

Photoelectrics

Retro-reflective, for transparent Objects

Type PD32CNG05

CARLO GAVAZZI



- Miniature sensor range
- Range: 0.5 m, with reflector
- Sensitivity adjustment by Teach-In programming
- Modulated, red light 660 nm, polarized
- 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 PD32CNG05 sensor family comes in a compact 12 x 32 x 20 mm 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 adjustment of the sensitivity 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

PD32CNG05PPM5T

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	Ordering no. NPN & PNP cable Make & break switching	Ordering no. NPN & PNP plug Make & break switching
12 x 32 x 20 mm	0.5 m	PD 32 CNG 05 NPT PD 32 CNG 05 PPT	PD 32 CNG 05 NPM5T PD 32 CNG 05 PPM5T

Specifications

Rated operating distance (S_n)	Up to 0.5 m, with reflector 51 x 51 mm	Light source	GaAIAs, LED, 660 nm
Sensitivity	Adjustable by Teach-In (push button or wire)	Light type	Red, modulated
Temperature drift	≤ 1%/°C	Sensing angle	± 2°
Hysteresis (H) (differential travel)	≤ 10%	Ambient light	5,000 lux
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Light spot	20 x 20 mm @ 500 mm
Ripple (U_{rpp})	≤ 10%	Operating frequency	1000 Hz
Output current Continuous (I _a) Short-time (I)	≤ 100 mA ≤ 100 mA (max. load capacity 100 nF)	Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	≤ 0.5 ms ≤ 0.5 ms
No load supply current (I_o)	≤ 25 mA @ 24 VDC	Power ON delay (t_v)	≤ 300 ms
Minimum operational current (I_m)	0.5 mA	Output function NPN and PNP NO/NC switching function	Preset Set up by button
OFF-state current (I_r)	≤ 100 μA	External Teach Same function as button Locked (disable teach button) Operating mode	10 to 30 VDC 0 to 2,5 VDC Not connected
Voltage drop (U_d)	≤ 2.4 VDC @ 100 mA	Indication Output ON Signal stability ON and power ON	LED, yellow LED, green
Protection	Short-circuit, reverse polarity and transients	Environment Installation category	II (IEC 60664/60664A; 60947-1)

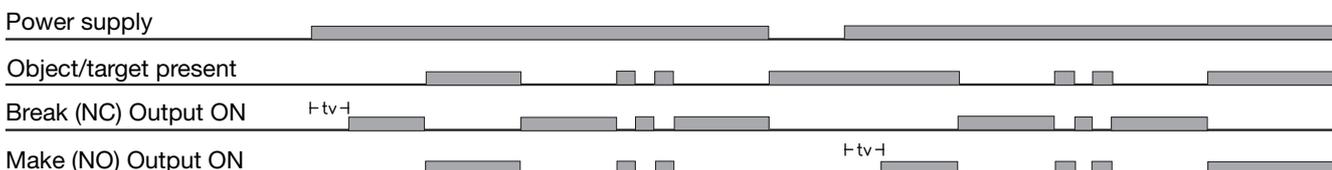


Specifications (cont.)

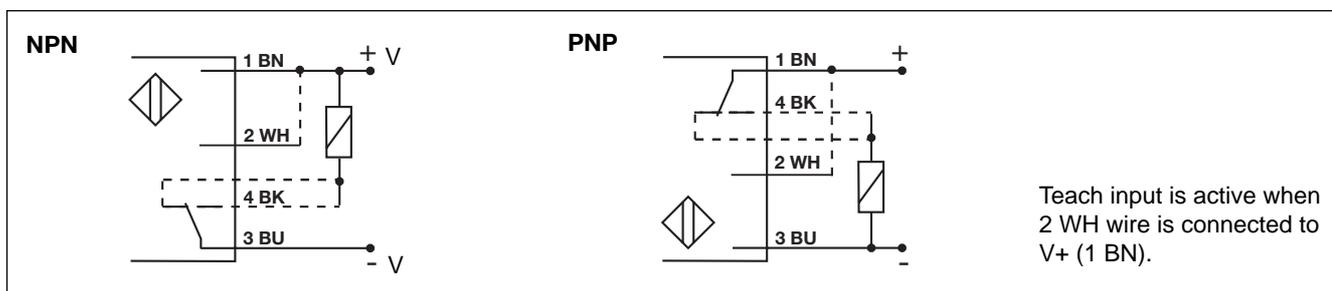
Pollution degree	3 (IEC 60664/60664A; 60947-1)	Housing material	Body ABS, black Front material PMMA, red
Degree of protection	IP 67 (IEC 60529; 60947-1)	Body	
Ambient temperature		Connection	PUR, black, 2 m 4 x 0.14 mm ² , Ø = 3.6 mm M8, 4-pin
Operating	-20° to +60°C (-4° to +140°F)	Cable	
Storage	-20° to +80°C (-4° to +176°F)	Plug	
Vibration	10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	Weight	With cable: 40 g With plug: 10 g
Shock	30 g / 11 ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)	CE-marking	Yes
Rated insulation voltage	500 VAC (rms)	Approval	cUL

