

Photoelectrics Retro-reflective, Polarized Type EP 1820

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- Range: 2.0 m
- Modulated red light, polarized
- Adjustable sensitivity
- Supply voltage: 10 to 40 VDC or 20 to 250 VAC
- Make and break switching functions, NPN, PNP (200 mA), SCR (500 mA)
- Protection: Reverse polarity, short-circuit, transients
- LED-indication for output ON
- Cable and plug versions
- M18 all-metal housing



Product Description

Retro-reflective photoelectric switch with polarized light. Range up to 2.0 m. LED output indication. Short M18 metal housing for heavy duty applications. IP67. Easy mounting. DC and AC types, fully protected. Cable and plug versions.

Ordering Key **EP 18 20 NPA S-1**

Type _____
Housing diameter _____
Range _____
Output type _____
Housing material _____
Connection type _____

Type Selection - DC Types

Housing diameter	Rated operating dist. (S _n)	Connection	Ordering no. NPN Make & break switching	Ordering no. PNP Make & break switching
M 18	2.0 m	Cable	EP 1820 NPAS	EP 1820 PPAS
M 18	2.0 m	Plug	EP 1820 NPAS-1	EP 1820 PPAS-1

Type Selection - AC Types

Housing diameter	Rated operating dist. (S _n)	Connection	Ordering no. SCR Make switching	Ordering no. SCR Break switching
M 18	2.0 m	Cable	EP 1820 TBOS	EP 1820 TBOS
M 18	2.0 m	Plug	EP 1820 TBOS-3	EP 1820 TBOS-3

Specifications

	Transistor NPN/PNP	SCR output AC types
Rated operating dist. (S _n)	2.0 m. Reference reflector type ER4 Ø 84 mm	2.0 m. Reference reflector type ER4 Ø 84 mm
Blind zone	0.15 m	0.15 m
Temperature drift	0.4%/°C	0.4%/°C
Hysteresis (H) (Differential travel)	3 to 20 %	3 to 20 %
Rated operational volt. (U _B)	10 to 40 VDC (ripple included)	20 to 250 VAC, 45 to 65 Hz (AC12, AC140)
Ripple (U _{ripp})	10%	10%
Output current Continuous (I _a) Short-time(I)	≤ 200 mA 200 mA max. load capacity 100nF	≤ 500 mA (AC12) ≤ 3 A, max. 20 ms (AC140)
Current consumption	Max. 20 mA	
Min. load current (I _m)	0,5 mA	10 mA (AC12)
OFF-state current (I _o)	Max. 100 µA	≤ 5 mA, type 2.6 mA

Specifications are subject to change without notice



Specifications (cont.)

	Transistor NPN/PNP	SCR output AC types
Voltage drop (U_d)	≤ 2.5 VDC	Typ. ≤ 7 VAC (AC12), max. ≤ 10 VAC (AC12)
Transient voltage	1 kV / 0.5 J	1 kV / 0.5 J
Power ON delay (t_d)	Typ. 70 ms	Typ. 70 ms
Protection	Reverse polarity, short-circuit, transients	Transients
Sensitivity	Adjustable, single turn pot., 270 °	Adjustable, single turn pot., 270 °
Light source	GaAlAs LED, 660 nm	GaAlAs LED, 660 nm
Light type	Red polarized, modulated	Red polarized, modulated
Optical angle	2°	2°
Light spot size	150 mm at 2m	150 mm at 2 m
Ambient light	Max 5'000 lux	Max 5'000 lux
Operating frequency (f)	Max. 100 Hz, light-dark ratio 1.2	Max. 25 Hz light-dark ratio 1.2
Response time		
OFF-ON (t _{ON})	≤ 3.2 ms	≤ 20 ms
ON-OFF (t _{OFF})	≤ 5 ms	≤ 30 ms
Indication		
Function	Dark and light (complementary) switch.	Dark (NC) or light (NO) switching
Output ON	LED, yellow	LED, yellow
Environment		
Overvoltage category	III (IEC 664/664A; 947-1)	III (IEC 664/664A; 947-1)
Pollution degree	3 (IEC 664/664A; 947-1)	3 (IEC 664/664A; 947-1)
Degree of protection	IP 67 (IEC 529; 947-1)	IP 67 (IEC 529; 947-1)
Temperature		
Operating	-20° to +60°C (-4° to 140°F)	-20° to +60°C (-4° to 140°F)
Storage	-30° to +70°C (-22° to 158°F)	-30° to +70°C (-22° to 158°F)
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 68-2-6)	10 to 150 Hz, 0.5 mm/7.5 g (IEC 68-2-6)
Shock	2 x 1 m & 100 x 0.5 m (IEC 68-2-32)	2 x 1 m 100 x 0.5 m (IEC 68-2-32)
Dielectric voltage	600 V (IEC 364-4-41)	1600 V (IEC 364-4-41)
Housing material		
Body	Nickel-plated brass	Nickel-plated brass
Front	Luran, red	Luran, red
Cable (Cable end)	PVC, black	PVC, black
Nuts	Nickel-plated brass	Nickel-plated brass
Connection		
Cable	2 m, 4 x 0.35 mm ² , oilproof PVC	grey, 2 m, 2 x 0.5 mm ² , oilproof PVC
Plug	CONH1A-.. serie	CONH3A-.. serie
Weight (cable incl.)	175 g	230 g

