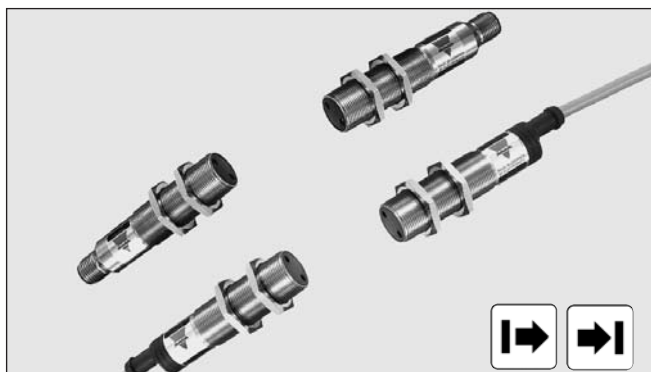


# Photoelectrics Through-beam Type ET 1820 DC, Nickel-plated Brass Housing

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.<br>Receiver/NPN<br>Make & break switching | Ordering no.<br>Receiver/PPN<br>Make & break switching | Ordering no.<br>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 ( $U_{rp}$ )               | ≤ 10%                                        |
| Supply current ( $I_o$ )          | ≤ 20 mA                                      |
| Protection                        | Reverse polarity, short-circuits, transients |
| Light source<br>Light type        | GaAlAs LED, 880 nm<br>Infrared, modulated    |
| Optical angle                     | ± 2°                                         |
| Indication<br>Supply ON           | LED, green                                   |

## Specifications Receiver

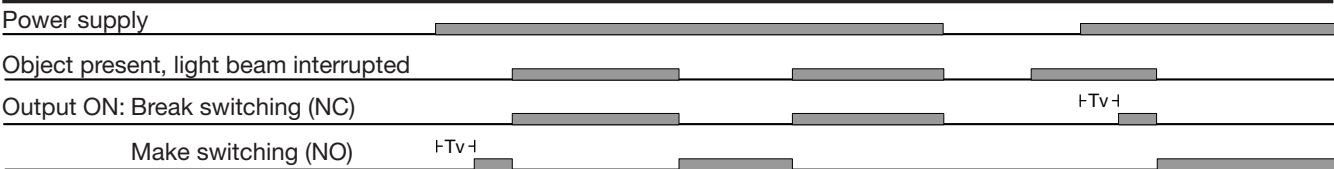
|                                                              |                                                    |
|--------------------------------------------------------------|----------------------------------------------------|
| Rated operating dist. ( $S_n$ )                              | Up to 10 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 ( $U_{rp}$ )                                          | 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<br>Continuous ( $I_e$ )<br>Short-time ( $I$ ) | Max. 200 mA<br>200 mA<br>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<br>OFF-ON ( $t_{ON}$ )<br>ON-OFF ( $t_{OFF}$ ) | Typ. 1.6 ms<br>Typ. 4.2 ms                         |



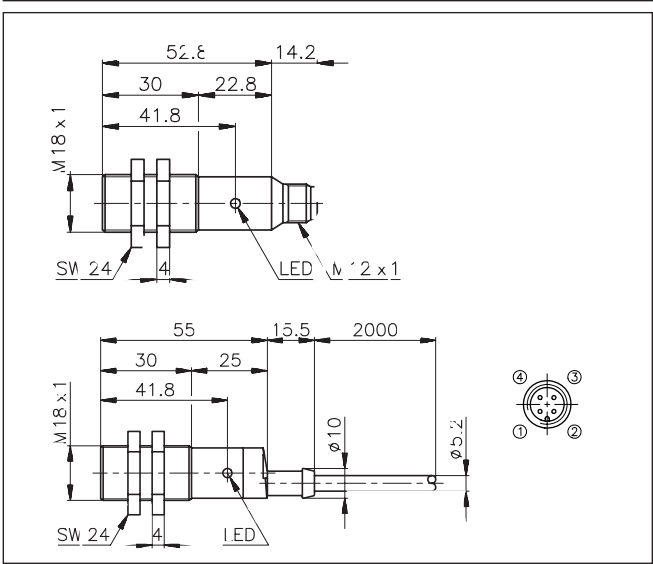
General Specifications

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

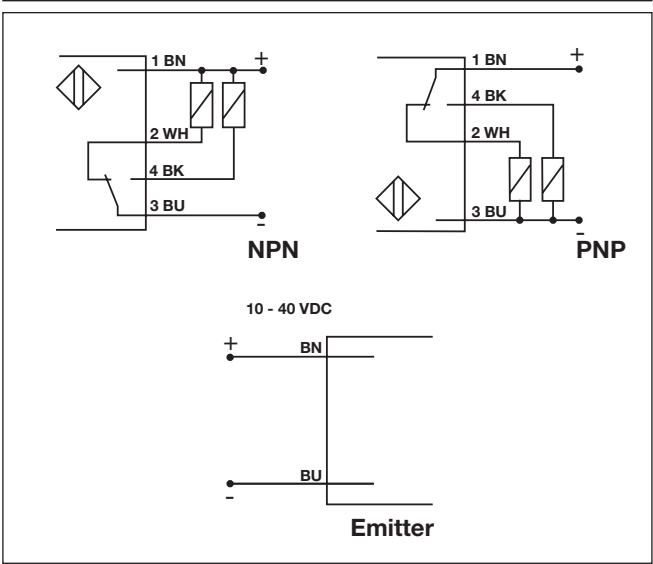
Operation Diagram



Dimensions

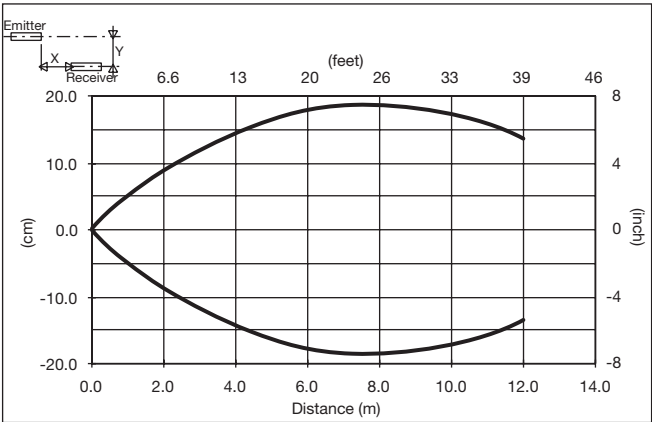


Wiring Diagrams





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