

Photoelectrics Background Suppression Type PD112CNB25BP..

CARLO GAVAZZI



- Range: 2500 mm
- Accurate & stable distance adjustment
- Modulated, infrared light 850 nm
- Supply voltage: 10 to 30 VDC
- Output: 200 mA, NPN or PNP preset
- Make or break switching function selectable
- Adjustable ON- / OFF delay, 1 – 16 sec.
- LED indication for output and power ON
- Protection: reverse polarity, short circuit and transients
- Cable and plug versions
- Excellent EMC performance
- Remote test feature (mute)



Product Description

The PD112CNB25 sensor comes in a 112 x 45 x 25 mm strong polycarbonate (PC) housing. The sensors are useful in applications where long range and high accuracy detection is required. Robust housing, a sophisticated mechanical design and high power LED for excellent performance in harsh environments. The sensor has a test input, for door mode, designed to

remotely disable (mute) the emitter and thereby evaluate the sensor function from a door controller or e.g. a PLC. The output type is preset (NPN and PNP) with selectable switching function NO/NC. 2 selectable modes are built in: "Industrial" for general automation and "Door" specifically for control of doors & gates.

Ordering Key

PD112CNB25BPM1

Type	_____
Housing style	_____
Housing size	_____
Housing material	_____
Housing length	_____
Detection principle	_____
Sensing distance	_____
Output type	_____
Output configuration	_____
Connection type	_____

Type Selection

Housing W x H x D	Range S _n	Connection	Ordering no. NPN and PNP Make or break switching
25 x 107.5 x 45 mm	500 - 2500 mm	Cable	PD 112 CNB 25 BP
25 x 107.5 x 45 mm	500 - 2500 mm	Plug	PD 112 CNB 25 BPM1

Specifications

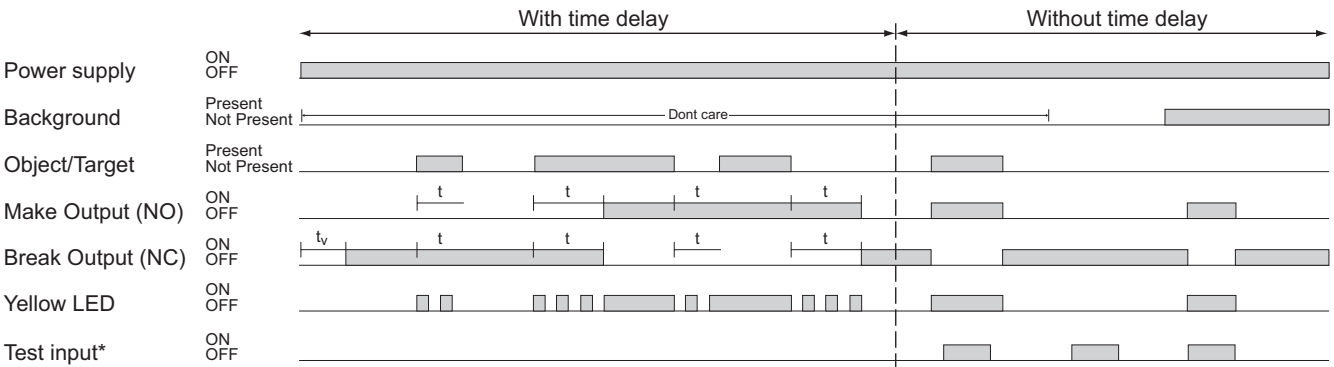
Rated operating distance (S_n)	50 to 2500 mm, reference target Kodak test card R27, white, 90% reflective, 200 x 200 mm	Light type	Infrared, modulated
Background adjustment	500 to 2500 mm (28 turns calibration screw)	Sensing angle	Industry Door
Blind zone	50 mm		± 1.9° ± 2.6°
Temperature drift	≤ 0.2%/°C	Ambient light	10,000 lux
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Light spot	60 mm @ 1.5 m
Ripple (U_{ripple})	≤ 10%	Operating frequency	Industry Door
Output current			250 Hz 16.7 Hz
Continuous (I _a)	≤ 200 mA (max. load capacity 100 nF)	Response time	
No load supply current (I_o)	≤ 40 mA @ 24 VDC	OFF-ON (t _{ON})	Industry ≤ 2 ms
Minimum operational current (I_m)	0.5 mA	ON-OFF (t _{OFF})	Industry ≤ 2 ms
OFF-state current (I_r)	≤ 100 µA	OFF-ON (t _{ON})	Door ≤ 30 ms
Voltage drop (U_d)	≤ 2.5VDC @ 200 mA	ON-OFF (t _{OFF})	Door ≤ 30 ms
Protection	Short-circuit, reverse polarity and transients	Power ON delay (t_v)	≤ 50 ms
Light source	GaAlAs, LED, 850 nm	Output delay	
		ON-delay	1-16 s
		OFF-delay	1-16 s
		Output function	
		NPN and PNP	Preset
		NO/NC switching function	Selectable by DIP switch



Specifications (cont.)

