

Photoelectrics Retro-reflective Type ER 1830

CARLO GAVAZZI



- Range: 3 m
- Adjustable sensitivity
- Modulated infrared light
- Rated operational voltage: 10 to 40 VDC or 20 to 250 VAC
- Output: DC 200 mA NPN or PNP, AC 500 mA SCR
- Make and break switching function
- LED output indication
- Operating frequency 120 Hz (DC), 20 Hz (AC)
- High immunity to ambient light
- Heavy duty M1 8 metal housing, IP 67
- Cable and plug versions



Product Description

Retro-reflective photoelectric switch with extended range up to 3 m. Easily adjustable sensitivity with 270° potentiometer. LED output indication.

Short M 18 metal housing for heavy duty applications. IP 67. Easy mounting. DC and AC types, fully protected.

Ordering Key ER 18 30 NPA S-1

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

Type Selection - DC Types

| Housing diameter | Rated operating dist. (S _n) | Ordering no. NPN/cable Make & break swit. | Ordering no. NPN/plug Make & break swit. | Ordering no. PNP/cable Make & break swit. | Ordering no. PNP/plug Make & break swit. |
|------------------|---|---|--|---|--|
| M 18 | 3 m | ER 1830 NPAS | ER 1830 NPAS-1 | ER 1830 PPAS | ER 1830 PPAS-1 |

Type Selection - AC Types

| Housing diameter | Rated operating dist. (S _n) | Ordering no. SCR/cable Make switching | Ordering no. SCR/plug Make switching | Ordering no. SCR/cable Break switching | Ordering no. SCR/plug Break switching |
|------------------|---|---------------------------------------|--------------------------------------|--|---------------------------------------|
| M 18 | 3 m | ER 1830 TBOS | ER 1830 TBOS-3 | ER 1830 TBCS | ER 1830 TBCS-3 |

Note: Plugs and reflector to be ordered separately

Specifications

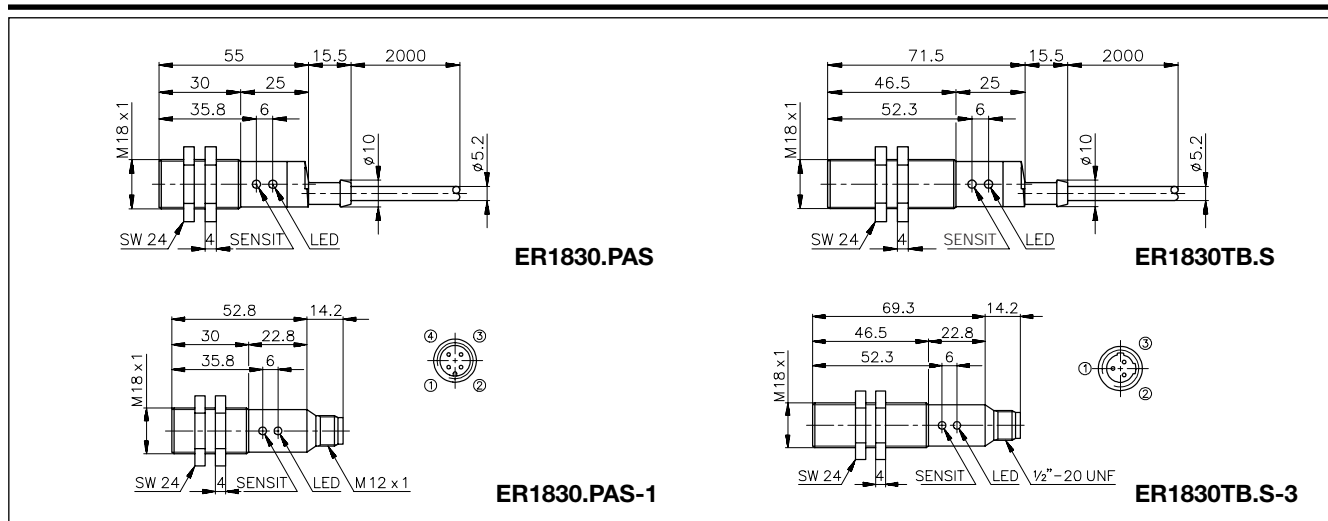
| | Transistor NPN/PNP | SCR output AC types |
|--|---|--|
| Rated operating dist. (S _n) | 3 m with reflect. target ER4, Ø 84 mm | 3 m with reflect. target ER4, Ø 84 mm |
| Temperature drift | 0.4%/K | 0.4%/K |
| Rated operational volt. (U _B) | 10 to 40 VDC (ripple included) | 20 to 250 VAC, 45 to 65 Hz (AC12, AC140) |
| Ripple (U _{rip}) | ≤ 10% | |
| Output current | | |
| Continuous (I _o) | ≤ 200 mA | ≤ 500 mA (AC12) |
| Short-time (I) | 200 mA, max. load capacity 100 nF | ≤ 3 A, max. 20 ms (AC140) |
| No load supply current (I _o) | ≤ 20 mA, | |
| Min. operational current (I _m) | 0.5 mA | 10 mA (AC 12) |
| OFF-state current (I _s) | Max. 100 µA | < 5 mA, typ. 2.6 mA (AC 12) |
| Voltage drop (U _d) | ≤ 2.5 V | ≤ 10 VAC, typ. 7 VAC |
| Protection | Reverse polarity, short circuit, overload, transients | Transients |



