

Photoelectrics Through-beam Type PA12

CARLO GAVAZZI



- Range: 12 m
- Adjustable sensitivity
- Alignment control and dirt accumulation indication
- Rated operational voltage: 10 to 30 VDC
- Output: 200 mA, NPN or PNP
- Make and break switching funct., with LED indication
- Protection: Reverse polarity, short circuit, overload
- Operating frequency: 1 KHz
- 18 x 36 x 63 mm metal housing, IP 67
- Cable or plug versions
- Timer options



Product Description

High-power through-beam photoelectric switch. Range up to 12 m. Easy alignment through LED indication. Dirt accumulation indication. Output indication feedback from receiver to emitter. Precise

detection through narrow beam. Quick mounting in 4 positions with included mounting rail. Metal housing. IP 67. 2 m PVC cable connection or standard M 12 plug. Timer options.

Ordering Key

PA 12 RA NPA-1

Type _____
Function _____
Option: timer function _____
Output type _____
Connection type _____

Type Selection

Housing W x H x D	Timer function Option	Ordering no. NPN/cable Make & break swit.	Ordering no. NPN/plug Make & break swit.	Ordering no. PNP/cable Make & break swit.	Ordering no. PNP/plug Make & break swit.
Receiver 18 x 36 x 63	Without timer Delay on operate Delay on release One shot	PA 12R NPA PA 12RA NPA PA 12RB NPA PA 12RT NPA	PA 12R NPA-1 PA 12RA NPA-1 PA 12RB NPA-1	PA 12R PPA PA 12RA PPA PA 12RB PPA PA 12RT PPA	PA 12R PPA-1 PA 12RA PPA-1 PA 12RB PPA-1 PA 12RT PPA-1
Emitter 18 x 36 x 63		PA 12T N	PA 12T N-1	PA 12T P	PA 12T P-1

Note: Please order emitter and receiver separately. To be able to use the output indication feedback from receiver to emitter, emitter and receiver output types have to match (NPN or PNP). Plugs to be ordered separately.

Specifications Emitter

Rated operational volt. (U_B)	10 to 30 VDC (ripple included)
Ripple (U_{rip})	$\leq 10\%$
Supply current (I_o)	≤ 40 mA
Protection	Reverse polarity, transients
Light source	GaAlAs LED, 880 nm
Light type	Infrared, modulated
Optical angle	$\pm 0.85^\circ$
Indications	
Supply ON or Output ON	LED, green LED, green (only with feed back from receiver)

Specifications Receiver

Rated operational volt. (U_B)	10 to 30 VDC (ripple included)
Ripple (U_{rip})	$\leq 10\%$
No load supply current (I_o)	≤ 15 mA
OFF-state current (I_i)	≤ 100 μ A
Output current	
Continuous (I_e)	200 mA
Voltage drop (U_d)	≤ 2.5 V
Protection	Reverse polarity, short cir- cuit, continuous overload
Transient voltage	Max. 1 kV/0.5 J
Sensitivity	Adjustable, 20 turn pot
Optical angle	$\pm 0.85^\circ$
Ambient light	Max. 10,000 lux



Specifications Receiver (cont.)

Operating frequency (f)	1000 Hz, light/dark ratio 1:2
Response time	
OFF-ON (t_{ON})	$\leq 660 \mu s$
ON-OFF (t_{OFF})	$\leq 330 \mu s$
Power ON delay (t_v)	Typ. 70 ms
Indications	
Output ON	LED, yellow
Alignment	LED, yellow blinking
Dirt accumulation	LED, yellow blinking
Optional timer	
Delay on operate (function A)	0.1 to 14 s \pm 4 s
Delay on release (function B)	0.1 to 14 s \pm 4 s
One shot (function T)	0.1 to 14 s \pm 4 s

Truth Table (Receiver)

	Make switching			Break switching		
	Yes	No	No	Yes	No	No
Object present	Yes	No	No	Yes	No	No
Dirt on lenses, misaligned or sensitivity too low		No	Yes ¹⁾		No	Yes ¹⁾
LED	OFF	ON	Blink ¹⁾	OFF	ON	Blink ¹⁾
Load	Act.	N-act.	N-act.	N-act.	Act.	Act.
Output NPN	Low	High	High	High	Low	Low
Output PNP	High	Low	Low	Low	High	High