Test input Door mode Emitter off (voltagelevel)	< 1 VDC, NPN (No pull-up resistor) or > 9 VDC PNP (No pull-down resistor) < 3 mA DC	Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Input current Industrial mode	Not available	Shock	2 x 1 m, 100 x 500 mm (IEC 60068-2-32)
Indication Output ON Power ON	LED, yellow LED, green	Rated insulation voltage	2 kV (rms)
Environment Installation category	III (IEC 60664/60664A; 60947-1)	Housing material Body Cover	PC (polycarbonate), black PC (polycarbonate), clear
Pollution degree	3 (IEC 60664/60664A; 60947-1)	Connection Cable	PVC, black, 2 m 5 x 0.34 mm ² , Ø = 5.2 mm M12, 5-pin (CONB15-series)
Degree of protection	IP 67 (IEC 60529; 60947-1)	Plug	
Ambient temperature Operating Storage	-25° to +55°C (-13° to +131°F) -25° to +80°C (-13° to +176°F)	Weight	With cable: 160 g With plug: 80 g
		CE-marking	Yes
		Approvals	cULus (UL508)

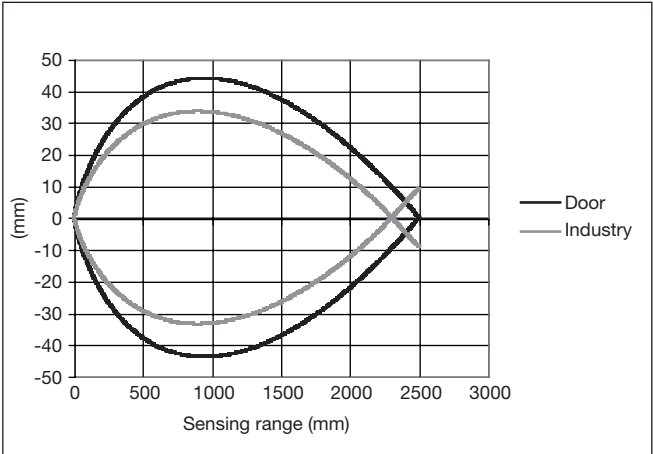
Operation Diagram



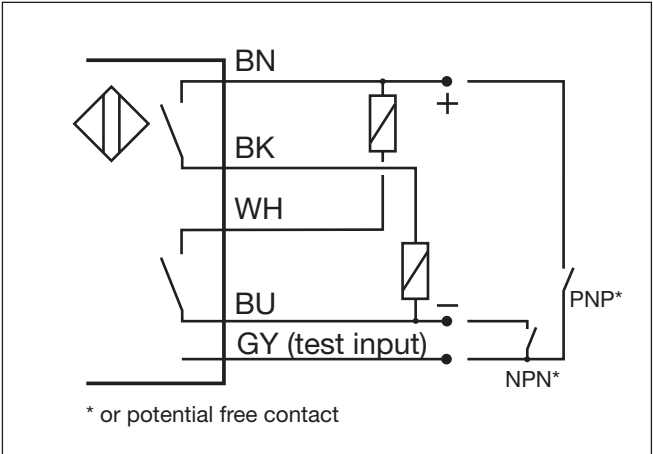
tv = Power on delay, t = Time delay (delay on operate and delay on release)

