



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# Photoelectrics Diffuse-reflective, Background Suppression Type PH18CNB20...



- Miniature sensor range
- Range: 200 mm
- Sensitivity adjustment by potentiometer
- Modulated, red light 625 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP preset
- Make and break switching function
- LED indication for output and power ON
- Protection: reverse polarity, short circuit and transients
- Cable and plug versions
- Excellent EMC performance
- Excellent colour matching

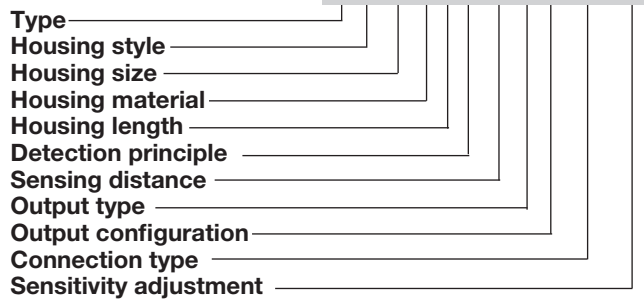


## Product Description

The PH18CNB20... is part of a family of inexpensive general purpose diffuse reflective sensors with background suppression 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 PH18CNB20NAM1SA



## Type Selection

Housing style	Range S <sub>n</sub>	Connection	Ordering no. NPN Make and break switching	Ordering no. PNP Make and break switching
M18 Square type	200 mm	Cable	PH 18 CNB 20 NASA	PH 18 CNB 20 PASA
M18 Square type	200 mm	Plug	PH 18 CNB 20 NAM1SA	PH 18 CNB 20 PAM1SA
M18 Square type	200 mm	Pigtail	PH 18 CNB 20 NAT1SA	PH 18 CNB 20 PAT1SA

## Specifications

<b>Rated operating distance (S<sub>n</sub>)</b>	Up to 200 mm, reference target: Kodak test card R27, white, 90% reflective, 100 x 100 mm	<b>(max. load capacity 100 nF)</b>	
<b>Maximum detecting distance</b> White object 90% refl. Grey object 18% refl. Black object 6% refl.	≤ 200 mm ≤ 200 mm ≤ 150 mm	<b>No load supply current (I<sub>0</sub>)</b>	≤ 20 mA @ U <sub>B</sub> max ≤ 40 mA @ U <sub>B</sub> min
<b>Blind zone</b>	8 mm	<b>Minimum operational current (I<sub>m</sub>)</b>	≤ 0.5 mA
<b>Sensitivity control</b> Electrical adjustment Mechanical adjustment	Adjustable by potentiometer 210° 240°	<b>OFF-state current (I<sub>r</sub>)</b>	≤ 100 µA
<b>Temperature drift</b>	≤ 0.2%/°C	<b>Voltage drop (U<sub>d</sub>)</b>	≤ 2 VDC @ I <sub>e</sub> max
<b>Hysteresis (H)</b>	≤ 10%	<b>Protection</b>	Short-circuit, reverse polarity and transients
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 30 VDC (ripple included)	<b>Light source</b>	InGaAlP, LED, 625 nm
<b>Ripple (U<sub>ripp</sub>)</b>	≤ 10%	<b>Light type</b>	Red, modulated
<b>Output current</b> Continuous (I <sub>a</sub> ) Short-time (I)	≤ 100 mA ≤ 100 mA	<b>Emitter angle</b>	± 3° @ half sensing distance
		<b>Ambient light</b>	30.000 lux Incandescent lamp
		<b>Operating frequency (f)</b>	≤ 500 Hz
		<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 1 ms ≤ 1 ms
		<b>Power ON delay (t<sub>v</sub>)</b>	≤ 100 ms
		<b>Output function</b>	Open collector NPN or PNP