Truth Table

	Make switching		Break switching	
	Yes	No	Yes	No
Object present	Yes	No	Yes	No
DC types				
LED	OFF	ON	OFF	ON
Load	Non-active	Active	Active	Non-active
Output NPN	High	Low	Low	High
Output PNP	Low	High	High	Low
AC types				
LED	OFF	ON	ON	OFF
Load	Non-active	Active	Active	Non-active

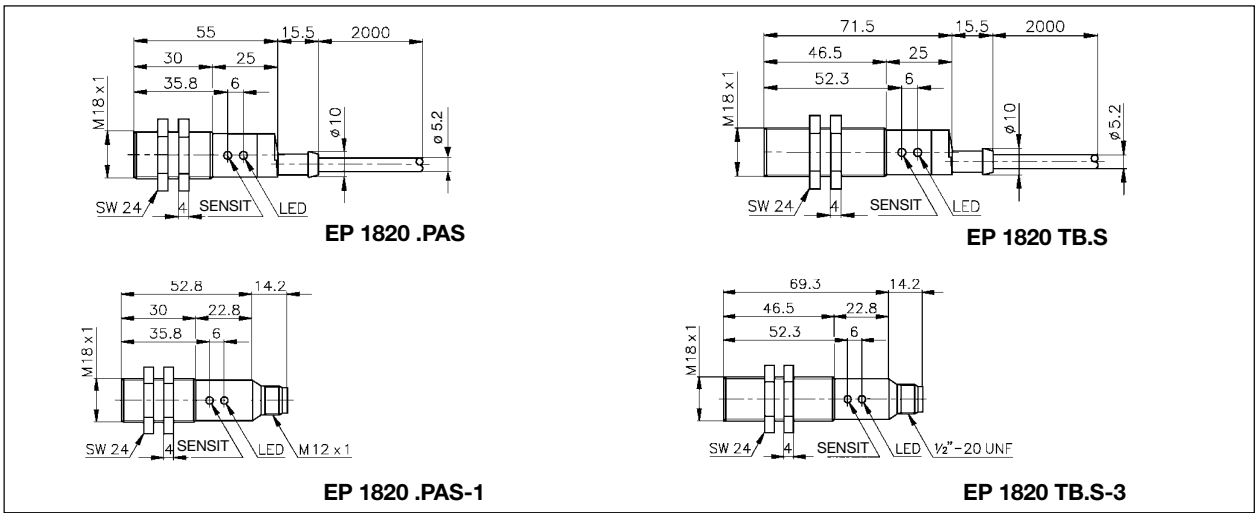
Accessories

- Reflectors: ER series.
- Plugs DC versions: CONH1A-.. serie.
- Plugs AC versions: CONH3A-.. -serie.

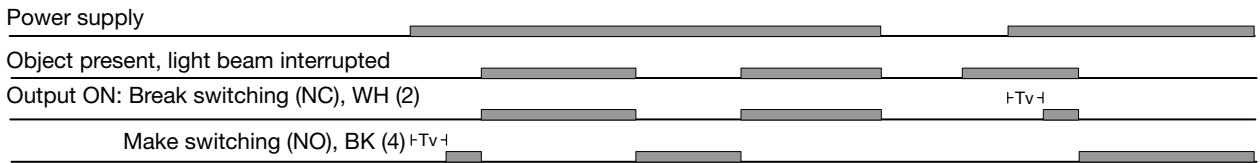
Delivery Contents

- Photoelectric switch: EP 1820
- 2 nuts
- **Packaging:** Plastic bag

Dimensions



Operation Diagram



Wiring Diagrams

