

Photoelectrics Through-beam Type PH18CNT..., DC



- Miniature sensor range
- Range: 20 m
- Sensitivity adjustment by potentiometer
- Modulated, infrared light 850 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP, N.O + N.C.
- Degree of protection IP67, IP69K
- LED indication for output, stability and power ON
- Protection: reverse polarity, short circuit and transients
- Cable, plug and pigtail versions
- Excellent EMC performance



ECOLAB

Product Description

The PH18CNT... is part of a family of inexpensive general purpose through-beam sensors in industrial standard 18 mm cylindrical and square ABS housing. The sensors are useful in applications where high-accuracy detection as well as small size is required.

Compact housing and high power LED for excellent performance-size ratio.

The potentiometer used for adjustment of the sensitivity makes the sensors highly flexible. The output type is NPN or PNP and the output switching function is NO and NC.

Ordering Key **PH18CNT20PAM1SA**

Type _____
 Housing style square _____
 Housing size _____
 Housing material _____
 Housing type neutral _____
 Detection principle _____
 Sensing distance _____
 Output type _____
 Output configuration _____
 Connection type _____
 Sensitive adjustment _____

Type Selection

Housing type	Range S _n	Connec-tion	Ordering no. Emitter	Ordering no. Receiver NPN Make or break switching	Ordering no. Receiver PNP Make or break switching
M18 Square type	20 m	Cable	PH 18 CNT 20	PH 18 CNT 20 NASA	PH 18 CNT 20 PASA
M18 Square type	20 m	Plug	PH 18 CNT 20M1	PH 18 CNT 20 NAM1SA	PH 18 CNT 20 PAM1SA
M18 Square type	20 m	Pigtail M12	PH 18 CNT 20T1	PH 18 CNT 20 NAT1SA	PH 18 CNT 20 PAT1SA

Specifications Receiver according to EN60947-5-2

Rated operating distance (S _n)	Up to 20 m	OFF-state current (I _r)	≤ 100 µA
Blind zone	100 mm	Voltage drop (U _d)	≤ 2.0 VDC @ 100 mA
Sensitivity control	Adjustable by potentiometer 270°	Protection	Short-circuit, reverse polarity and transients
Adjustable distance to target	1 - 20 m	Sensing angle	± 2°
Temperature drift	≤ 0.2%/°C	Ambient light	30.000 lux Incandescent lamp
Hysteresis (H) (differential travel)	≤ 20%	Operating frequency	500 Hz
Rated operational volt. (U _B)	10 to 30 VDC (ripple included)	Response time OFF-ON (t _{ON})	≤ 1.0 ms
Ripple (U _{pp})	≤ 10%	ON-OFF (t _{OFF})	≤ 1.0 ms
Output current		Power ON delay (t _v)	≤ 300 ms
Continuous (I _e)	≤ 100 mA	Output function	NPN or PNP
Short-time (I)	≤ 100 mA (max. load capacity 100 nF)	Type	NO and NC
No load supply current (I _o)	≤ 15 mA @ 24 VDC	Indication	LED, yellow LED, green
Minimum operational current (I _m)	0.5 mA	Output ON	
		Signal stability and power ON	

Specifications Emitter

according to EN60947-5-2

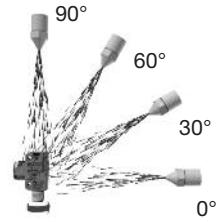
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Light spot Diameter	\varnothing 164 mm @ 3.25 m
Ripple (U_{rpp})	$\leq 10\%$	Protection	Reverse polarity and transients
Supply current (I_o)	≤ 23 mA @ 24 VDC	Indication function	LED, green
Light source	LED, 850 nm	Power supply ON	LED, green
Light type	Infrared, modulated	Signal stability and power ON	
Sensing angle	$\pm 2^\circ$	Power on delay	< 300 ms

