

Photoelectrics

Diffuse-reflective

Type PD32CND50

CARLO GAVAZZI



- Miniature sensor range
- Range: 500 mm
- Sensitivity adjustment 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 PD32CND50 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

PD32CND50PPM5T

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	500 mm	PD 32 CND 50 NPT PD 32 CND 50 PPT	PD 32 CND 50 NPM5T PD 32 CND 50 PPM5T

Specifications

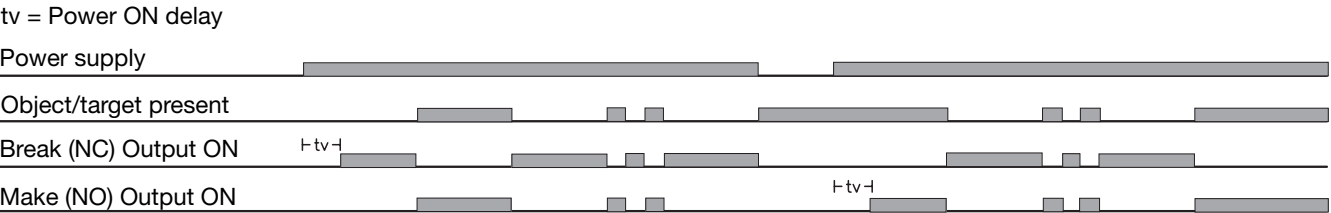
Rated operating distance (S_n)	Up to 500 mm, reference target Kodak test card R 27, white, 90% reflectivity, 100 x 100 mm	Light source	GaAlAs, LED, 660 nm red, modulated
Blind zone	None	Light type	± 2°
Sensitivity	Adjustable by Teach-In (push button or wire)	Sensing angle	5,000 lux
Temperature drift	≤ 1%/°C	Ambient light	12 x 12 mm @ 160 mm
Hysteresis (H) (differential travel)	≤ 10%	Light spot	
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Operating frequency	1000 Hz
Ripple (U_{rpp})	≤ 10%	Response time	
Output current		OFF-ON (t _{ON})	≤ 0.5 ms
Continuous (I _a)	≤ 100 mA	ON-OFF (t _{OFF})	≤ 0.5 ms
Short-time (I)	≤ 100 mA (max. load capacity 100 nF)	Power ON delay (t_v)	≤ 300 ms
No load supply current (I_o)	≤ 25 mA @ 24 VDC	Output function	
Minimum operational current (I_m)	0.5 mA	NPN and PNP	Preset
OFF-state current (I_r)	≤ 100 μA	NO/NC switching function	Set up by button
Voltage drop (U_d)	≤ 2.4 VDC @ 100 mA	External Teach	
Protection	Short-circuit, reverse polarity and transients	Same function as button	10 to 30 VDC
		Locked (disable teach button)	0 to 2.5 VDC
		Operating mode	Not connected
		Indication	
		Output ON	LED, yellow
		Signal stability ON and power ON	LED, green
		Environment	
		Installation category	II (IEC 60664/60664A; 60947-1)



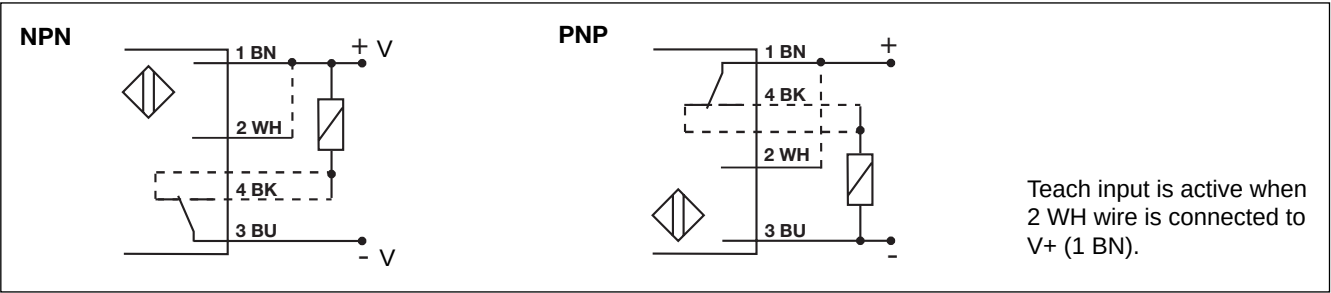
Specifications (cont.)

Pollution degree	3 (IEC 60664/60664A; 60947-1)	Housing material	
Degree of protection	IP 67 (IEC 60529; 60947-1)	Body	ABS, black
Ambient temperature		Front material	PMMA, red
Operating	-20° to +60°C (-4° to +140°F)	Connection	
Storage	-20° to +80°C (-4° to +176°F)	Cable	PUR, black, 2 m 4 x 0.14 mm², Ø = 3.6 mm
Vibration	10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	Plug	M8, 4-pin
Shock	30 g / 11 ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)	Weight	With cable: 40 g With plug: 10 g
Rated insulation voltage	500 VAC (rms)	CE-marking	Yes
		Approval	cUL

