

# Photoelectrics

## Retro-reflective, Polarized

### Type PA18CSP20, DC, PBTP-housing

CARLO GAVAZZI



- Range: 2.0 m
- Modulated red light, polarized
- Supply voltage: 10 to 40 VDC
- Output: 200 mA NPN or PNP
- Make and break switching functions, LED, indication
- Protection: Reverse polarity, short-circuit, transients
- Improved immunity to reflecting surfaces
- Cable and plug versions

## Product Description

The PA18CSP. is a family of inexpensive general purpose Polarized Retro-reflective sensors in industrial standard 18 mm cylindrical PBTP housing. They are useful for simple applications where a basic sensor provides adequate sensing

performance. The sensors are simple to use and no adjustment are necessary. The output is a 4-wire complementary (NO and NC) output in NPN (current sinking) or PNP (current sourcing).

## Ordering Key

**PA18CSP20NAM1**

Type	_____
Housing style	_____
Housing size	_____
Housing material	_____
Housing length	_____
Detection principle	_____
Sensing distance	_____
Output type	_____
Output configuration	_____
Connection type	_____

## Type Selection

Housing diameter	Rated operating dist. (S <sub>n</sub> )	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.
M18	2.0 m	PA18CSP20NA	PA18CSP20NAM1	PA18CSP20PA	PA18CSP20PAM1

**Note:** Plugs and reflectors to be ordered separately

## Specifications

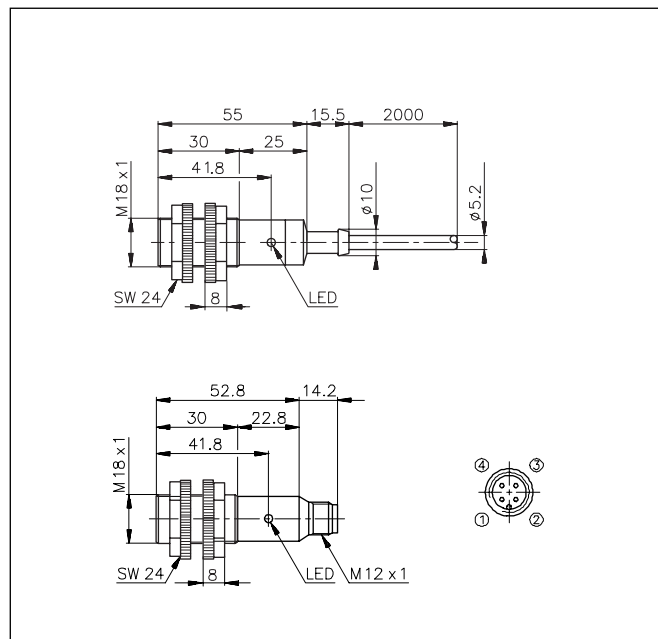
<b>Rated operating dist. (S<sub>n</sub>)</b>	Up to 2.0 m Ref. reflector type ER4 Ø 84 mm	<b>Light source</b>	GaAlAs LED, 660 nm
<b>Temperature drift</b>	0.4%/°C	<b>Light type</b>	Red polarized, modulated
<b>Hysteresis (H)</b> (Differential travel)	3 to 20 %	<b>Optical angle</b>	± 2°
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 40 VDC (ripple included)	<b>Light spot size</b>	150 mm at 2 m
<b>Ripple (U<sub>ripple</sub>)</b>	Max. 10%	<b>Ambient light</b>	Max 5'000 lux
<b>Output current</b> Continuous (I <sub>e</sub> ) Short-time (I)	≤ 200 mA 200 mA max. load capacity 100nF	<b>Operating frequency (f)</b>	Max. 100 Hz, light-dark ratio 1.2
<b>No load supply current (I<sub>O</sub>)</b>	Max. 20 mA	<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 3.2 ms ≤ 5 ms
<b>Min. operational current (I<sub>m</sub>)</b>	0,5 mA	<b>Indication</b> Function	Dark and light (complementary) switch. LED, yellow
<b>OFF-state current (I<sub>o</sub>)</b>	Max. 100 µA	Output ON	
<b>Voltage drop (U<sub>d</sub>)</b>	Max. 2.5 VDC @ 200 mA	<b>Environment</b> Overvoltage category Pollution degree Degree of protection	III (IEC 60664/60664A; 60947-1) 3 (IEC 60664/60664A; 60947-1) IP 67 (IEC 60529; 60947-1)
<b>Protection</b>	Reverse polarity, short-circuit, transients	<b>Temperature</b> Operating Storage	-20° to +60°C (-4° to 140°F) -30° to + 70°C (-22° to 158°F)
<b>Transient voltage</b>	1 kV / 0.5 J		
<b>Power ON delay (t<sub>v</sub>)</b>	Typ. 70 ms		