* Only active in Door Mode

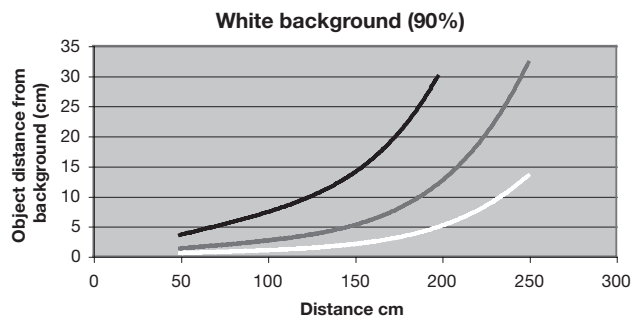
Detection Diagram



Wiring Diagrams

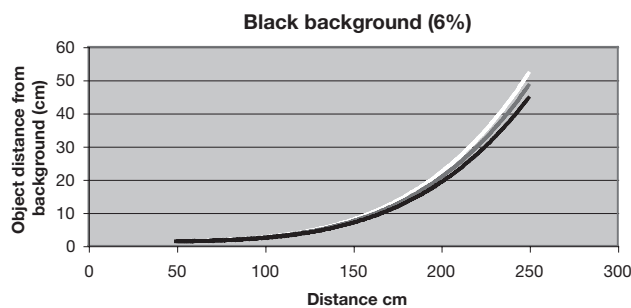


Sensing Conditions "Industrial" mode

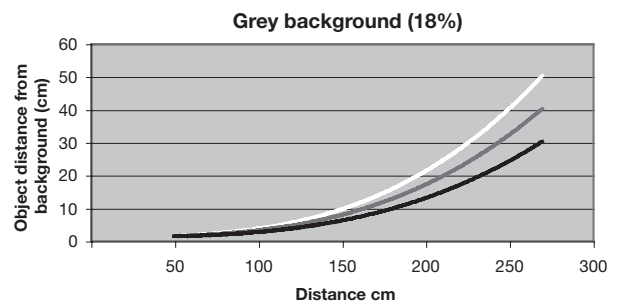
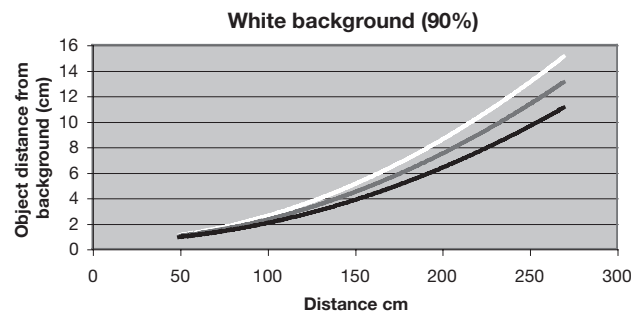


In this mode the maximum operating frequency is set to 250 Hz and detection is optimized for objects close to the background for top performance in general industry automation applications such as pallet wrapping machines, airport baggage conveyors, wood planks handling/stacking.

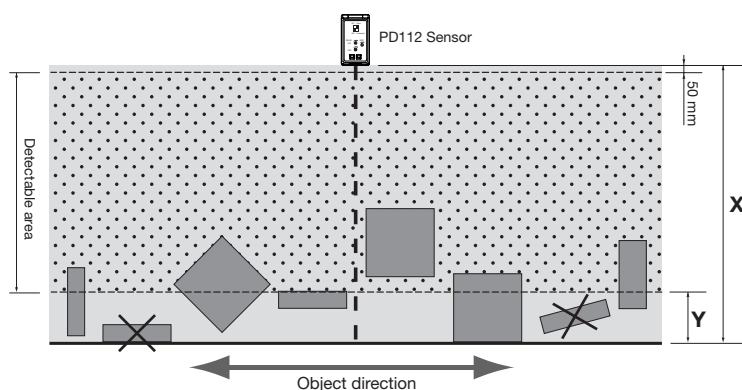
Sensing Conditions "Door" mode



In this mode various parameters are optimized for monitoring and control of doors, from a position above the door/in the ceiling. Maximum operating frequency is set to 16.7 Hz, adapting to moving persons, and the test input – for evaluation of the sensor functioning through muting of the emitter – is enabled for use by a door controller or e.g. a PLC.



Detection Principle



- X** = Distance to background
- Y** = Object distance (min.) from background
- = Detectable objects
- = Not detectable objects