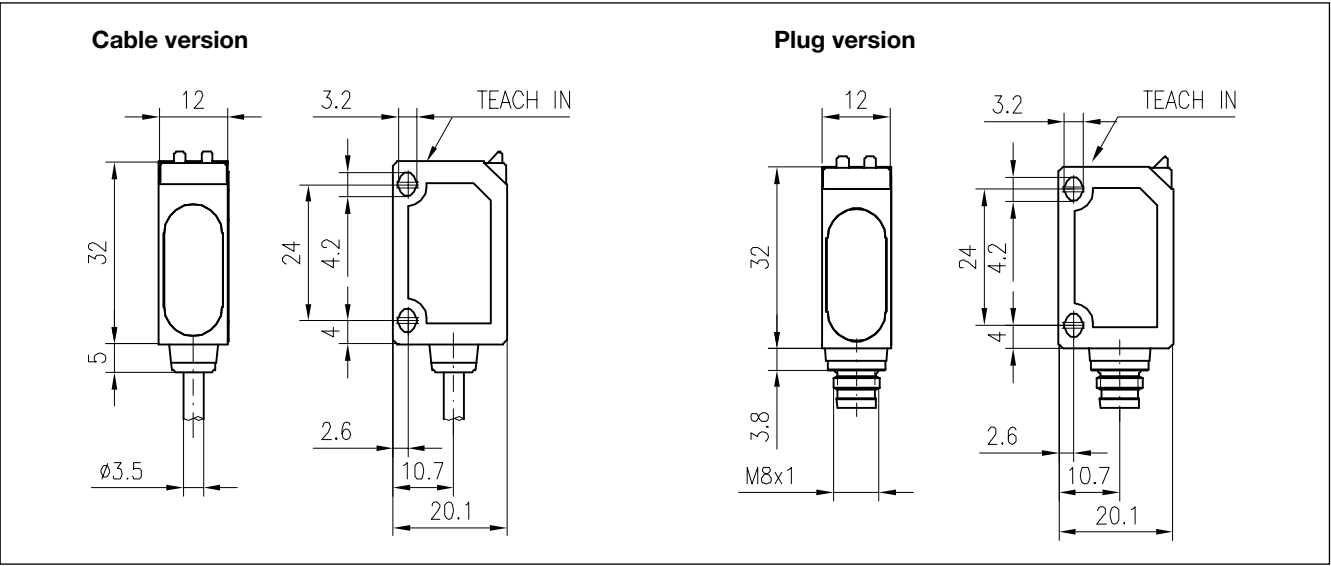
Operation Diagram



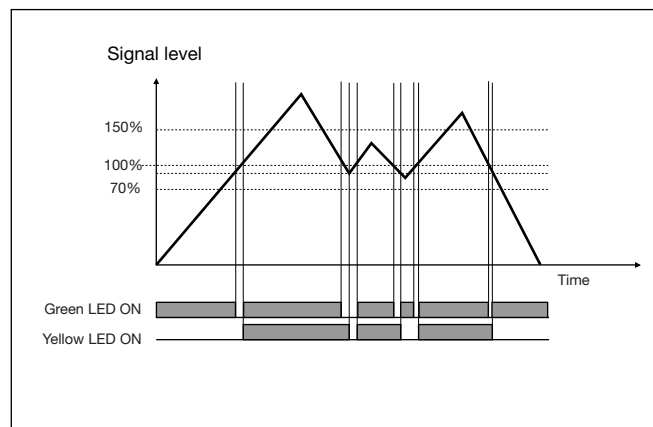
Wiring Diagrams



Dimensions

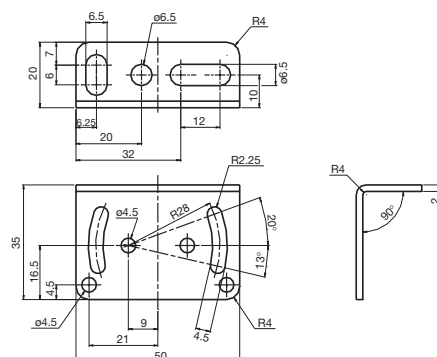


Signal Stability Indication



Accessories

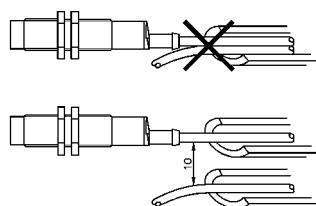
Mounting bracket APD32-MB3



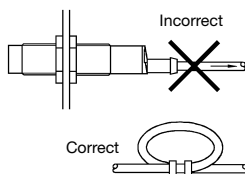
For further information refer to “Accessories”

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

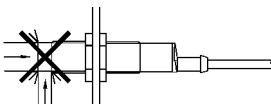


Relief of cable strain



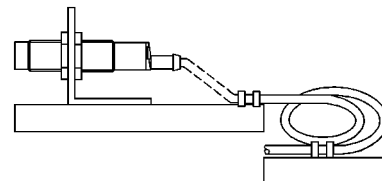
The cable should not be pulled

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

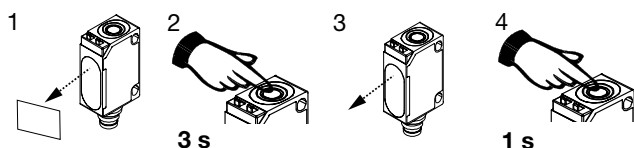
Delivery Contents

- Photoelectric switch: PD 32 CND 50 ...
- Installation instruction
- **Packaging:** Cardboard box

Adjustment

Sensitivity adjustment, with static object

1. Line up the sensor with the object. 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 outside 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. No object in the detection area: Press the button for 3 s, until both LED's flash simultaneously.  **3 s**
2. No object in the detection area: 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 only one object

1. Line up the sensor with the object. 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. Leave the object in the detection area, press the button for 1 s. The green LED flashes and stays on: the second switching point is stored, and the sensor is ready to operate.

Sensitivity adjustment, with a running process

1. Line up the sensor with the object. 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.