Photoelectrics
Through-beam
Type ET 1820 DC, Nickel-plated Brass Housing



- **Range: 20 m**
- **Adjustable sensitivity**
- **Modulated infrared light**
- **Make and break switching functions, NPN, PNP (200 mA)**
- **LED-indication for power supply ON (emitter) and target detected (receiver)**
- **Supply voltage: 10 to 40 VDC**
- **Heavy duty M18 metal housing, IP 67**
- **Cable and plug versions**

Product Description

The ET1820 is a family of general purpose through-beam sensors in an industrial standard M18 nickel-plated brass housing for heavy duty applications. They are useful for simple applications where a basic sensor provide adequate sensing performance. The sensors are easy to adjust with a 270° single turn potentiometer. The output is a 4-wire complementary (NO and NC) circuit with NPN (current sinking) or PNP (current sourcing) open collector transistor output.

Ordering Key

ET 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. Receiver/NPN Make & break switching	Ordering no. Receiver/PNP Make & break switching	Ordering no. Emitter
M18	20 m	Cable	**ET 1820 NPAS**	**ET 1820 PPAS**	**ET 1820**
M18	20 m	Plug	**ET 1820 NPAS-1**	**ET 1820 PPAS-1**	**ET 1820-1**

Note: Please order emitter and receiver separately.

Specifications Emitter

Rated operational volt. (U_B)	10 to 40 VDC (ripple included)
Ripple (U_{rpp})	≤ 10%
Supply current (I_o)	≤ 20 mA
Protection	Reverse polarity, short-circuits, transients
Light source	GaAlAs LED, 880 nm
Light type	Infrared, modulated
Optical angle	± 2°
Indication	
Supply ON	LED, green

Specifications Receiver

Rated operating dist. (S_n)	Up to 20 m
Sensitivity	270° single turn pot. meter
Temperature drift	0.6%/°C
Hysteresis (H) (Differential travel)	3 to 20%
Rated operational volt. (U_B)	10 to 40 VDC (ripple included)
Ripple (U_{rpp})	Max. 10%
No-load supply current (I_o)	Max. 12 mA (typ. 8 mA)
Min. operational current (I_e)	0.5 mA
OFF-state current (I_r)	Max. 100 µA (typ. 0)
Output current	
Continuous (I_e)	Max. 200 mA
Short-time (I)	200 mA
	Max. load capacity 100 nF
Voltage drop (U_d)	Max. 2.5 VDC
Protection	Reverse polarity, short-circuit, transients
Optical angle	± 2°
Ambient light	Max. 5,000 lux
Operating frequency (f)	Typ. 170 Hz
Response time	
OFF-ON (t_{ON})	Typ. 1.6 ms
ON-OFF (t_{OFF})	Typ. 4.2 ms

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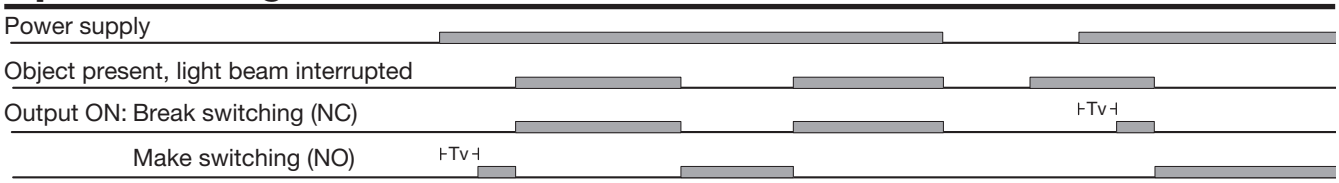
CARLO GAVAZZI

General Specifications

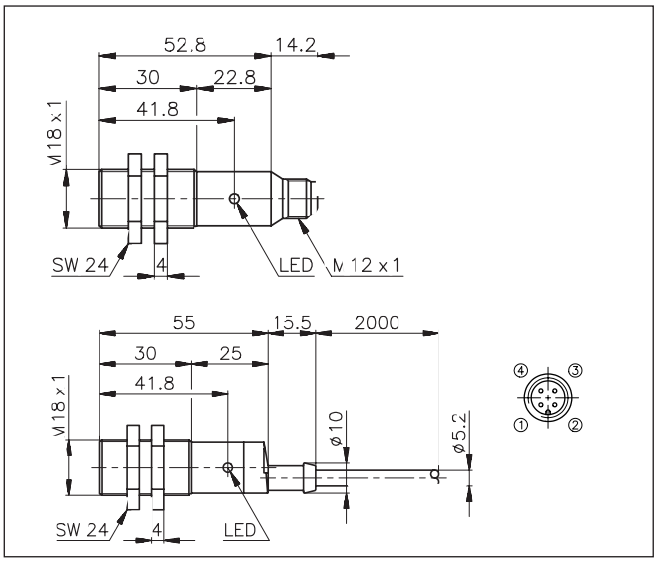
Power ON delay (t_v)	70 ms
Indication	Light and dark (Complementary switch)
Output ON	LED, yellow
Environment	
Overvoltage category	III (IEC 60664/664A; 60947-1)
Pollution degree	3 (IEC 60664/664A; 60947-1)
Degree of protection	IP 67 (IEC 60529; 60947-1)
Temperature	
Operating	-20° to +60°C (-4° to +140°F)
Storage	-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 x0.5 m (IEC 60068-2-32)
Dielectric voltage	500 VAC (IEC 60364-4-41)