Operation Diagram

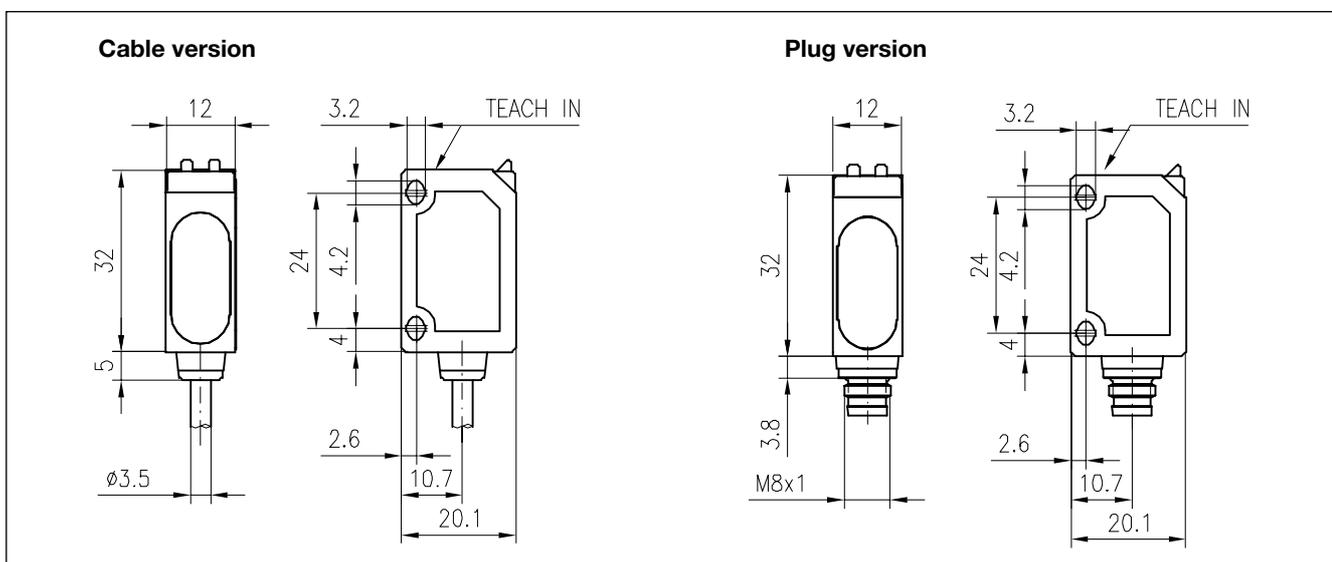
tv = Power ON delay



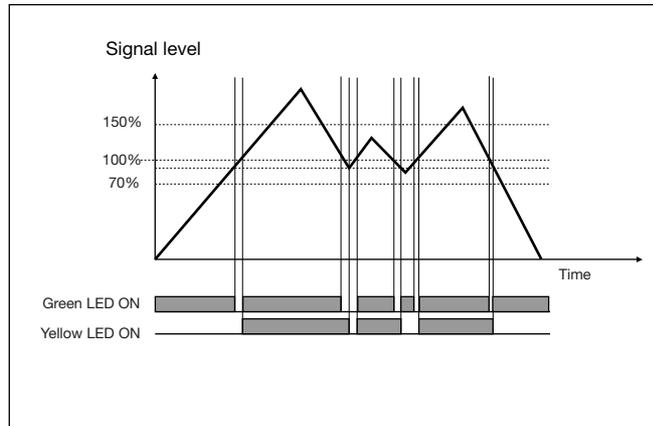
Wiring Diagrams



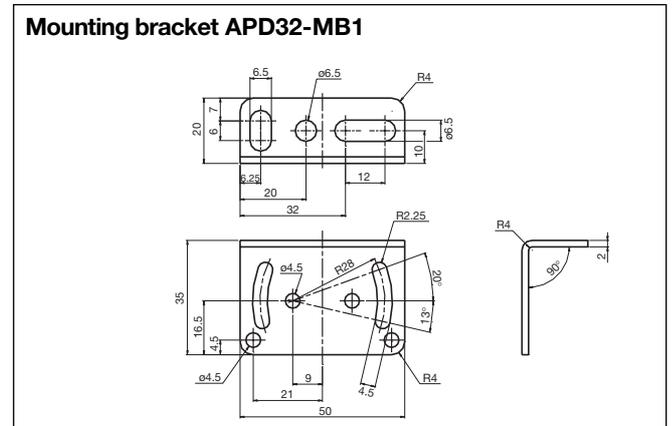
Dimensions



Signal Stability Indication



Accessories



For further information refer to "Accessories"

Installation Hints

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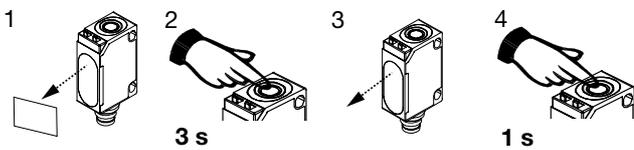
Delivery Contents

- Photoelectric switch: PD 32 CNG 05 ...
- Installation instruction
- **Packaging:** Cardboard box

Adjustment

Sensitivity adjustment, with static object

1. Line up the sensor with the reflector. 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. Press the button again 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.



Sensitivity adjustment, with a running process

1. Line up the sensor with the reflector. 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.

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.