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



- **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_n)	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

Rated operating dist. (S_n)	Up to 2.0 m Ref. reflector type ER4, Ø 84 mm
Sensitivity	270° single turn pot.meter
Temperature drift	0.4%/°C
Hysteresis (H) (Differential travel)	3 to 20 %
Rated operational volt. (U_B)	10 to 40 VDC (ripple included)
Ripple (U_{rpp})	Max. 10%
Output current Continuous (I_e) Short-time (I)	 ≤ 200 mA 200 mA max. load capacity 100nF
No load supply current (IO)	Max. 20 mA
Min. operational current (I_m)	0,5 mA
OFF-state current (I_r)	Max. 100 µA
Voltage drop (U_d)	Max. 2.5 VDC @ 200 mA
Protection	Reverse polarity, short-circuit, transients
Transient voltage	1 kV / 0.5 J
Power ON delay (t_v)	Typ. 70 ms
Light source	GaAlAs LED, 660 nm
Light type	Red polarized, modulated

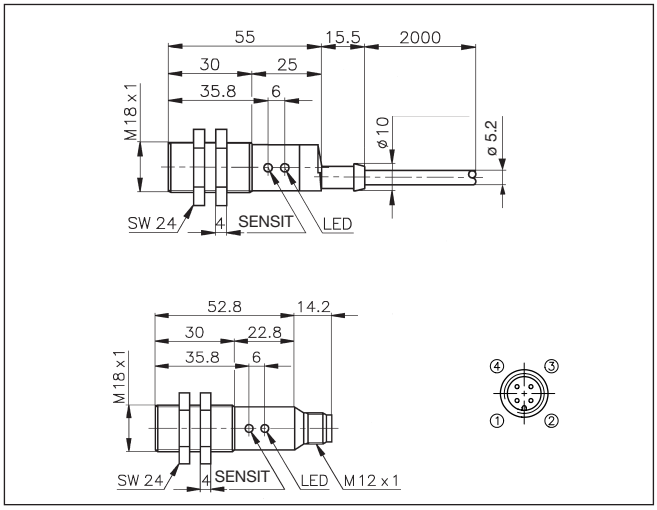
Optical angle	± 2°
Light spot size	150 mm at 2 m
Ambient light	Max 5'000 lux
Operating frequency (f)	Max. 100 Hz, light-dark ratio 1.2
Response time OFF-ON (t_{ON}) ON-OFF (t_{OFF})	 ≤ 3.2 ms ≤ 5 ms
Indication Function Output ON	 Dark and light (complementary) switch. LED, yellow
Environment Overvoltage category Pollution degree Degree of protection	 III (IEC 60664/60664A; 60947-1) 3 (IEC 60664/60664A; 60947-1) IP 67 (IEC 60529; 60947-1)
Temperature Operating Storage	 -20° to +60°C (-4° to 140°F) -30° to + 70°C (-22° to 158°F)
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)

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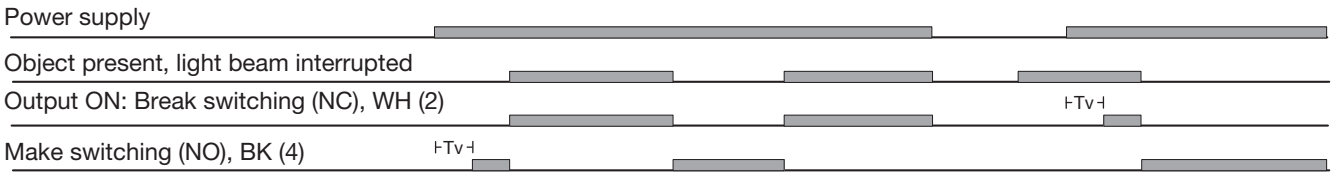
Specifications (cont.)

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 mm², oilproof PVC
Plug	M12 x 1
Cable for plug (M1)	CON.1A... series
Weight	
Cable version	175 g
Plug version	90 g
Approvals	UL
CE-marking	Yes

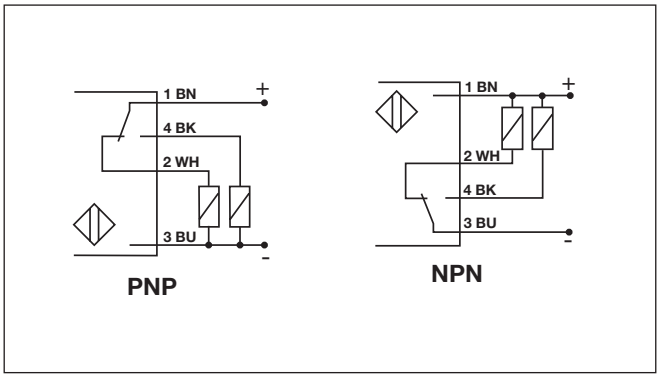
Dimensions



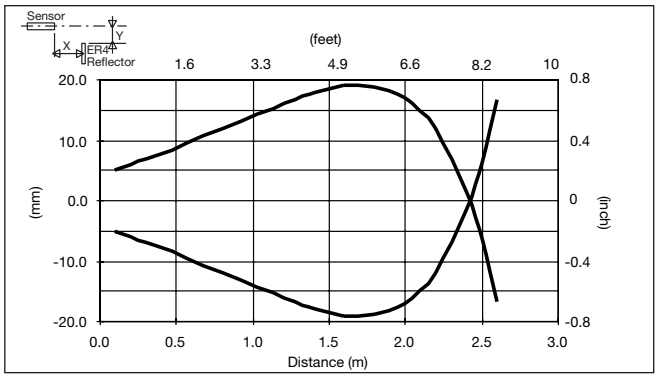
Operation Diagram



Wiring Diagrams

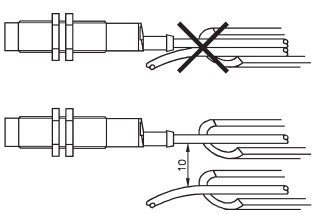


Detection Diagram

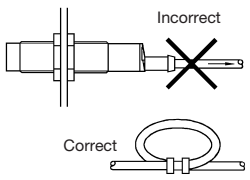


Installation Hints

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

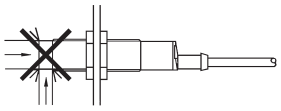


Relief of cable strain



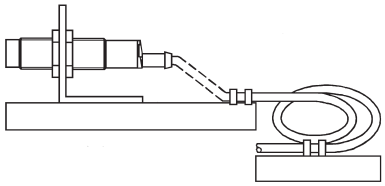
The cable should not be pulled

Protection of the sensing face



A proximity switch should not serve as mechanical stop

Switch mounted on mobile carrier



Any repetitive flexing of the cable should be avoided

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CARLO GAVAZZI

Delivery Contents

- Photoelectric switch EP1820.PAS(-1)
- 2 nuts
- **Packaging:** Plastic bag

Accessories

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

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