Housing material	
Body	Nickel plated brass
Front	PC, black
Cable end	Polyester, black
Nuts	Nickel plated brass
Connection	
Cable	Grey, 2 m oilproof, PVC, Receiver 4 x 0.34 mm², Ø 5.2 mm
Ermitter	2 x 0.5 mm², Ø 5.2 mm
Plug	M12 x 1
Cables for plug (M1)	CON.14NF.. series
Weight	
Cable version	137 g
Plug version	54 g
Approvals	UL, CSA
CE-marking	Yes

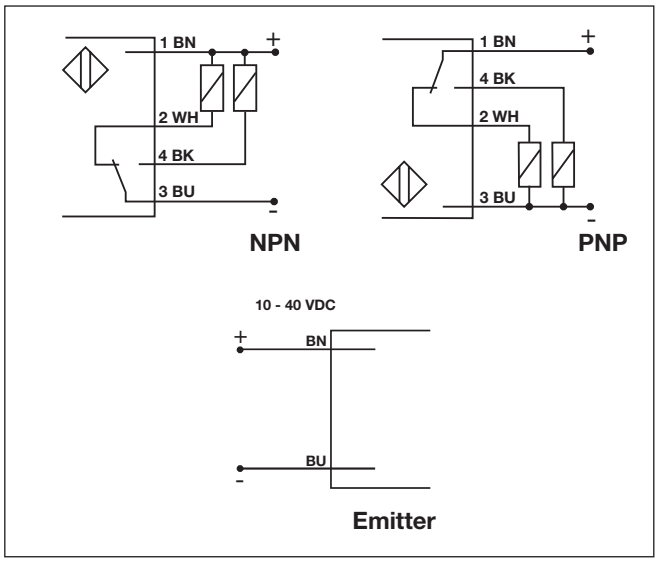
Operation Diagram



Dimensions



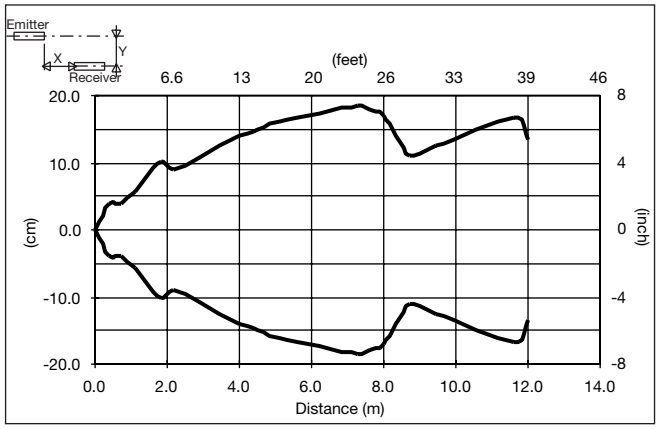
Wiring Diagrams



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Detection Diagram



Delivery Contents

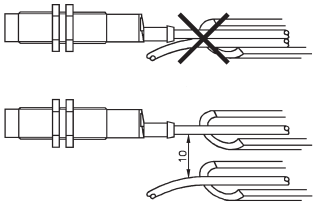
- Photoelectric switch: ET 1820 ..
- 2 nuts
- **Packaging:** Plastic bag

Accessories

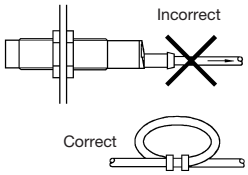
- MB18A
- Connector type CON.14NF.. series
- APA18-RAR
- APA18-AR

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

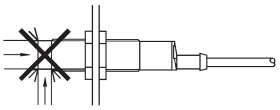


Relief of cable strain



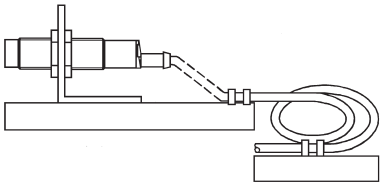
The cable should not be pulled

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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