Photoelectrics Through-beam Type PA12



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.

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



Ordering Key

PA 12 RA NPA-1

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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 _{rpp})	≤ 10%
Supply current (I _o)	≤ 40 mA
Protection	Reverse polarity, transients
Light source Light type Optical angle	GaAlAs LED, 880 nm Infrared, modulated ±0.85°
Indications Supply ON or	LED, green
Output ON	LED, green (only with feed back from receiver)

Specifications Receiver

Rated operational volt. $(U_{\scriptscriptstyle B})$	10 to 30 VDC (ripple included)
Ripple (U _{rpp})	≤ 10%
No load supply current (I_0)	≤ 15 mA
OFF-state current (I _r)	≤ 100 μA
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 Ambient light	±0.85° Max. 10,000 lux



Specifications Receiver (cont.)

1000 Hz, light/dark ratio 1:2	E
≤ 660 μs	
≤ 330 μs	
Typ. 70 ms	
LED, yellow	
LED, yellow blinking	
LED, yellow blinking	Ŧ
0.1 to 14 s ± 4 s 0.1 to 14 s ± 4 s 0.1 to 14 s ± 4 s	v
	$\leq 660 \ \mu s$ $\leq 330 \ \mu s$ Typ. 70 ms LED, yellow LED, yellow blinking LED, yellow blinking 0.1 to 14 s ± 4 s 0.1 to 14 s ± 4 s

Truth Table (Receiver)

	Make switching			Bre	ak swit	tching
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.

Operation Diagram (Break switching function only (NC))

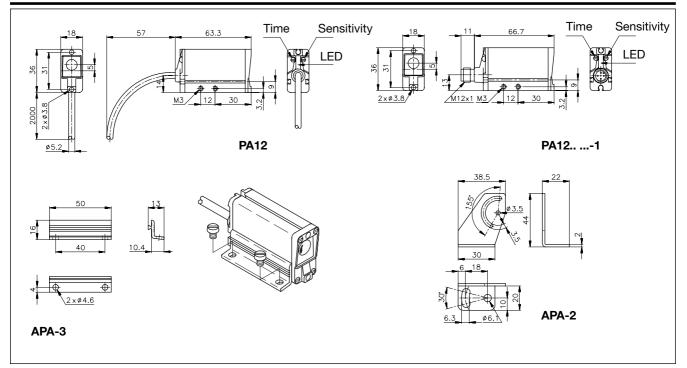
Power supply		
Light received		
Output + LED ON, P. 12PA		
Output + LED ON, P. 12.A .PA	▶ttt	1
Output + LED ON, P. 12.B .PA	⊢ti	⊢t ⊢t ⊨t
Output + LED ON, P. 12.T .PA		⊢t ⊢t ⊢— t —— I

Common Data

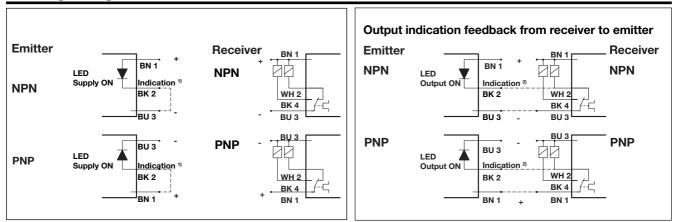
Environment Overvoltage category	III (IEC 60664/60664A;
Pollution degree	60947-1) 3 (IEC 60664/60664A; 60947-1)
Degree of protection	IP 67 (IEC 60529; 60947-1) Note: Plug version, IP 67 with mounted plug, CONH1A serie
Temperature	
Operating	-20° to +60°C (-4° to 140°F)
Storage	-20° to +60°C (-4° to 140°F)
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

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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