

Photoelectrics Diffuse-reflective Type PA18C.D..., DC

CARLO GAVAZZI



- Miniature sensor range
- Range: 1 m (Axial), 0.8 m (Radial)
- Sensitivity adjustment by potentiometer
- Modulated, red light 625 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 and plug versions
- Excellent EMC performance



Product Description

The PA18CAD10... is part of a family of inexpensive general purpose diffuse reflective sensors in industrial standard 18 mm cylindrical 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

PA18CAD10PAM1SA

Type	PA18CAD10PAM1SA
Housing style	PA18CAD10PAM1SA
Housing size	PA18CAD10PAM1SA
Housing material	PA18CAD10PAM1SA
Housing type axial	PA18CAD10PAM1SA
Detection principle	PA18CAD10PAM1SA
Sensing distance	PA18CAD10PAM1SA
Output type	PA18CAD10PAM1SA
Output configuration	PA18CAD10PAM1SA
Connection type	PA18CAD10PAM1SA
Sensitive adjustment	PA18CAD10PAM1SA

Type Selection

Housing style	Range S _n	Connection	Ordering no. NPN Make & break switching	Ordering no. PNP Make & break switching
M18 Axial type	1 m	Cable	PA 18 CAD 10 NASA	PA 18 CAD 10 PASA
M18 Axial type	1 m	Plug	PA 18 CAD 10 NAM1SA	PA 18 CAD 10 PAM1SA
M18 Radial type	0.8 m	Cable	PA 18 CRD 08 NASA	PA 18 CRD 08 PASA
M18 Radial type	0.8 m	Plug	PA 18 CRD 08 NAM1SA	PA 18 CRD 08 PAM1SA

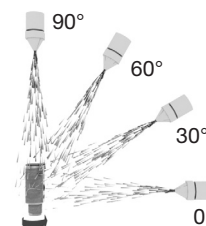
Specifications according to EN60947-5-2

Rated operating distance (S_n) Axial type (A) Radial type (R)	Up to 1 m, Up to 0.8 m reference target Kodak test card R27, white, 90% reflective, 200 x 200 mm	No load supply current (I₀)	≤ 25 mA @ 24 VDC
Blind zone	2 mm @ S _n max.	Minimum operational current (I_m)	0.5 mA
Sensitivity control Electrical adjustment Mechanical adjustment Adjustable distance	Adjustable by potentiometer 210° 240°	OFF-state current (I_r)	≤ 100 µA
Axial types Radial types	50-1000 mm 50-800 mm	Voltage drop (U_d)	≤ 2.0 VDC @ 100 mA
Temperature drift	≤ 0.2%/°C	Protection	Short-circuit, reverse polarity and transients
Hysteresis (H) (differential travel)	≤ 20%	Light source	InGaAlP, LED, 625 nm
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Light type	Red, modulated
Ripple (U_{rpp})	≤ 10%	Sensing angle	± 2°
Output current Continuous (I _a) Short-time (I)	≤ 100 mA ≤ 100 mA (max. load capacity 100 nF)	Ambient light	30.000 lux Incandescent lamp
		Light spot Diameter	Ø 30 mm @ 0.5 m
		Operating frequency	500 Hz
		Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	≤ 1.0 ms ≤ 1.0 ms
		Power ON delay (t_v)	≤ 100 ms
		Output function Type Switching function	NPN or PNP NO and NC

Specifications (cont.)

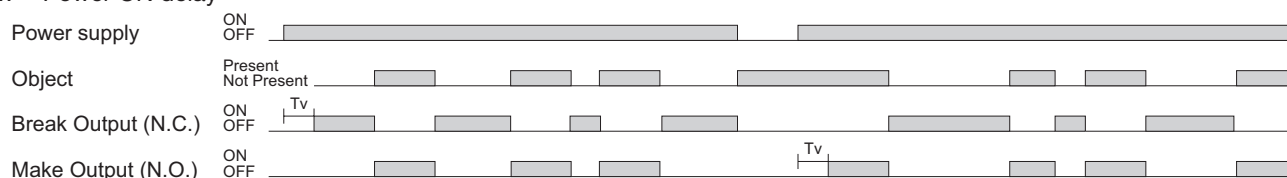
Indication		Housing material	
Output ON	LED, yellow	Body	ABS, grey
Signal stability and power ON	LED, green	Front material	PMMA, red
Environment		Cable gland	POM, Black
Installation category	III (IEC 60664/60664A; 60947-1)	Trimmer shaft	POM, Dark Grey
Pollution degree	3 (IEC 60664/60664A; 60947-1)	Locknuts	PBTB, black
Degree of protection	IP 67, IP 69K*	Mounting bracket	PPA, black
Ambient temperature		Connection	
Operating	-25° to +60°C (-13° to +140°F)	Cable	PVC, grey, 2 m 4 x 0.25 mm ² , Ø = 4.5 mm M12, 4-pin (CON.14NF..W series)
Storage	-40° to +70°C (-40° to +158°F)	Plug	
Vibration		Weight	
	10 to 150 Hz, 1 mm/15 g (IEC 60068-2-6)		With cable: 85g With plug: 25 g
Shock		CE-marking	
	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)		Yes
Rated insulation voltage		Approvals	
	500 VAC (rms) IEC protection class III 		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.