Specifications Common

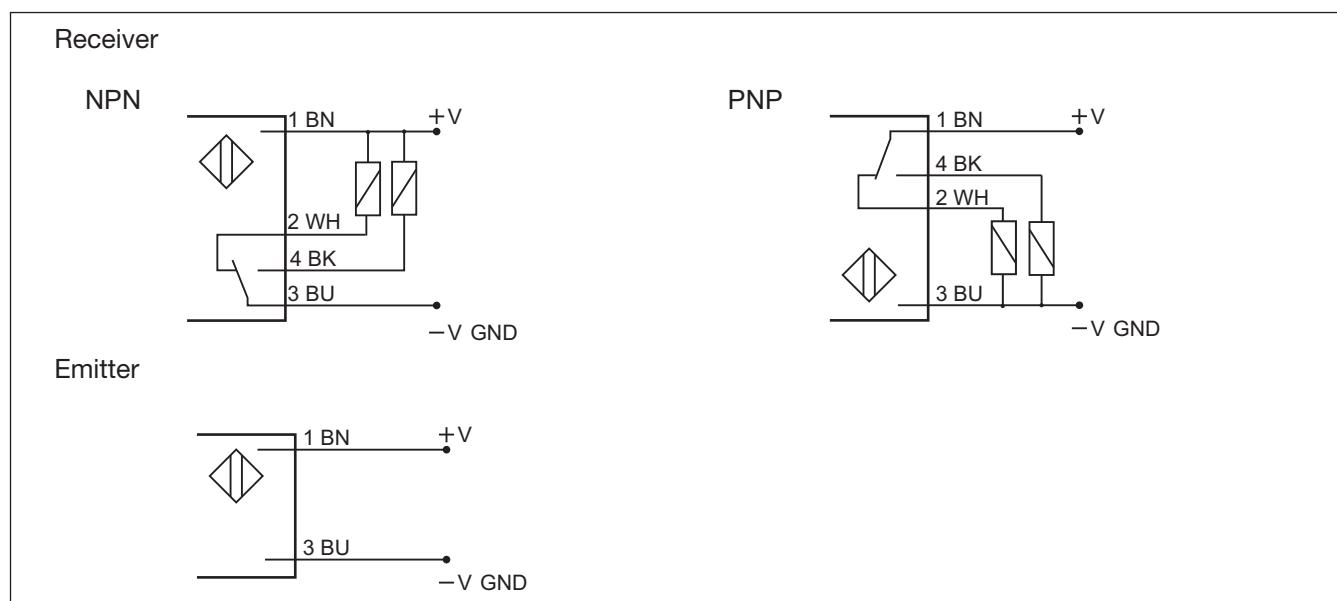
according to EN60947-5-2

Environment	Connection
Installation category	Cable
Pollution degree	Receiver
Degree of protection	Emitter
Ambient temperature	Plug
Operating	M12, 4-pin
Storage	(CONM14NF-series)
Vibration	Pigtail
	PVC, grey, 2 m
	4 x 0.25 mm ² , \varnothing = 4.5 mm
Shock	With cable: 75 g
	30 g / 11ms, 3 pos, 3 neg
	per axis
	(IEC 60068-2-6, 60068-2-32)
Rated insulation voltage	With plug: 10 g
	With Pigtail: 35 g
Housing material	CE-marking
Body	Yes
Front material	cULus (UL508)
	supply class 2

* The IP69K test according to DIN 40050-9 for high-pressure, high-temperature wash-down applications. The sensor must not only be dust tight (IP6X), but also able to withstand high-pressure and steam cleaning. The sensor is exposed to high pressure water from a spray nozzle that is fed with 80°C water at 8'000-10'000 KPa (80-100bar) and a flow rate of 14-6L/min. The nozzle is held 100-150 mm from the sensor at angles of 0°, 30°, 60° and 90° for 30s each. The test device sits on a turntable that rotates with a speed of 5 times per minute. The sensor must not suffer any damaging effects from the high pressure water in appearance and function.

