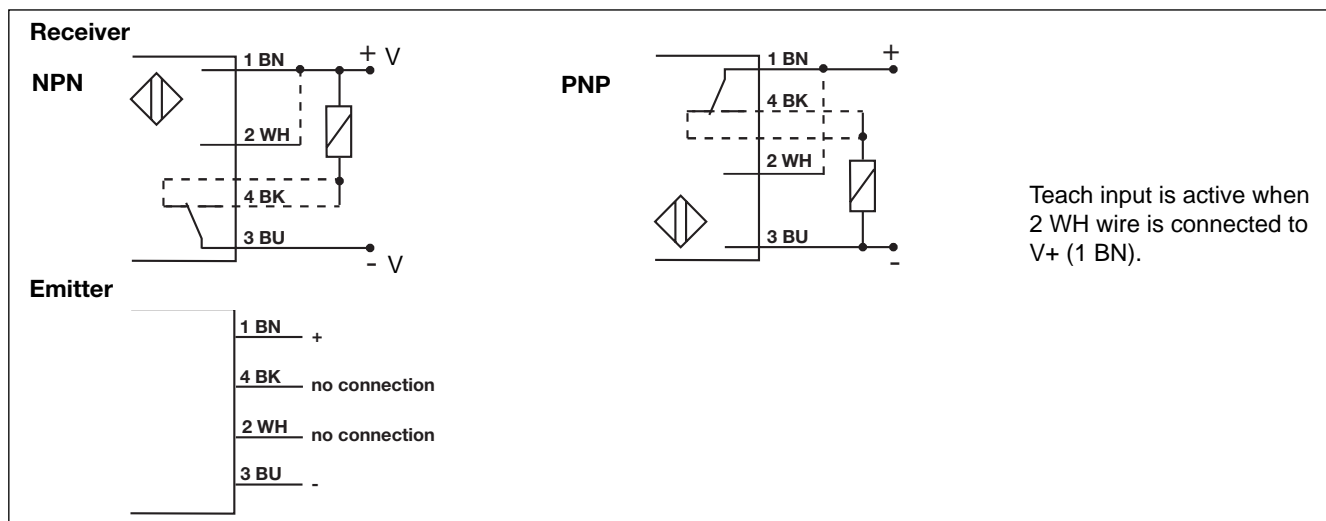
Environment		Housing material	
Installation category	II (IEC 60664/60664A, 60947-1)	Body	ABS, black
Pollution degree	3 (IEC 60664/60664A, 60947-1)	Front glass	PMMA, red
Degree of protection	IP 67 (IEC 60529, 60947-1)	Connection	
Ambient temperature		Cable	PUR, black, 2 m 4 x 0.14 mm ² , Ø = 3.6 mm M8,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

