

# PC MICRO INSTALLATION MANUAL



CAT8EFE0524601

## PACK CONTENT

- (1) INPROX Operating Manual
- IN82 knob regulation accessory for the models with sensitivity adjustment
- INN1 mounting bracket + INN2 screws with bolts and washers
- INN2 mounting brackets + INN4 screws with bolts and washers, only for PTX-RX sensor series set
- INN1 RL122 reflector, only for PPX sensor series

## GENERAL DESCRIPTION

- Micro Photoelectric Switch series with large scanning ranges
- Small dimensions: 20x11x31mm plastic housing
- 90° optic axis orientation
- PNP or NPN output
- Lon/Don selectable output
- Trimmer adjustment
- IP67 Protection
- Red light emission
- Approval  $\text{CE}$  &  $\text{UL}$
- Through-beam 15 m range
- Photoelectric reflex with polarizing filter 5 m range

- Diffuse energetic scanner 900 mm scanning distance
- Proximity switch with background suppression and adjustable scanning distance up to 500 mm

## Declaration of conformity INPROX CORPORATION

Declare under our sole responsibility that these products are in conformity with the following EEC directive: 89/336 and 73/23 and amendment.

**P BG 500 C P P 6 K1**

### Photoelectric Sensor Series

photoelectric	P
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### Sensing Mode

background suppression	BG
diffuse proximity	DX
polarized retro-reflective	PX
receiver	RX
transmitter	TX

### Maximum Range (mm/m)

500mm	500
900mm	900
5m	05M
15m	15M

### Body Style

Micro Cubic	C
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### Cable/Connector

M1	M1 cable
E1	E1 M8 connector

### Logic

6	LODO light-dark
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### Output

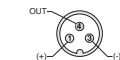
N	NPN
P	PNP

### Housing Material

P	PBT
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## Wiring diagrams M8 plug versions E1

### Diffuse, Pol. Retro, receiver



### Transmitter



## TECHNICAL SPECIFICATIONS

Models	PBG500	PDX900	PPX05M	PRX15M	PTX15M
Type	Background	Diffuse	Polarized	Receiver	Transmitted
Sensing distance	15 - 500	800 mm (1)	5 m (2)	12 m	12 m
Blind zone	2 mm	0	10 mm	0	0
Hysteresis	-	20% max.	-	-	-
Distance-Sensitivity	Potentiometer 270				
Light source	Red visible LED				-
Spot diameter	50mm @ 300mm	125mm @ 1000mm	-	-	1600mm @ 1000mm
Light on-Dark on select.	Flipping combinator				
Supply voltage	10 ~ 30 VDC Max				
Ripple	<10% Included				
No load supply current	30 mA max	30 mA max	30 mA max	20 mA max	15 mA max
Load current max	-	100 mA	-	-	-
Output voltage drop	1.8 V max @ 100 mA				
Output type	PNP or NPN open collector				
Switching frequency	1000 Hz With light:dark ratio 1:1				
Response time	>0.5 ms With resistive load				
Time delay before	100 ms max				
Supply protections	Overvoltage pulses and polarity reversal				
Output protections	Short circuit, overcurrent, overvoltage				
Operation temp. range	-25 ~ +55 °C				
Storage temperature	-40 ~ +70 °C				
Temperature drift	±15% of scanning distance				
Ambient light immunity	10 000 Lux minimum sunlight 3000 Lux minimum HF lamp				
Enclosure rating	IP 67				
LED indicators	Yellow: output status; Green: operative reserve > 1				
Housing material	PBT housing; PC Optics				
Cable PVC 2m	3x0.18 @ 4mm				
Weight	53 g cable version, 9 g Plug version				