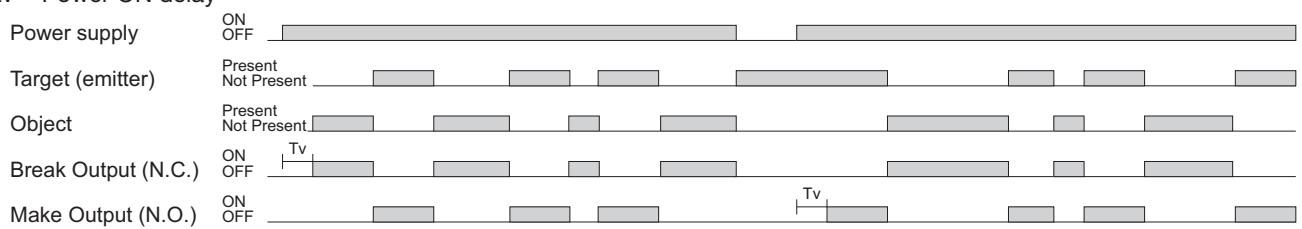


Wiring Diagrams

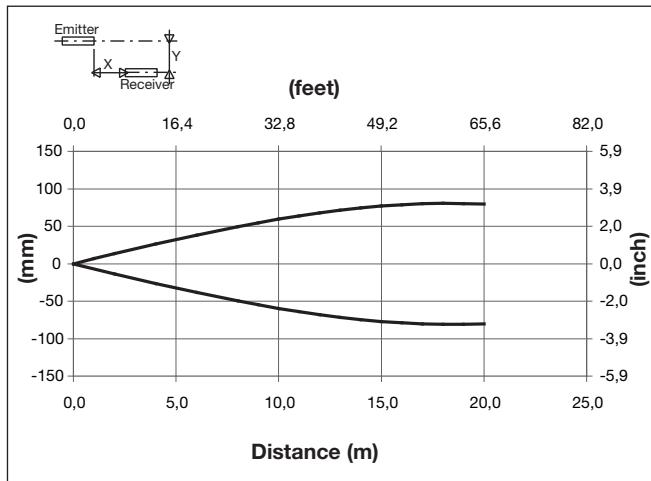


Operation Diagram

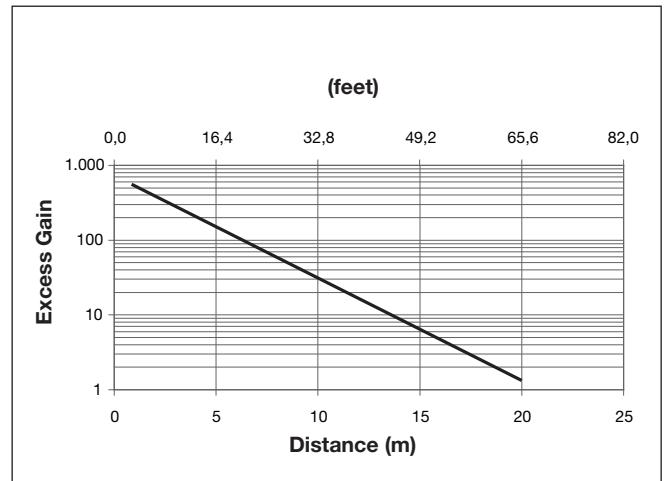
t_v = Power ON delay



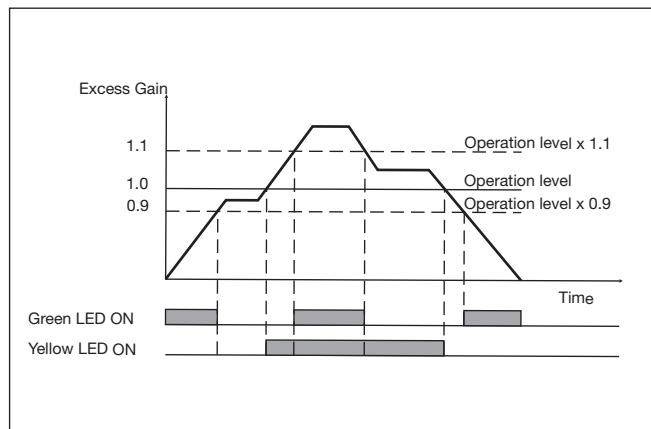
Detection Diagram



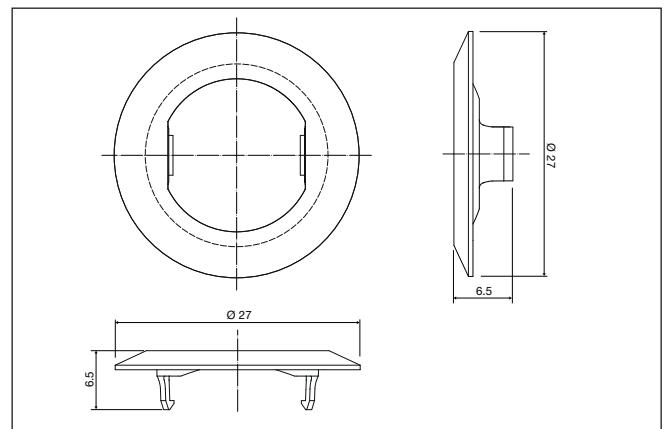
Excess Gain



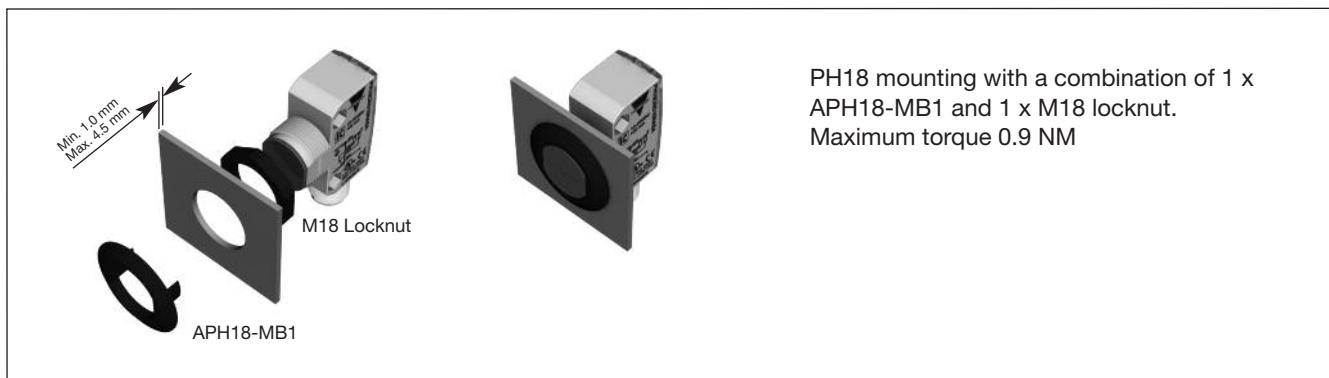
Signal Stability Indication



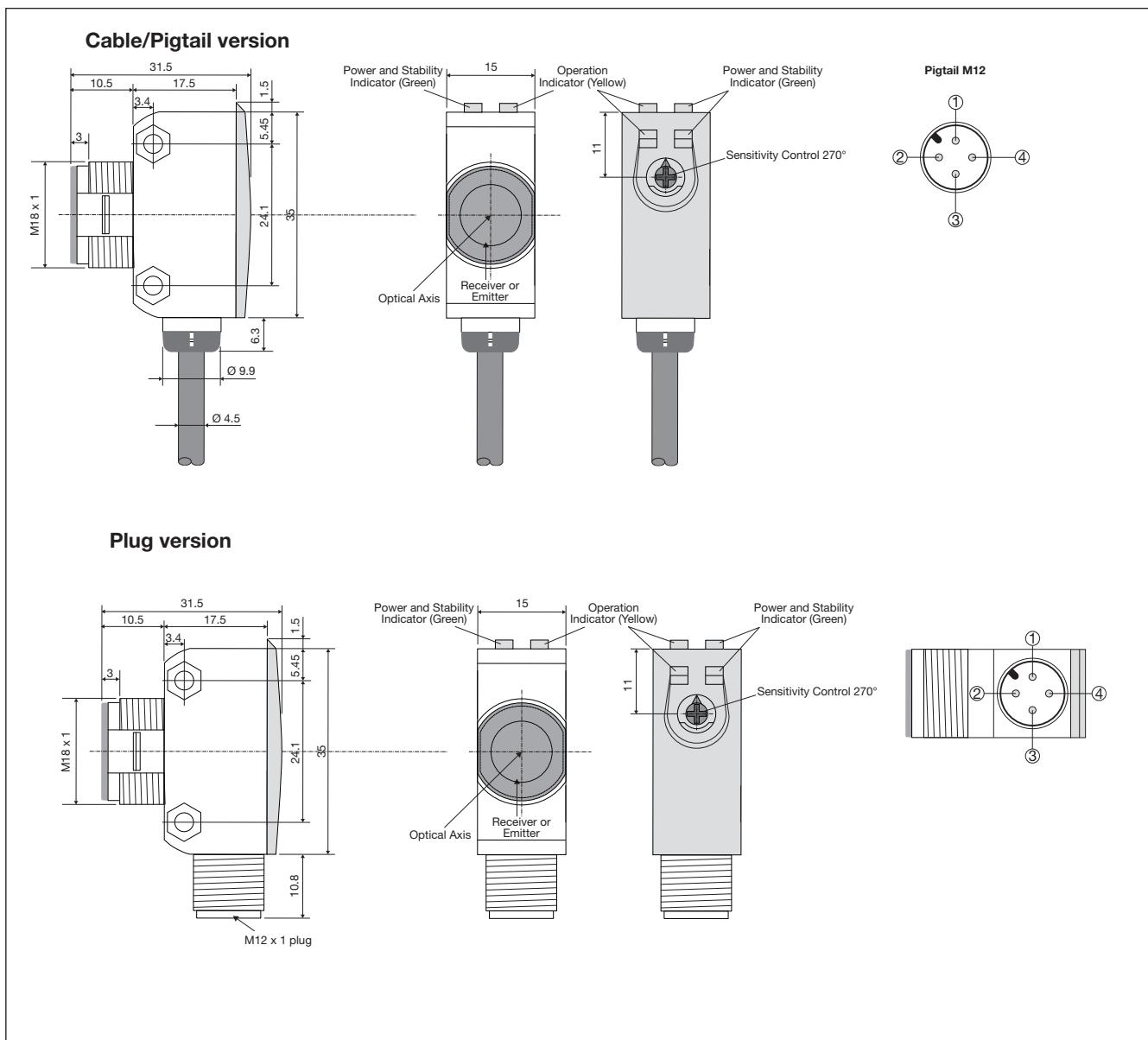
APH18-MB1



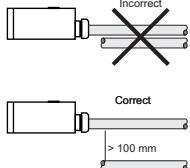
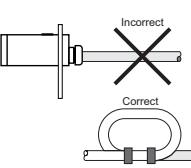