Adjustment

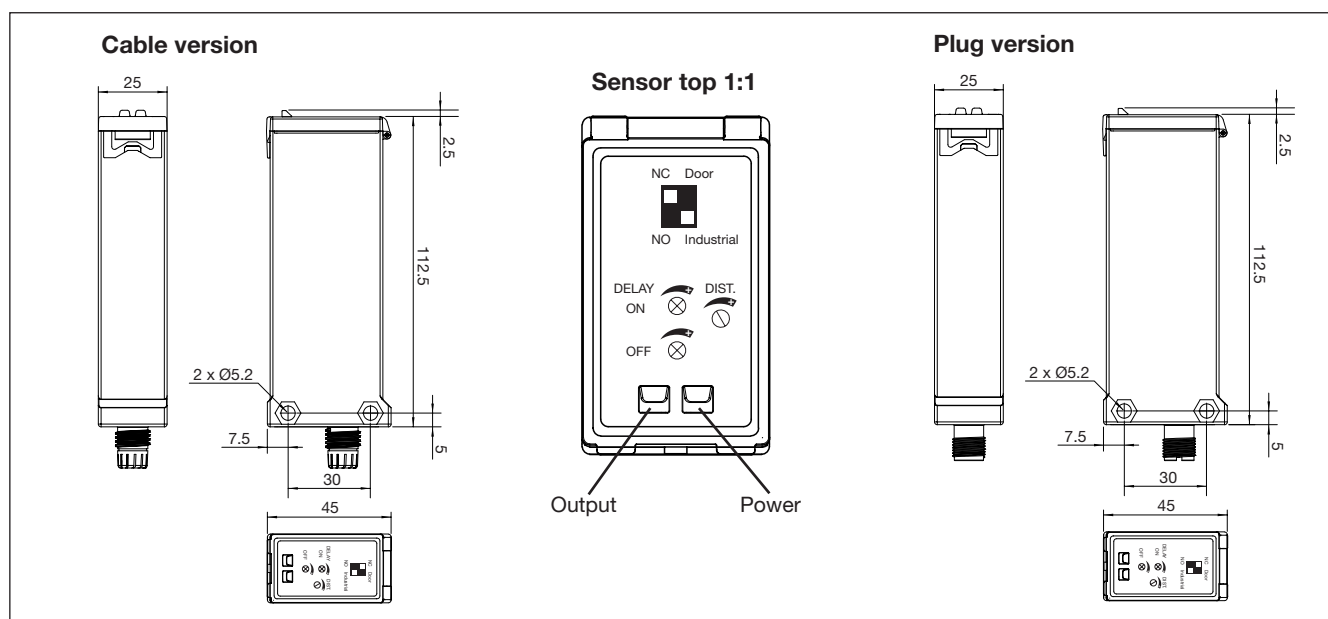
Background suppression adjustment*

1. Align the sensor at the background
 2. Turn distance calibration screw (28 turns) clockwise until yellow led is ON
 3. Turn distance calibration screw (28 turns) counter clockwise until yellow led turns OFF
 4. Background is now neglected
- Object detection adjustment
 *If no background exists a white cardboard can be used as background.

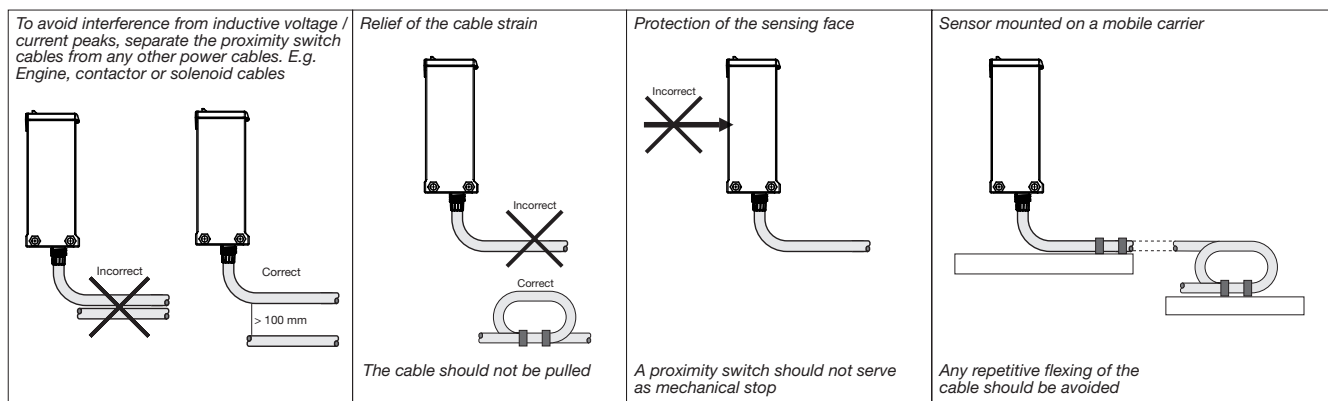
1. Align the sensor at the background

2. Turn distance calibration screw (28 turns) counter clockwise until yellow led turns OFF
3. Turn distance calibration screw (28 turns) clockwise until yellow led turns ON
4. The object can now be detected

Dimensions (mm)



Installation Hints



Delivery Contents

- Photoelectric switch: PD 112 CNB 25 BP..
- Screwdriver for adjustment: 77-005
- Installation instruction
- **Packaging:** Cardboard box

Accessories

- Connector type CONB15NF... series