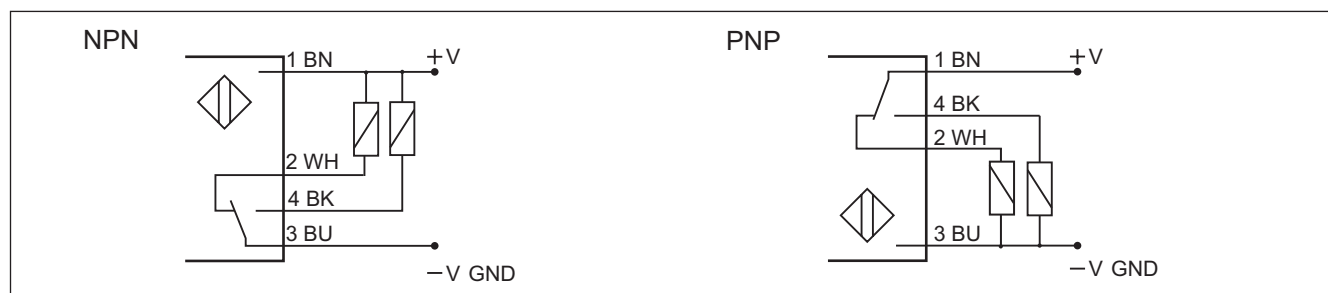


Operation Diagram

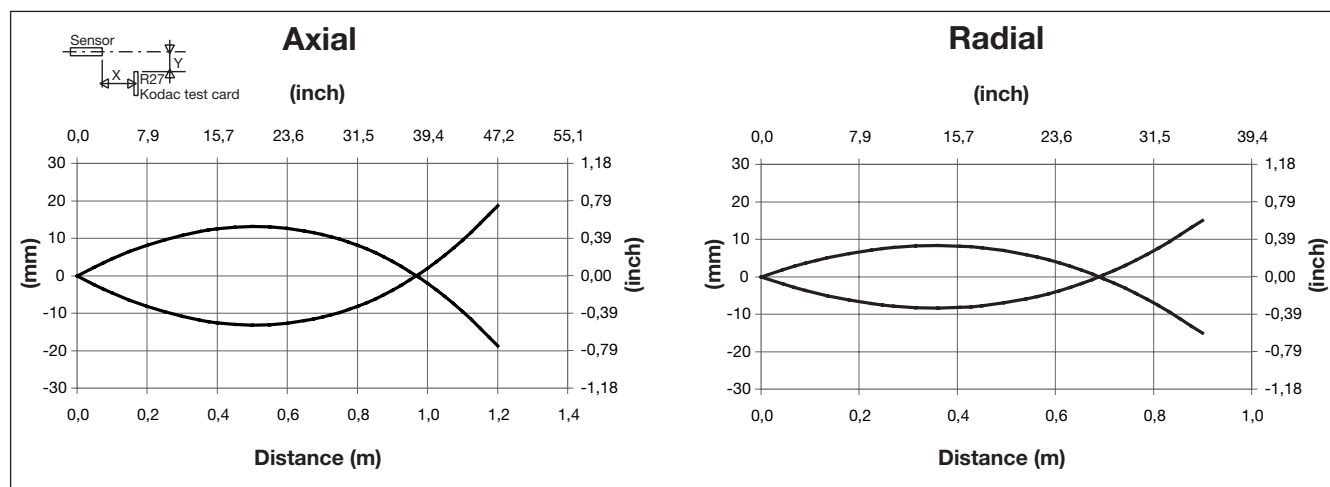
tv = Power ON delay



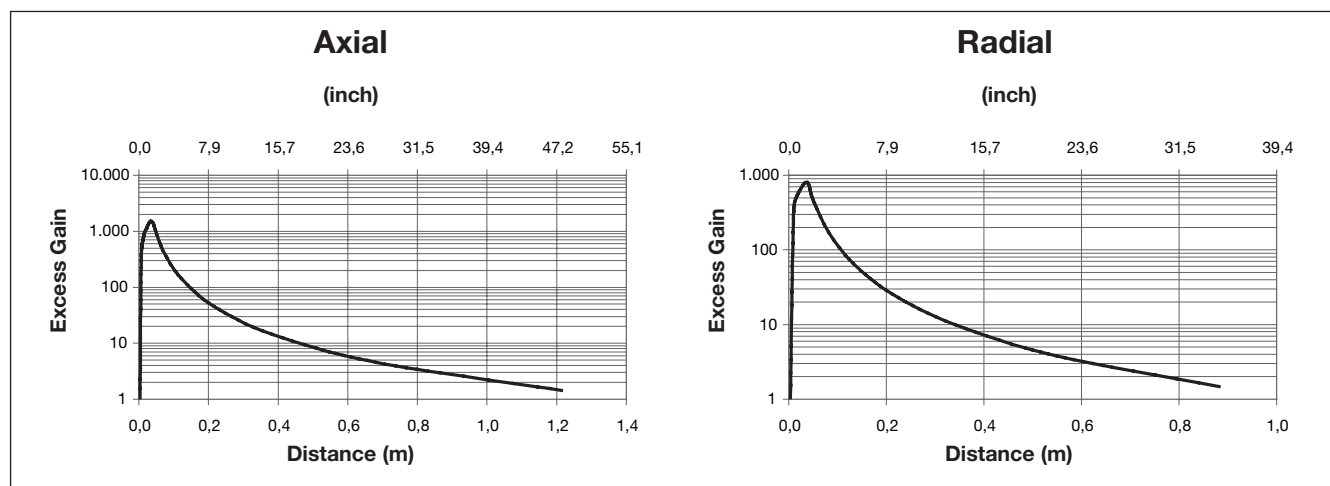
Wiring Diagrams



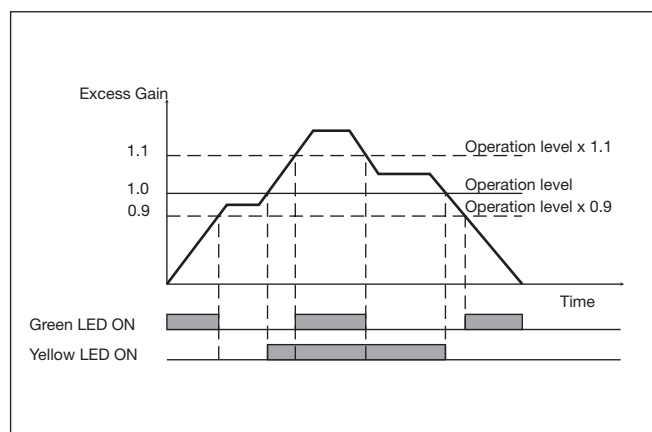
Detection Diagram



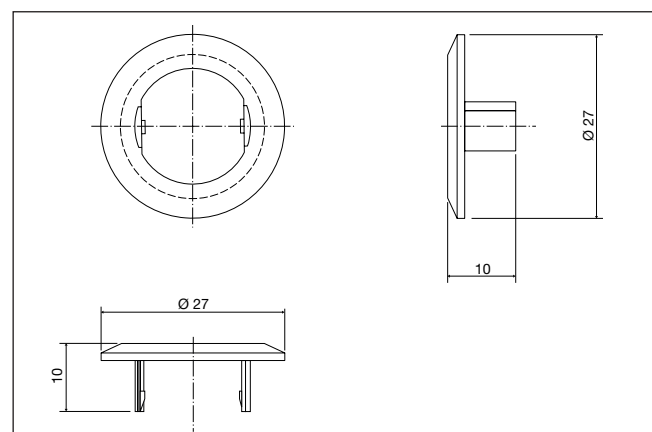
Excess Gain



Signal Stability Indication

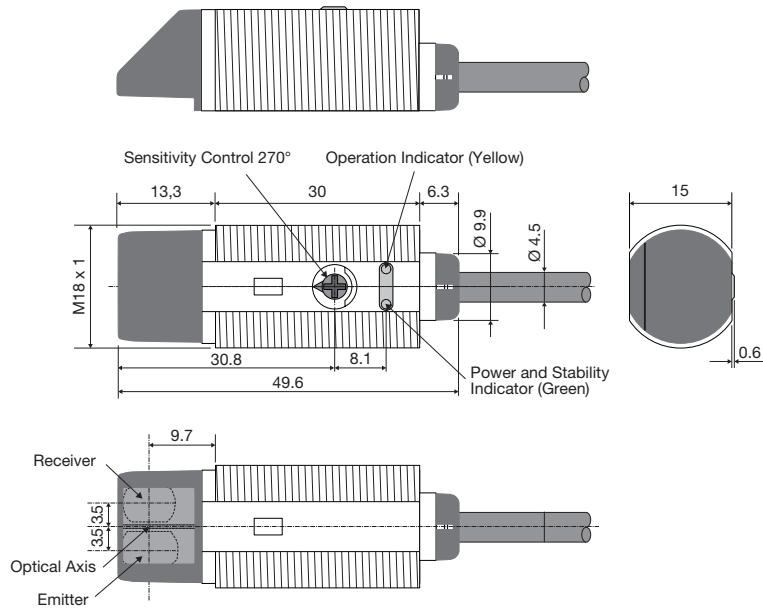