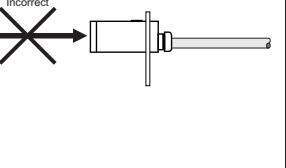
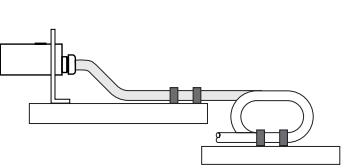
Mounting Systems



Dimensions



Installation Hints

<p>To avoid interference from inductive voltage / current peaks, separate the proximity switch cables from any other power cables. E.g. Engine, contactor or solenoid cables</p>  <p>Incorrect</p> <p>Correct</p> <p>> 100 mm</p>	<p>Relief of the cable strain</p>  <p>Incorrect</p> <p>Correct</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p>  <p>Incorrect</p> <p>Correct</p> <p>A proximity switch should not serve as mechanical stop</p>	<p>Sensor mounted on a mobile carrier</p>  <p>Any repetitive flexing of the cable should be avoided</p>
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Delivery Contents

- Photoelectric switch: PH 18 CNT...
- Installation instruction on plastic bag
- Screwdriver
- Mounting bracket APH18-MB1
- 1 M18 locknuts
- **Packaging:** Plastic bag
- Emitter and receiver is packed separately

Accessories

- Connector type CONG1A.. / CONM14NF.. series