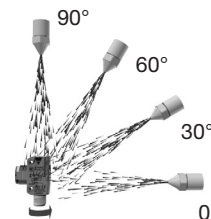


## Specifications (cont.)

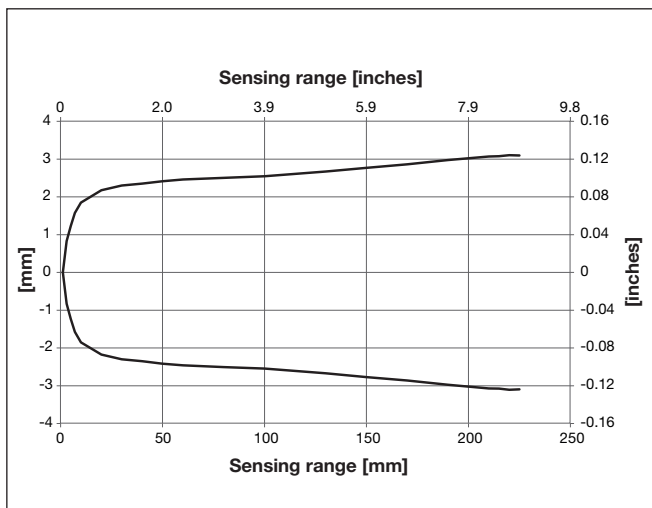
<b>Output switching function</b>	N.O. and N.C.
<b>Indication</b>	
Output ON	LED, yellow
Power ON	LED, green
<b>Environment</b>	
Installation category	III (IEC 60664/60664A; 60947-1)
Pollution degree	3 (IEC 60664/60664A; 60947-1)
Degree of protection	IP 67, IP 69K* (IEC 60529; 60947-1)
<b>Ambient temperature</b>	
Operating	-25° to +60°C (-13° to +140°F)
Storage	-40° to +70°C (-40° to +158°F)
<b>Vibration</b>	10 to 150 Hz, 1.0 mm/15 G (IEC 60068-2-6)
<b>Shock</b>	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)
<b>Rated insulation voltage</b>	≤ 500 VAC (rms) IEC protection class III

<b>Housing material</b>	
Body	ABS, grey
Backpart	PC-Transparent
Front material	PMMA, red
Cable gland	POM, Black
Trimmer shaft	POM, Dark Grey
Locknuts	PP, black
Mounting bracket	PPA, black
<b>Connection</b>	
Cable	PVC, grey 4 x 0.25 mm <sup>2</sup> , Ø = 4.5 mm M12, 4-pin (CONB14NF-series)
Plug	PUR, grey, 30 cm 4 x 0.25 mm <sup>2</sup> , Ø = 4.5 mm M12, 4-pin (CONB14NF-series)
Pigtail	
<b>Weight</b>	
Cable version	≤ 85 g
Pigtail version	≤ 40 g
Plug version	≤ 25 g
<b>CE-marking</b>	Yes
<b>Approvals</b>	cULus (UL508) Supply class 2

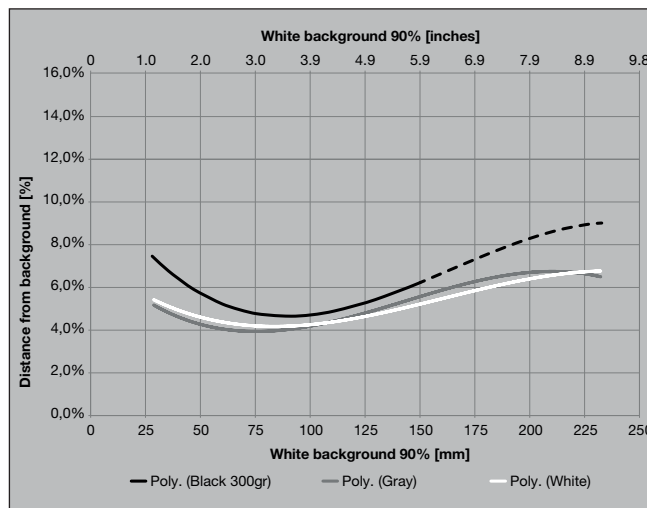
\* The IP69K test according to DIN 40050-9 for high-pressure, high-temperature wash-down applications. The sensor must not only be dust tight (IP6X), but also able to withstand high-pressure and steam cleaning. The sensor is exposed to high pressure water from a spray nozzle that is fed with 80°C water 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.