APA18-MB1

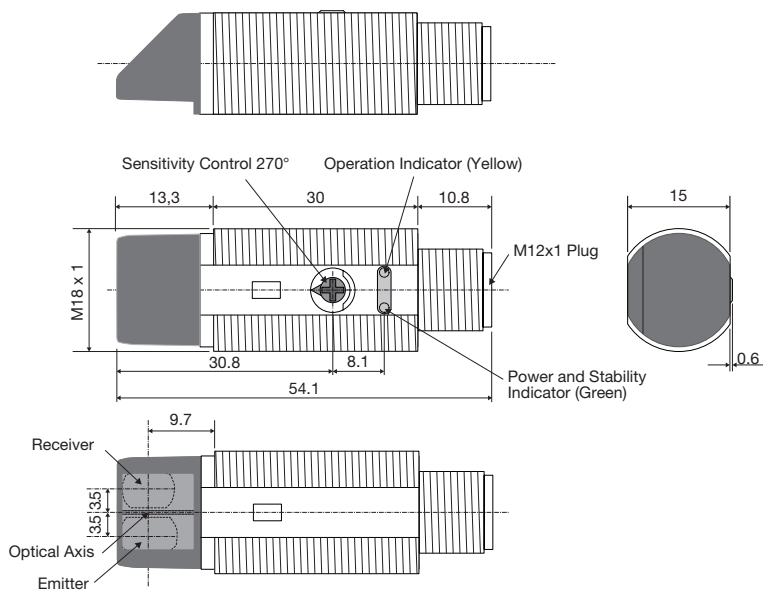


Dimensions Radial version

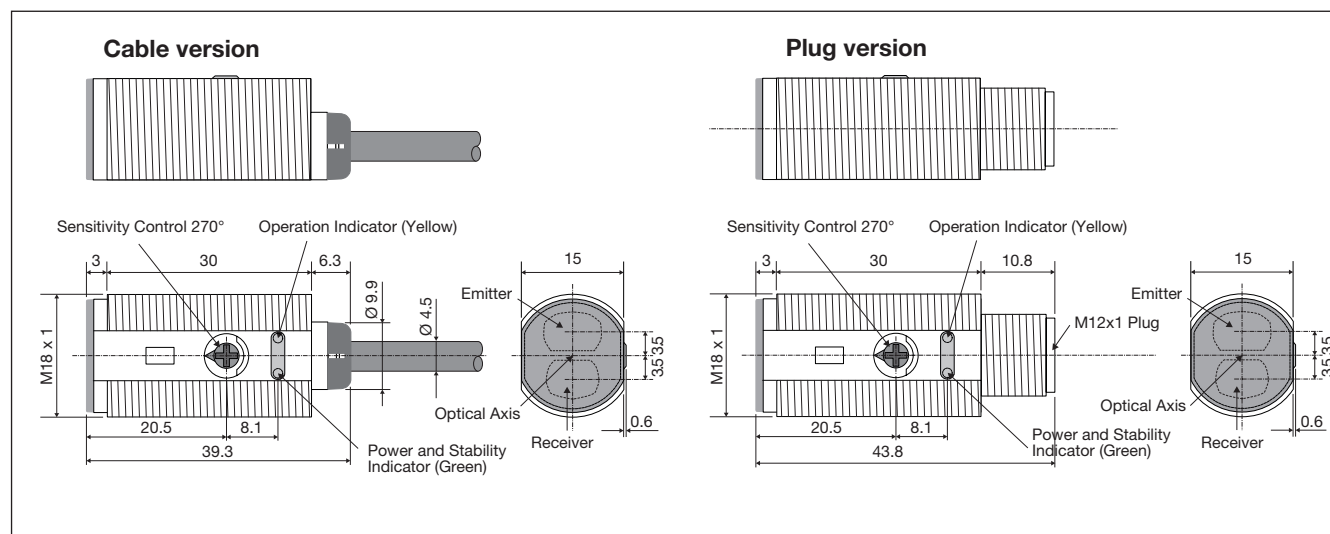
Cable version



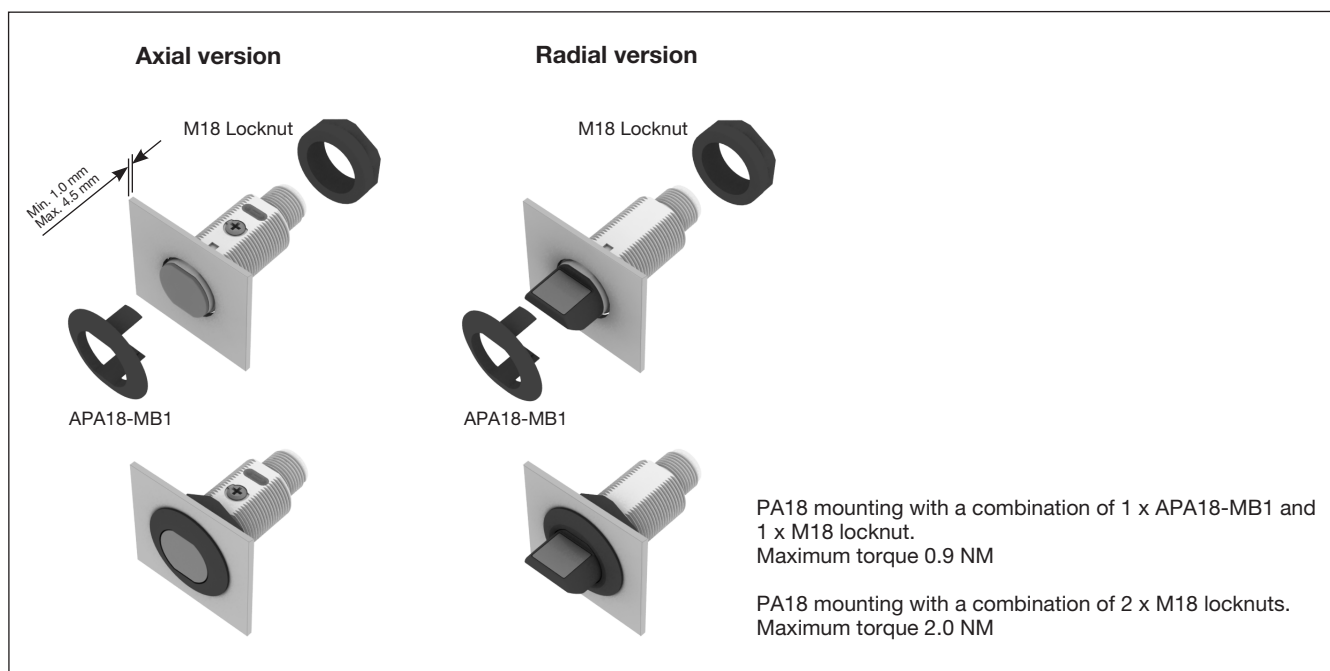
Plug version



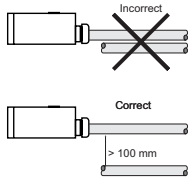
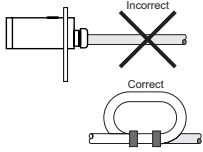
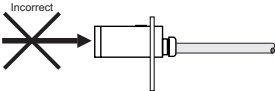
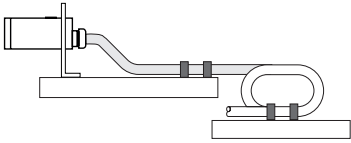
Dimensions Axial version



Mounting Systems



Installation Hints

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  Incorrect Correct > 100 mm	Relief of the cable strain  Incorrect Correct The cable should not be pulled	Protection of the sensing face  Incorrect A proximity switch should not serve as mechanical stop	Sensor mounted on a mobile carrier  Any repetitive flexing of the cable should be avoided
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Delivery Contents

- Photoelectric switch: PA 18 C.D...
- Installation instruction on plastic bag
- Screwdriver
- Mounting bracket APA18-MB1
- 2 M18 locknuts
- **Packaging:** Plastic bag

Accessories

- Connector type CON.14NF..W series