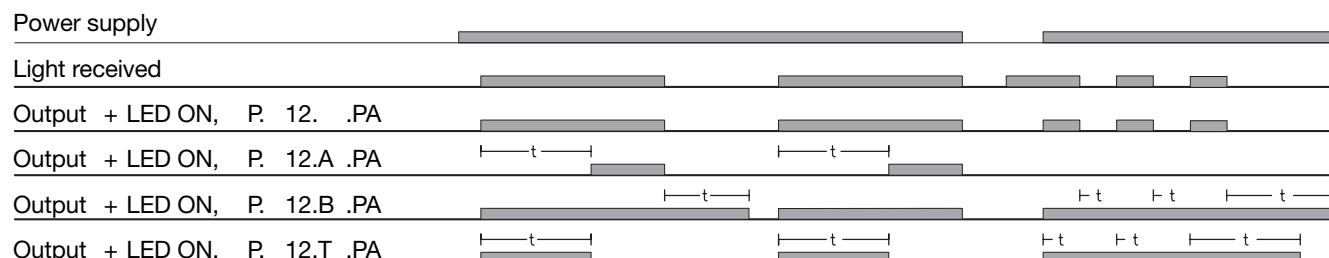
Note: The general definition of target is not valid for this sensor. Object present causes interruption of the light-beam.

¹⁾ In normal operating conditions, the LED indication has to be on continuously.

