

# Photoelectrics Retro-reflective, Polarized Type EP 1820, DC, PBTP-housing

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- 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

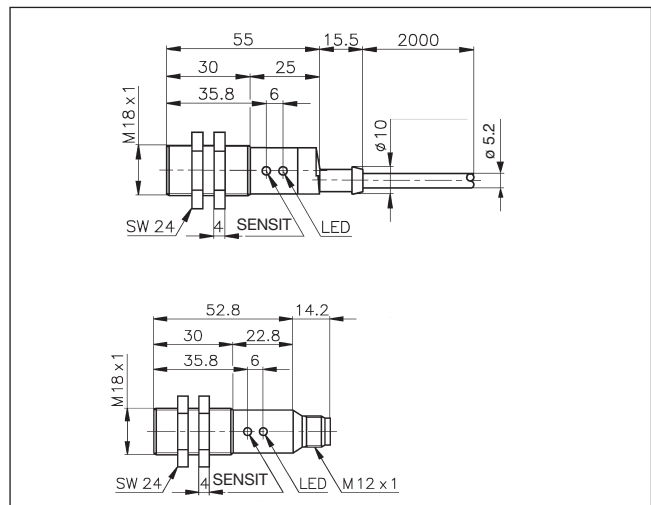
## Specifications

<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 ± 2°
<b>Temperature drift</b>	0.4%/°C	<b>Optical angle</b>	150 mm at 2 m
<b>Hysteresis (H)</b> (Differential travel)	3 to 20 %	<b>Light spot size</b>	Max 5'000 lux
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 40 VDC (ripple included)	<b>Ambient light</b>	
<b>Ripple (U<sub>rip</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	Output ON	
<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		

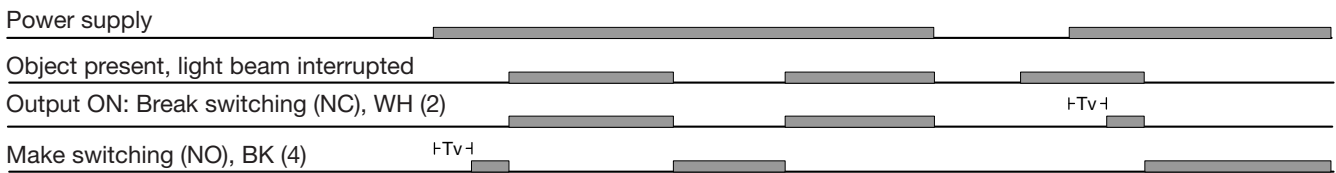
## Specifications (cont.)

<b>Dielectric voltage</b>	500 V (IEC 60364-4-41)
<b>Housing material</b>	Nickel plated brass PMMA, red Polyester, black Nickel plated brass
<b>Connection</b>	Grey, 2 m, 4 x 0.35 mm <sup>2</sup> , oilproof PVC M12 x 1 CON.1A... series
<b>Weight</b>	175 g 90 g
<b>CE-marking</b>	Yes

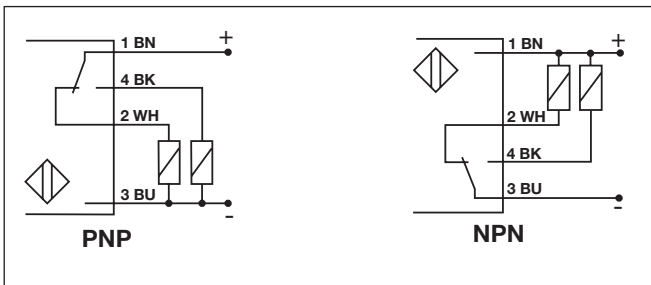
## Dimensions



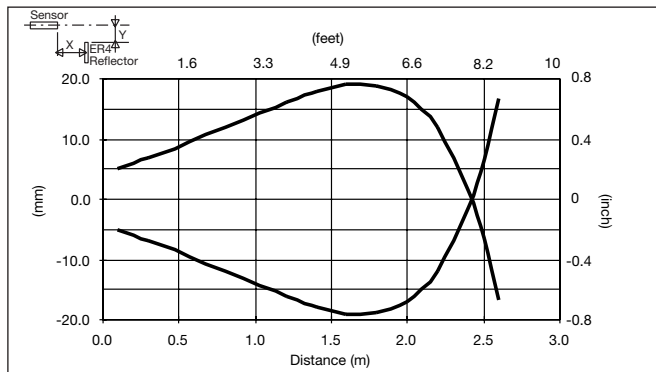
## Operation Diagram



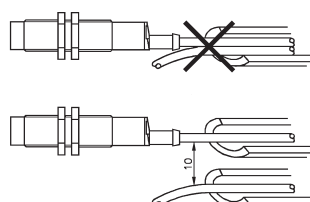
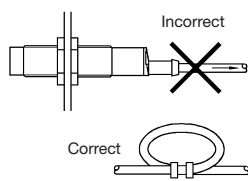
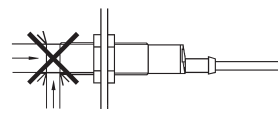
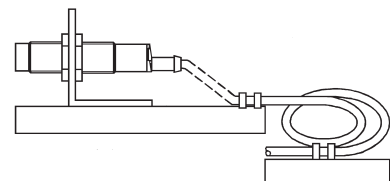
## Wiring Diagrams



## Detection Diagram



## Installation Hints

<p>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</p> 	<p>Relief of 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>Switch mounted on mobile carrier</p>  <p>Any repetitive flexing of the cable should be avoided</p>
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## 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".

Specifications are subject to change without notice (08.02.06)

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