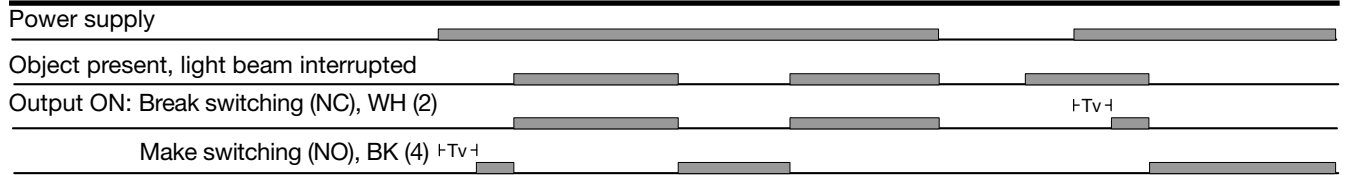
Specifications (cont.)

| | Transistor NPN/PNP | SCR output AC types |
|---------------------------------------|--|---|
| Transient voltage | 1 kV/0.5 J | 1 kV/0.5 J |
| Sensitivity | Adjustable, single turn potentiometer, 270° | Adjustable, single turn potentiometer, 270° |
| Light source | GaAlAs LED, 880 nm | GaAlAs LED, 880 nm |
| Light type | Infrared, modulated | Infrared, modulated |
| Optical angle | ±2.2° | ±2.2° |
| Light spot size | 150 mm at 2 m | 150 mm at 2 m |
| Ambient light | Max. 10,000 lux | Max. 10,000 lux |
| Operating frequency (f) | 120 Hz, light/dark ratio 1:2 | Max. 20 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 |
| Power ON delay (t_i) | Typ. 100 ms | Typ. 100 ms |
| Indication | | |
| 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 | 500 VAC (rms) | 1500 VAC (rms) |
| Housing material | | |
| Body | Nickel-plated brass | Nickel-plated brass |
| Front | Luran, black | Luran, black |
| Cable end | Polyester, black | Polyester, black |
| Nuts | Nickel-plated brass | Nickel-plated brass |
| Connection | | |
| Cable | Grey, 2 m, 4 x 0.35 mm ² , oilproof PVC Note: Other cable lengths on request CONH1A-.. serie | Grey, 2 m, 2 x 0.5 mm ² , oilproof PVC Note: Other cable lengths on request CONH3A-.. serie |
| Plug | | |
| Weight | 140 g cable version 55 g plug version | 150 g cable version 65 g plug version |

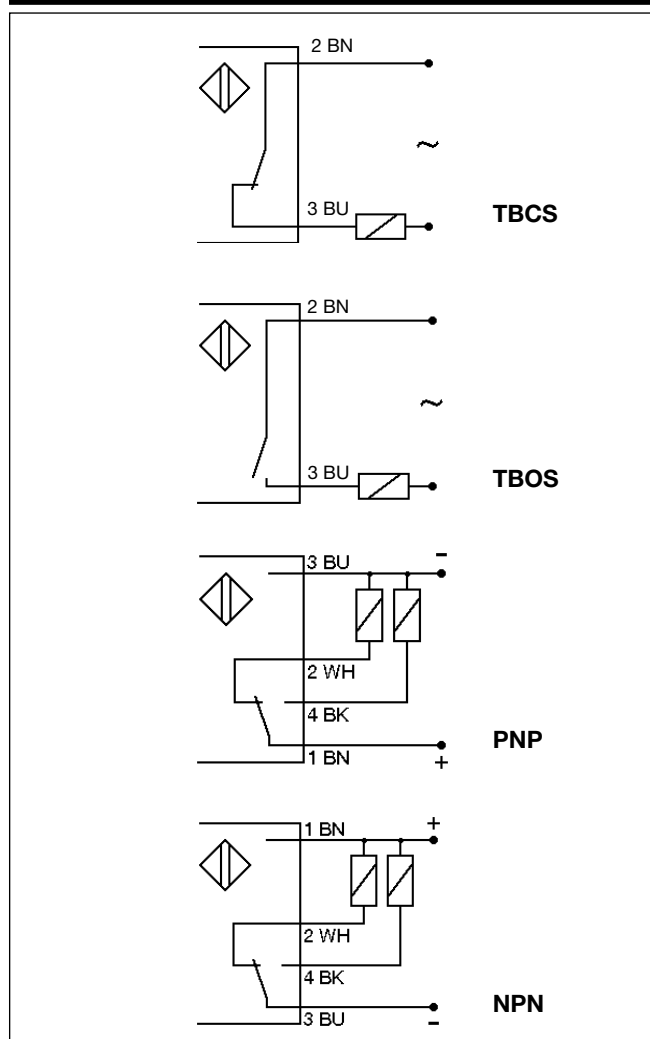
Dimensions



Operation Diagram



Wiring Diagrams



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
- Screw driver for adjustments: 77-000
- Option: Fibre-optics

For further information refer to "Accessories"

Delivery Contents

- Photoelectric switch: ER 1830....
- 2 nuts
- **Packaging:** plastic bag