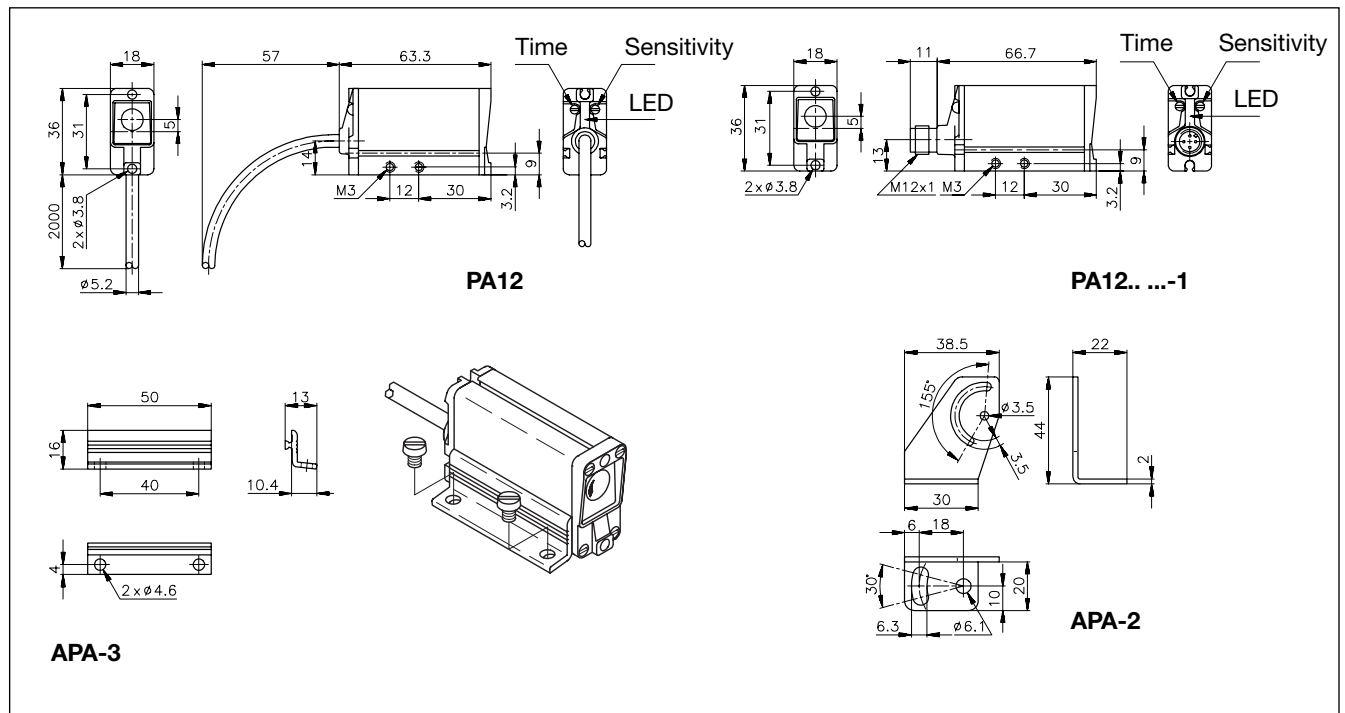
Common Data

Environment	
Overvoltage category	III (IEC 60664/60664A; 60947-1)
Pollution degree	3 (IEC 60664/60664A; 60947-1)
Degree of protection	IP 67 (IEC 60529; 60947-1) Note: Plug version, IP 67 with mounted plug, CONH1A-. serie
Temperature	
Operating	-20° to +60°C (-4° to 140°F)
Storage	-20° to +60°C (-4° to 140°F)
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 68-2-6)
Shock	2 x 1 m & 100 x 0.5 m (IEC 68-2-32)
Dielectric voltage	500 VAC (rms)
Housing material	
Body	Aluminium, anodized
Front	Polycarb., glass-reinforced
Lenses	Acrylic
Back	Polycarbonate, black
Mounting rail APA-3	Aluminium, anodized
Mounting bracket APA-2	Iron, black
Connection	
Cable	Black, 2 m oilproof PVC, 4 x 0.35 mm ² Note: Other lengths on request
Plug	Standard M 12, type CONH1A-.. Note: Plug to be ordered separately
Weight	175 g cable version 85 g plug version

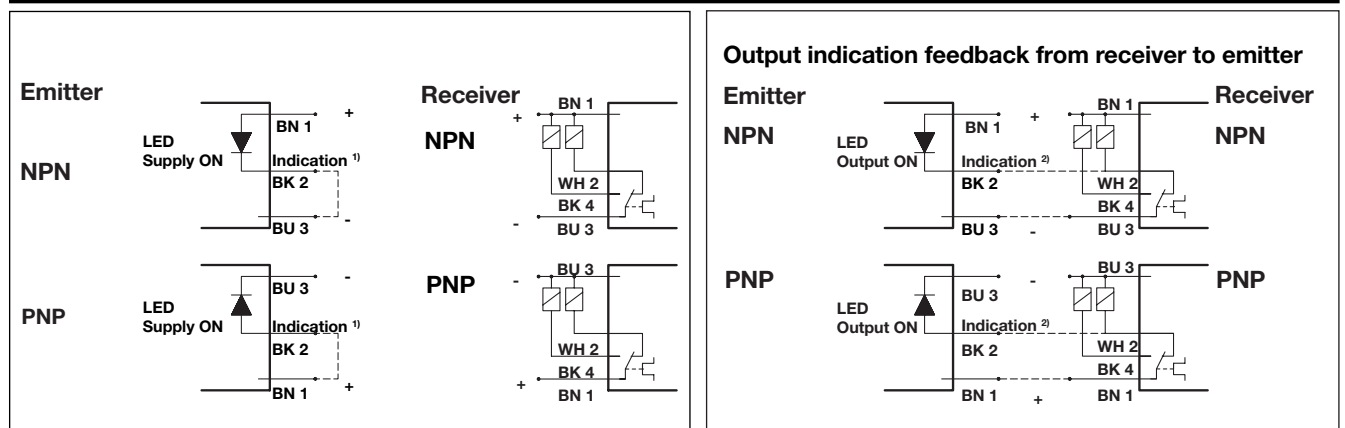
Operation Diagram (Break switching function only (NC))



Dimensions



Wiring Diagrams



Note: ¹⁾ For "Supply ON" LED indication on emitter:

Connect BK (2) and BU (3) for NPN types (BK (2) and BN (1) for PNP types).

²⁾ For "Output ON" LED indication on emitter (output feedback):

Connect output WH (2) or BK (4) of receiver with BK (2) of emitter and

BU (3) emitter with BU (3) receiver for NPN types (BN (1) emitter with BN (1) receiver for PNP types)

Accessories

- Adjustable Mounting bracket APA-2 with two M 3 x 10 mm screws, washers and M 3 nuts
- Plugs: CONH1A-.. serie.

Delivery Contents

- Photoelectric switch: PA12T. or PA12R.
- Rail mounting bracket APA-3
- Screw driver for adjustments (receiver only), 77-000
- Installation instruction (receiver only)
- Packaging:** Carton box, emitter and receiver packed separately