

# Photoelectrics

## Retro-reflective, Polarized

### Type EP 1820, 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
- Heavy duty M18 metal housing, IP67
- Cable and plug versions



## Product Description

The EP1830 is a family of general purpose polarized retro-reflective sensors in a short M18 metal housing for heavy duty applications. They are useful for simple applications, where a basic sensor

provides adequate sensing performance. The sensors are easy to adjust with a 270° single turn potentiometer. The output is a 4-wire complementary NO or NC thyristor (SCR) output.

## Ordering Key

**EP 18 20 NPA S-1**

Type \_\_\_\_\_  
Housing diameter \_\_\_\_\_  
Range \_\_\_\_\_  
Output type \_\_\_\_\_  
Housing material \_\_\_\_\_  
Connection type \_\_\_\_\_

## Type Selection

Housing diameter	Rated operating dist. (S <sub>n</sub> )	Connection	Ordering no. NPN Make & break switching	Ordering no. PNP Make & break switching
M18	2.0 m	Cable	EP 1820 NPAS	EP 1820 PPAS
M18	2.0 m	Plug	EP 1820 NPAS-1	EP 1820 PPAS-1

## Specifications

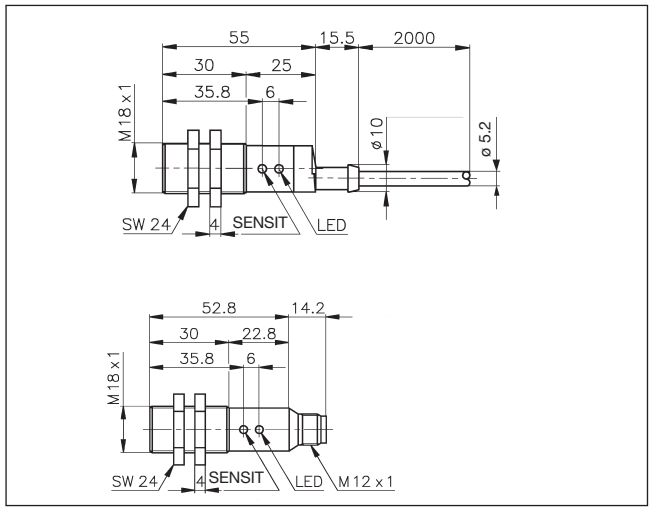
<b>Rated operating dist. (S<sub>n</sub>)</b>	Up to 2.0 m Ref. reflector type ER4, Ø 84 mm	<b>Light source</b>	GaAlAs LED, 660 nm
<b>Sensitivity</b>	270° single turn pot.meter	<b>Light type</b>	Red polarized, modulated
<b>Temperature drift</b>	0.4%/°C	<b>Optical angle</b>	± 2°
<b>Hysteresis (H) (Differential travel)</b>	3 to 20 %	<b>Light spot size</b>	150 mm at 2 m
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 40 VDC (ripple included)	<b>Ambient light</b>	Max 5'000 lux
<b>Ripple (U<sub>ripple</sub>)</b>	Max. 10%	<b>Operating frequency (f)</b>	Max. 100 Hz, light-dark ratio 1.2
<b>Output current</b> Continuous (I <sub>a</sub> ) Short-time (I)	≤ 200 mA 200 mA max. load capacity 100nF	<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 3.2 ms ≤ 5 ms
<b>No load supply current (I<sub>O</sub>)</b>	Max. 20 mA	<b>Indication</b> Function	Dark and light (complementary) switch. LED, yellow
<b>Min. operational current (I<sub>m</sub>)</b>	0,5 mA	<b>Output ON</b>	
<b>OFF-state current (I<sub>i</sub>)</b>	Max. 100 µA	<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>Voltage drop (U<sub>d</sub>)</b>	Max. 2.5 VDC @ 200 mA	<b>Temperature</b> Operating Storage	-20° to +60°C (-4° to 140°F) -30° to + 70°C (-22° to 158°F)
<b>Protection</b>	Reverse polarity, short-circuit, transients	<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
<b>Transient voltage</b>	1 kV / 0.5 J	<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
<b>Power ON delay (t<sub>v</sub>)</b>	Typ. 70 ms		



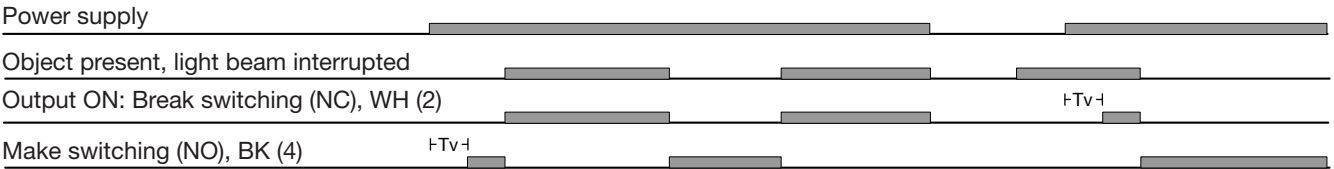
Specifications (cont.)

Dielectric voltage	500 V (IEC 60364-4-41)
Housing material	
Body	Nickel plated brass
Front	PMMA, red
Cable end	Polyester, black
Nuts	Nickel plated brass
Connection	
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
Weight	
Cable version	175 g
Plug version	90 g
CE-marking	Yes

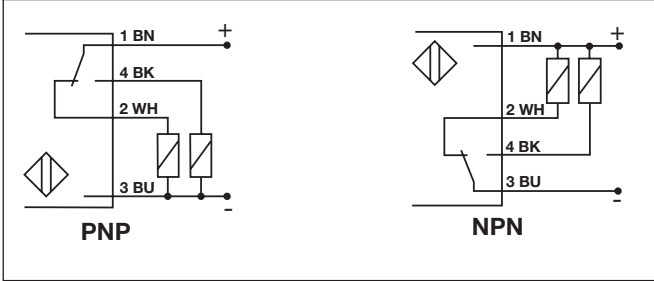
Dimensions



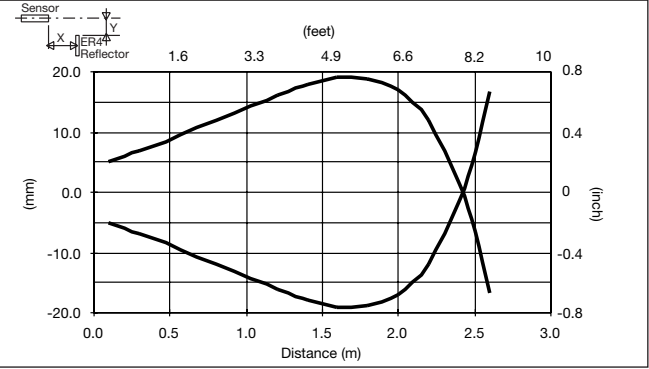
Operation Diagram



Wiring Diagrams



Detection Diagram



Installation Hints

To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables

Relief of cable strain

The cable should not be pulled

Protection of the sensing face

Switch mounted on mobile carrier

Any repetitive flexing of the cable should be avoided

Delivery Contents

- Photoelectric switch ER1820.
- 2 nuts
- **Packaging:** Plastic bag

Accessories

- Reflectors: ER series
- Connector type CON.1A../CON.14NF.. series
- MB18A
- APA18-RAR

For further information refer to “Accessories”.