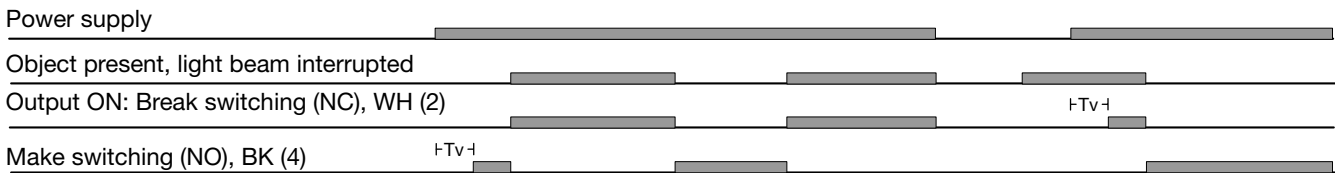
## Specifications (cont.)

<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
<b>Dielectric voltage</b>	600 V (IEC 60364-4-41)
<b>Housing material</b>	
Body	PBTP, grey thermoplastic polyester
Front	PMMA, red
Cable end	Polyester, black
Nuts	Reinforced nylon
<b>Connection</b>	
Cable	Grey, 2 m, 4 x 0.35 mm <sup>2</sup> , oilproof PVC
Plug	M12 x 1
Cable for plug (M1)	CON.1A... series
<b>Weight</b>	
Cable version	100 g
Plug version	17 g
<b>Approvals</b>	UL
<b>CE-marking</b>	Yes

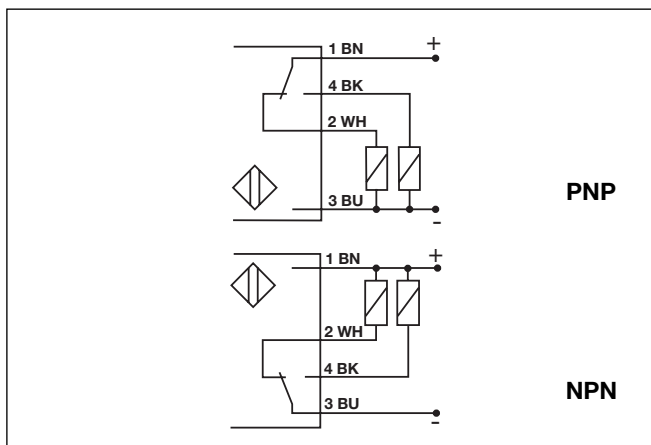
## Dimensions



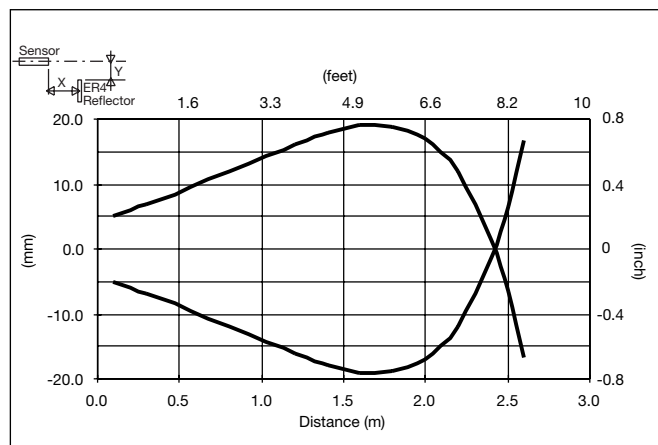
## Operation Diagram



## Wiring Diagrams



## Detection Diagram



## Delivery Contents

- Photoelectric switch PA18CSP20.
- 2 nuts
- **Packaging:** Plastic bag

## Accessories

- Reflectors: ER series
- Plugs: CON.1A-.. serie
- Option: Fibre-optics
- MB18A
- APA18-RAR

For further information refer to "Accessories".