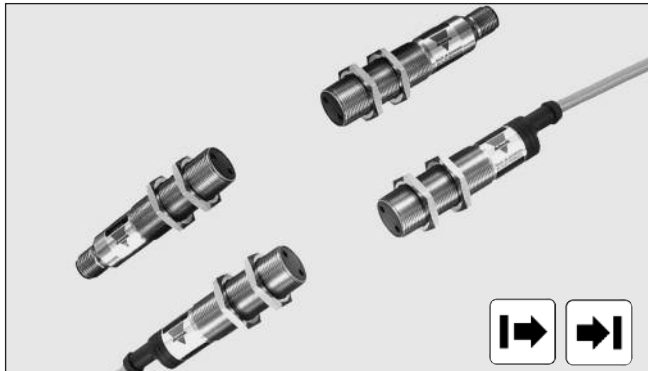


# Photoelectrics Through-beam Type ET 1820 DC, Nickel-plated Brass Housing

CARLO GAVAZZI



- 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

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

## Specifications Receiver

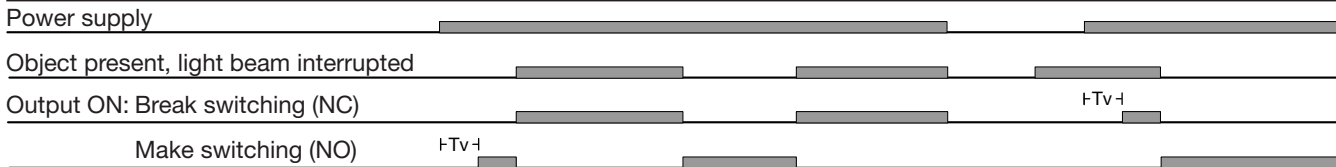
<b>Rated operating dist. (<math>S_n</math>)</b>	Up to 20 m
<b>Sensitivity</b>	270° single turn pot. meter
<b>Temperature drift</b>	0.6%/°C
<b>Hysteresis (H) (Differential travel)</b>	3 to 20%
<b>Rated operational volt. (<math>U_B</math>)</b>	10 to 40 VDC (ripple included)
<b>Ripple (<math>U_{rpp}</math>)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



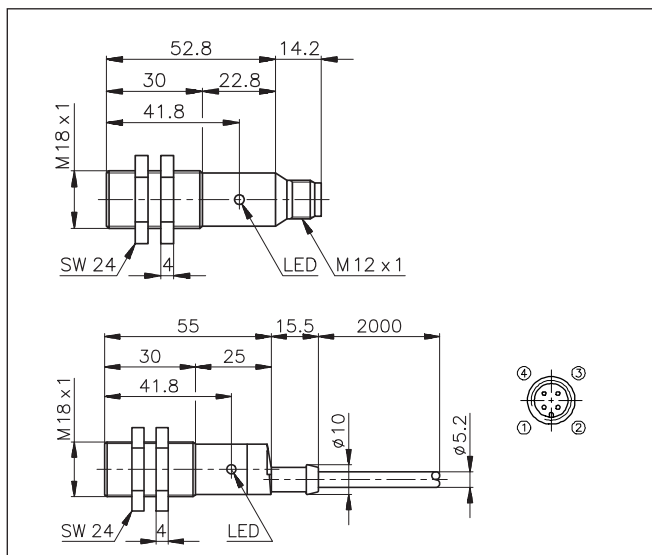
## General Specifications

<b>Power ON delay (t<sub>v</sub>)</b>	70 ms	<b>Housing material</b>	
<b>Indication</b>	Light and dark (Complementary switch) LED, yellow	Body	Nickel plated brass
Output ON		Front	PC, black
<b>Environment</b>		Cable end	Polyester, black
Overvoltage category	III (IEC 60664/664A; 60947-1)	Nuts	Nickel plated brass
Pollution degree	3 (IEC 60664/664A; 60947-1)	<b>Connection</b>	
Degree of protection	IP 67 (IEC 60529; 60947-1)	Cable	Grey, 2 m oilproof, PVC, 4 x 0.34 mm <sup>2</sup> , ø 5.2 mm
<b>Temperature</b>		Receiver	2 x 0.5 mm <sup>2</sup> , ø 5.2 mm
Operating	-20° to +60°C (-4° to +140°F)	Ermittler	M12 x 1
Storage	-30° to +70°C (-22° to +158°F)	Plug	CON.1A-..series
<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	Cables for plug (M1)	
<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)	<b>Weight</b>	
<b>Dielectric voltage</b>	500 VAC (IEC 60364-4-41)	Cable version	137 g
		Plug version	54 g
		<b>Approvals</b>	UL, CSA
		<b>CE-marking</b>	Yes