- (1) White target 80% 100x100 mm
- (2) With OX110 reflector

## CONNECTIONS AND INSTALLATION

- Make sure that the supply voltage is correctly settled with a ripple corresponding to the values indicated on the catalog.
- In case the noise produced by the power lines exceed the values foreseen by the CE norm (interference immunity), separate the sensor cables from both the power and high tension lines, and insert it in a grounding metal raceway. Moreover, it is advisable to connect the sensor directly to the supply source and not to other devices.
- To extend the supply and output cables, it is necessary to use a cable having conductors with a minimum size of 1 mm<sup>2</sup>. The maximum length of extension is 100m (this value is referred to a minimum tension and power supply at a load of 100mA).
- Avoid the deposit of dust, water, moisture, etc. on the optic surface; this kind of deposits could compromise the reading features of the device.
- Protect the optic against organic solvents.
- Avoid direct exposure of the receiver to intense light sources or sun light.
- Clean the optic with a wet cloth and then dry it.

## Alignment and adjustment

### Direct proximity scanner with background suppression

Mount the unit using the suitable brackets (supplied), connect and align the sensor following the connection diagrams.

#### Select operating mode:

- L: Light-switching; if light is received, output switches.
- D: dark-switching; if light is interrupted, output switches.

Place the object to be detected at the required reading distance, checking that the optic axis is perpendicular to the object surface. NOTE: in case of reflecting or flat objects, it could be convenient to recline the sensor of some degrees with respect to the perpendicular. Adjust the light reception:

LED gm(=green): light reception with function reserve >1.1  
LED ora(=orange): switching output active. Set the >SENS.< control knob to max., place the object and determine switch-on and switch-off points of the orange LED by moving the light beam horizontally and vertically. Select middle position. At optimum reception, the green LED lights up. If the orange LED does not change, too little or no light at all is being received. In this case, re-adjust or clean the light sensor and check the operating conditions.

Setting object detection: remove the object; the orange LED (output) must change (position A=Max.). If not, turn the >SENS.< control knob

(range 5 rotations) in the direction of Min. until the orange LED (output) changes (e.g. position A). Set the knob to Min. Position the object and turn the knob to Max. until the green LED lights up (e.g. position B). If position B<position A, select middle position (e.g. position C). Check overall function. If the function is o.k. the setting procedure is over. If the setting is not o.k. check the operating conditions and re-adjust. If position A < position B, background influence is too great. Check the operating conditions and readjust.

## Direct proximity scanner models

Mount the unit using the suggested brackets (supplied) and connect and align the sensor following the connection diagrams.

#### Select operating mode:

- L: Light-switching; if light received, output switches.
- D: dark-switching; if light interrupted, output switches

Place the object to be detected at the required reading distance, checking that the optic axis is perpendicular to the object surface.

NOTE: In case of reflecting or flat objects, it could be convenient to recline the sensor of some degrees with respect to the perpendicular. Adjust the light reception:

LED gm(=green): light reception with function reserve >1.1  
LED ora(=orange): switching output active. Set the >SENS.< control knob to max., place the object and determine switch-on and switch-off points of the orange LED by moving the light beam horizontally and vertically. Select middle position. At optimum reception, the green LED lights up. If the orange LED does not change, too little or no light at all is being received. In this case, re-adjust or clean the light sensor.

Setting object detection: remove the object; the orange LED (output) must change (position A=Max.). If not, turn the >SENS.< control knob (range 5 rotations) in the direction of Min. until the orange LED (output) changes (e.g. position A). Set the knob to Min. Position the object and set the knob in direction Max. until the green LED lights up (e.g. position B). If position B<position A, select middle position (e.g. position C). Check overall function. If function is o.k. the setting procedure is over. If the setting is not o.k. check the operating conditions and re-adjust.

If position A position B, background influence too great. Check the operating conditions and re-adjust.

## Photoelectric reflex switch, with reflector models

Mount the reflector so that its surface is perpendicular to the optic axis. Check that the distance between the sensor and the reflector does not exceed the values specified for the reflector itself. Fix the sensor safely but not permanently and select the output type.

For a perfect alignment, follow the procedure below.

