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_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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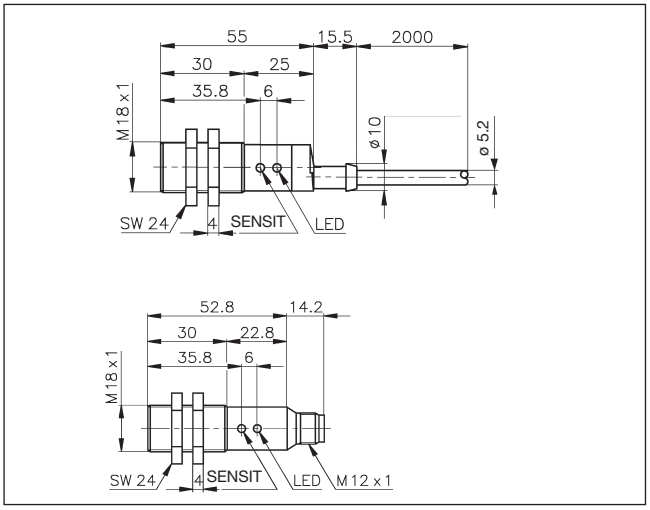
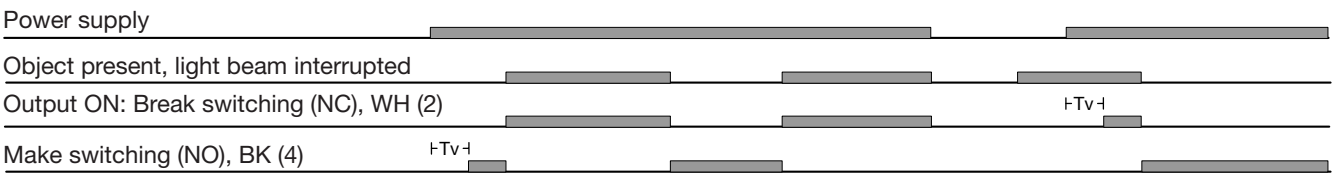
Specifications (cont.)

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
CE-marking	Yes

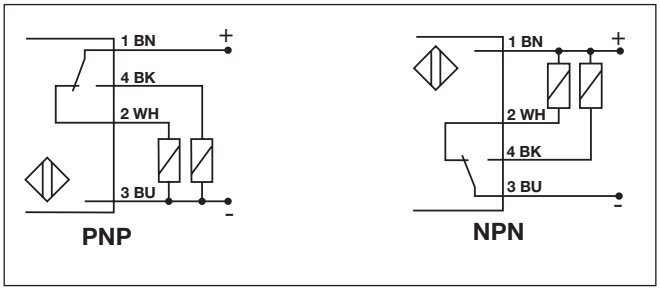
Dimensions



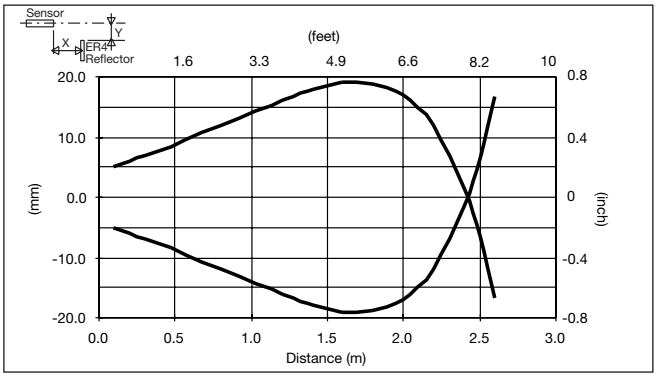
Operation Diagram



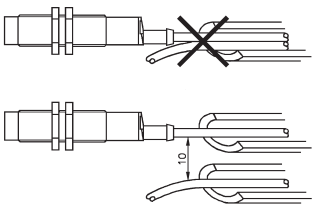
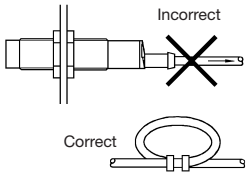
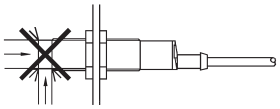
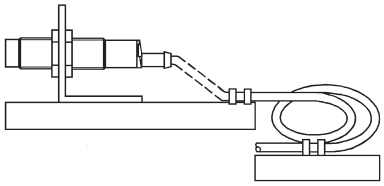
Wiring Diagrams



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*	*Protection of the sensing face*	*Switch mounted on mobile carrier*
			
	Incorrect Correct The cable should not be pulled	A proximity switch should not serve as mechanical stop	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”.

Specifications are subject to change without notice (08.02.06)