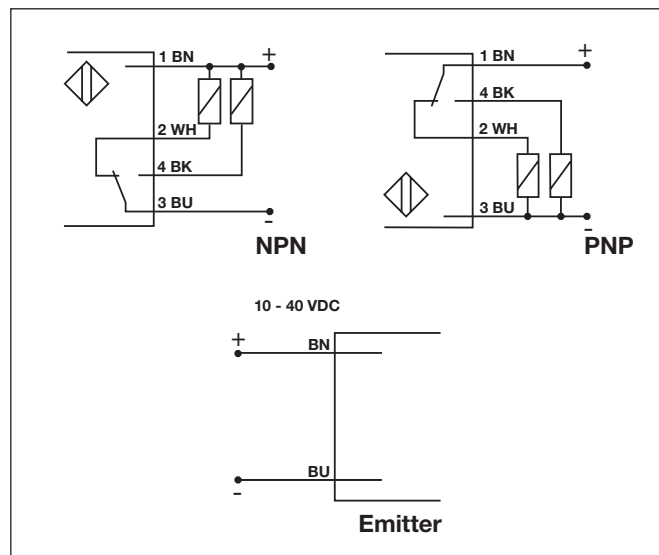
## Operation Diagram



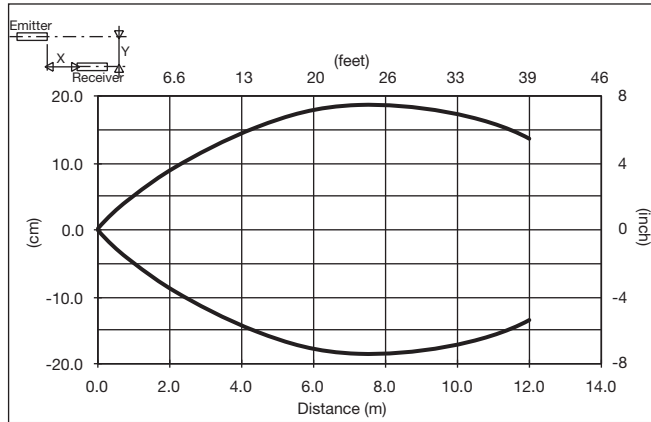
## Dimensions



## Wiring Diagrams



## Detection Diagram



## Delivery Contents

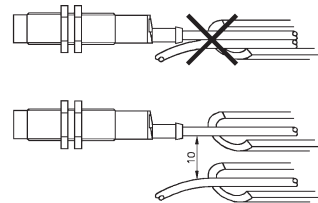
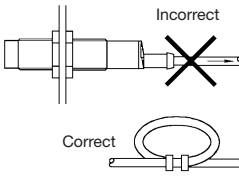
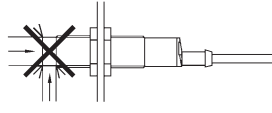
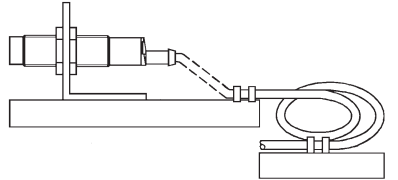
- Photoelectric switch: ET 1820
- 2 nuts
- **Packaging:** Plastic bag

## Accessories

- MB18A
- Connector type CON.1A../CON.14NF.. series
- APA18-RAR
- APA18-AR

For further information refer to "Accessories".

## Installation Hints

<p><i>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</i></p> 	<p><i>Relief of cable strain</i></p>  <p><b>Incorrect</b></p> <p><b>Correct</b></p> <p>The cable should not be pulled</p>	<p><i>Protection of the sensing face</i></p>  <p>A proximity switch should not serve as mechanical stop</p>	<p><i>Switch mounted on mobile carrier</i></p>  <p>Any repetitive flexing of the cable should be avoided</p>
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