## Detection Diagram

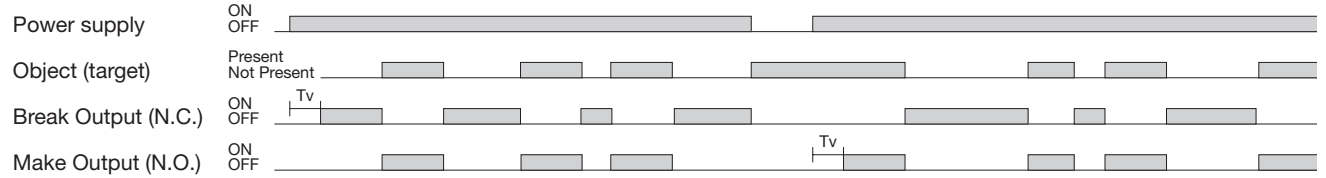


## Sensing Conditions

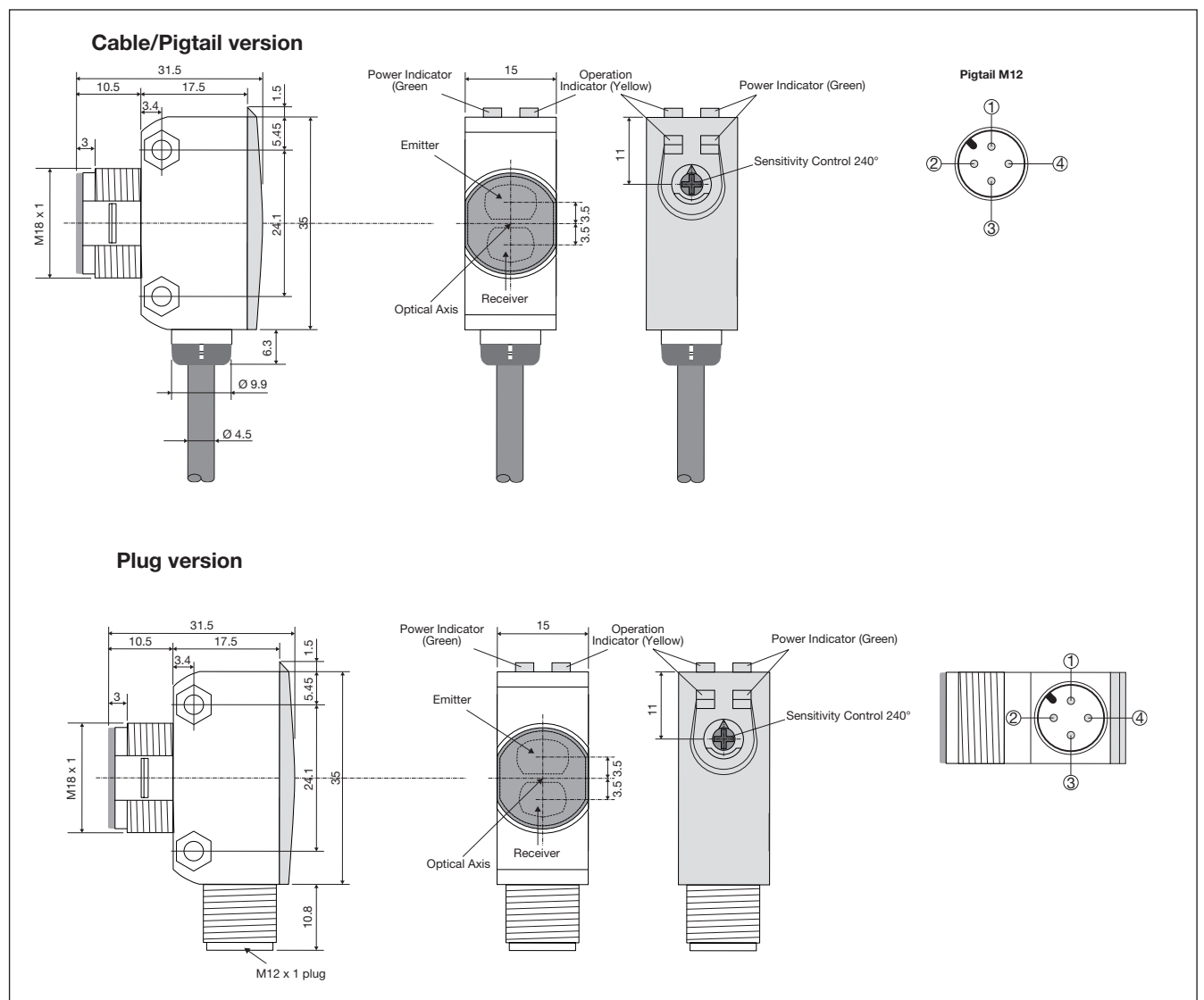


## Operation Diagram

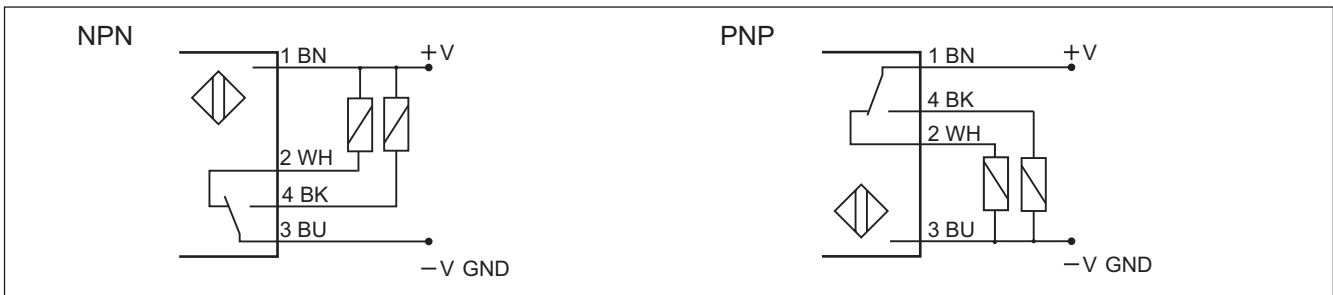
Tv = Power ON delay



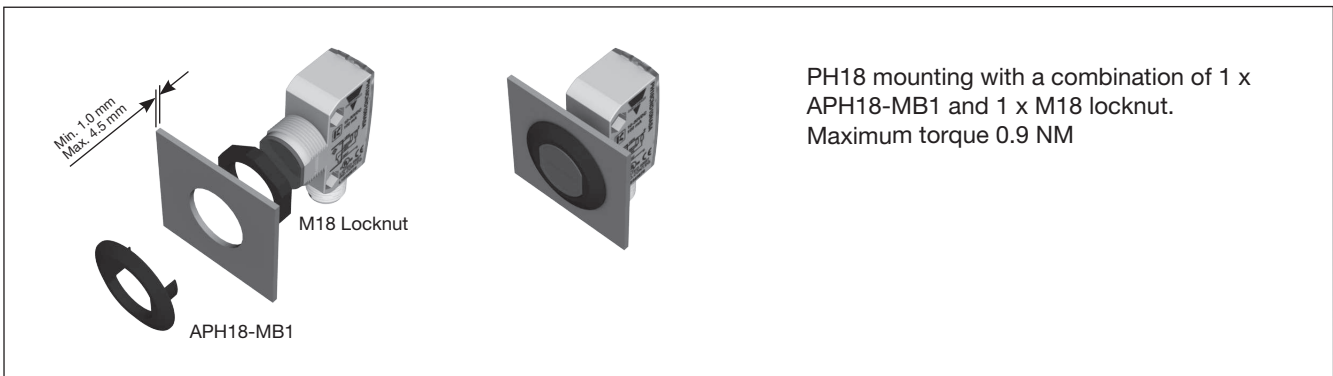
## Dimensions



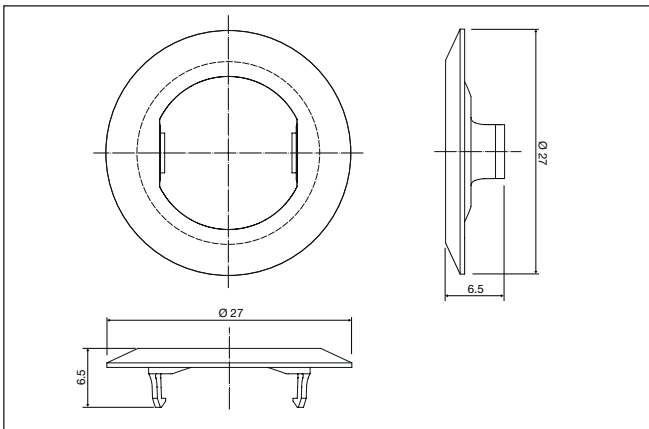
## Wiring Diagrams



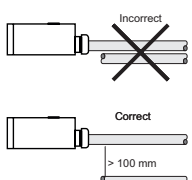
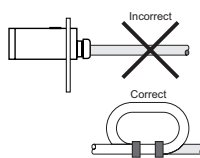
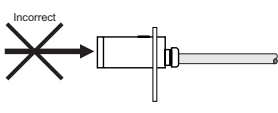
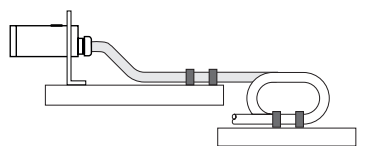
## Mounting Systems



## APH18-MB1



## 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>Relief of the cable strain</p>  <p>The cable should not be pulled</p>	<p>Protection of the sensing face</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>
--	---	---	--



## Delivery Contents

---

- Photoelectric switch: PH18CNB20 ...
- Installation instruction on plastic bag
- Screwdriver
- Mounting bracket APH18-MB1
- 2 M18 locknuts
- **Packaging:** Plastic bag

## Accessories

---

- Connector type CONG1A.. / CONB14NF.. series