Operation Diagram

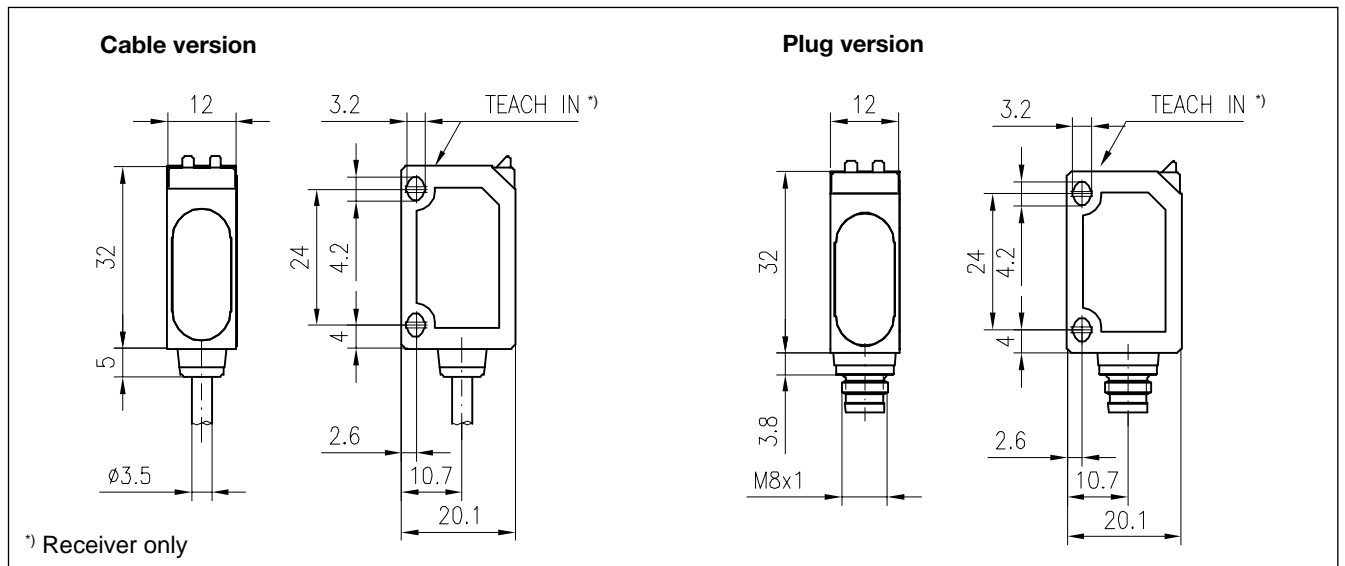
t_v = Power ON delay



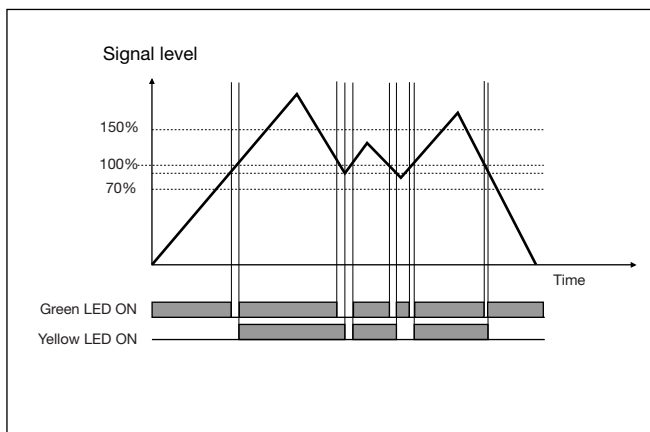
Wiring Diagrams



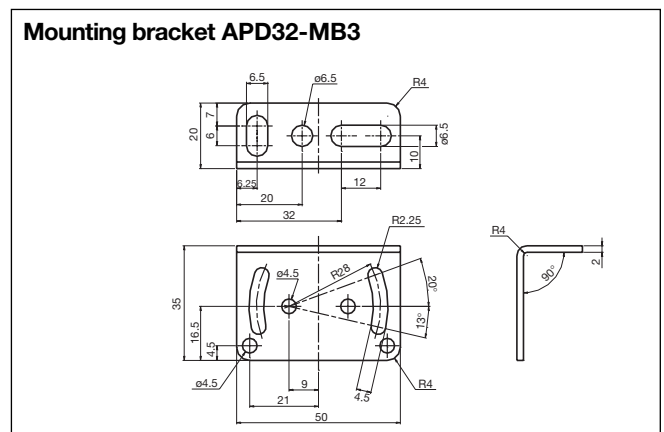
Dimensions



Signal Stability Indication



Accessories



For further information refer to "Accessories"

Installation Hints

<p>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</p>	<p>Relief of cable strain</p> <p>Incorrect Correct</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p> <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p> <p>Any repetitive flexing of the cable should be avoided</p>
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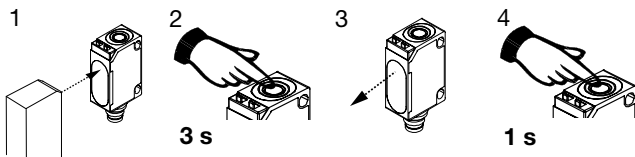
Delivery Contents

- 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.