Adjust the light reception:  
LED gm(=green): light reception with function reserve >1.1  
LED ora(=orange): switching output active. Set the >SENS.< control knob to max., determine switch-on and switch-off points of the orange LED by moving the light beam horizontally and vertically. Select middle position so as the red light beam strikes the center of the reflector. At optimum reception, the green LED lights up. If the orange LED does not change, too little or no light at all is being received. In this case, re-adjust photoelectric switch and reflector and, eventually, clean them.

## Transmitter – Receiver models

#### Select operating mode:

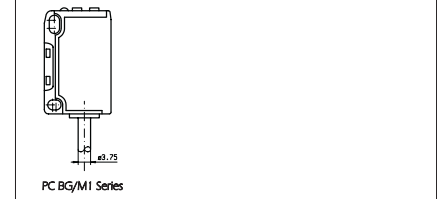
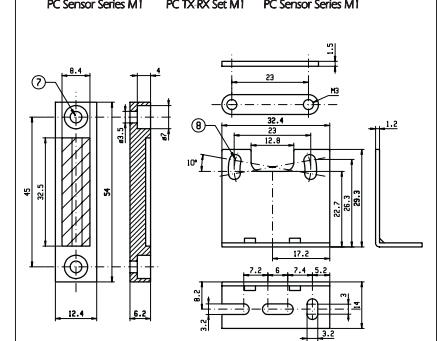
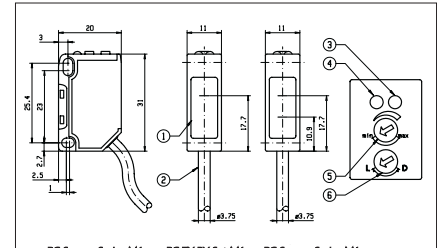
- L: Light-switching; if light received, output switches.
- D: dark-switching; if light interrupted, output switches

Mount Emitter and Receiver using the fixing holes to the holder (supplied) opposite to the reflector and align roughly. Keep into consideration the reception capability of the light beam. Power the device. The emission led of the emitter lights up.

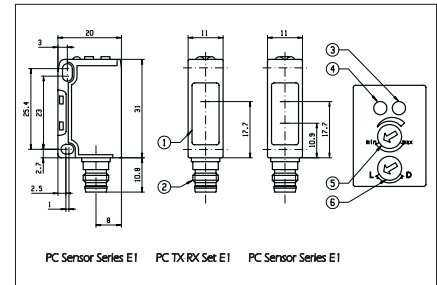
Adjust the light reception:  
LED gm(=green): light reception with function reserve >1.1  
LED ora(=orange): switching output active. Set the >SENS.< control knob to max., determine switch-on and switch-off points of the orange LED of the receiver by moving the light beam horizontally and vertically. Select middle position so as the red light beam strikes the receiver. At optimum reception, the green LED lights up. If the orange LED does not change, too little or no light at all is being received. In this case, re-adjust emitter and receiver and, eventually, clean them.

Setting object detection: Place object in light beam. The orange LED must change. If not, reduce the sensitivity using the >SENS.< control knob until the orange LED changes. When the object is removed, the green LED must light up again. If this is not the case, adjust the sensitivity until the switching threshold is correctly set. If the green LED does not go out when an object is present, the light reception is too low (e.g. object too small, object transparent).

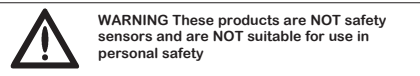
## MECHANICAL DRAWINGS



- ① Sensitivity area
- ② M8x1 cable connector output M1
- ③ Output status led
- ④ Signal limit led
- ⑤ Sensitivity adjustment trimmer
- ⑥ Output status selectable trimmer
- ⑦ OX122 (PC polarizing filter)
- ⑧ INFE OO (PC bracket)



- ① Sensitivity area
- ② M8x1 cable connector output E1
- ③ Output status led
- ④ Signal limit led
- ⑤ Sensitivity adjustment trimmer
- ⑥ Output status selectable trimmer



**WARNING** These products are NOT safety sensors and are NOT suitable for use in personal safety