

ANALOG SENSORS WITH LED EMISSION



CONTRAST SENSORS



- *Red or green selectable LED emission*
- *Threshold setting with multi-turn trimmer*
- *9, 18, 28 mm lenses and fibre-optics available*
- *Selectable NPN/PNP output and dark/light mode*

TL80 SERIES

The **TL80** series is composed of analog-based contrast sensors with LED emission, distinguished by good depth of field and high switching frequency reaching 10 kHz.

Switching threshold setting is aided by two arrow indicators showing the multiturn trimmer's rotation direction; moreover switches for the selection of the red or green emission, dark or light operating mode, NPN or PNP output and timing function are also present.

Accessory lenses for different operating distances and various proximity and through beam fibre-optics extend the application possibilities. The sturdy metal housing guarantees IP67 protection.

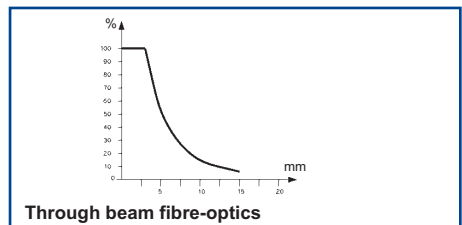
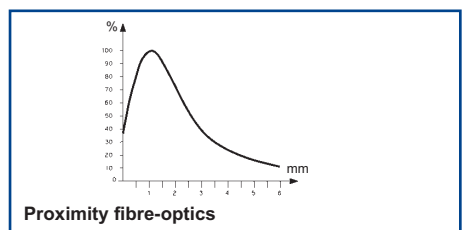
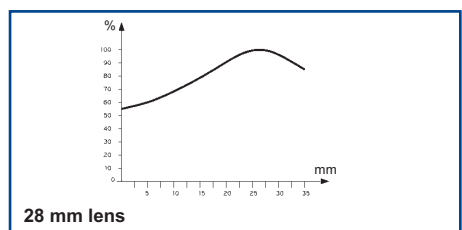
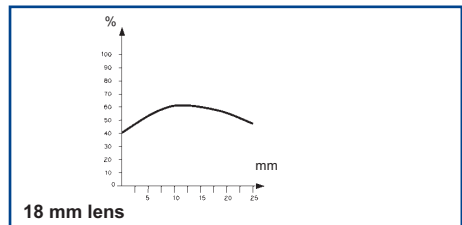
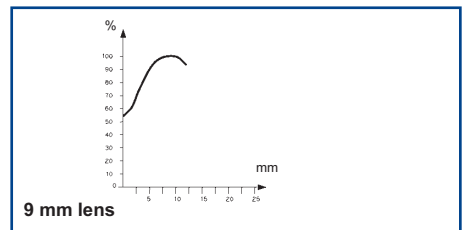
The sensors of the **TL80** series and relative accessories are available as spare parts. Contrast sensors of the **TL μ** series are recommended for replacements, new applications and improved performances.



TECHNICAL DATA

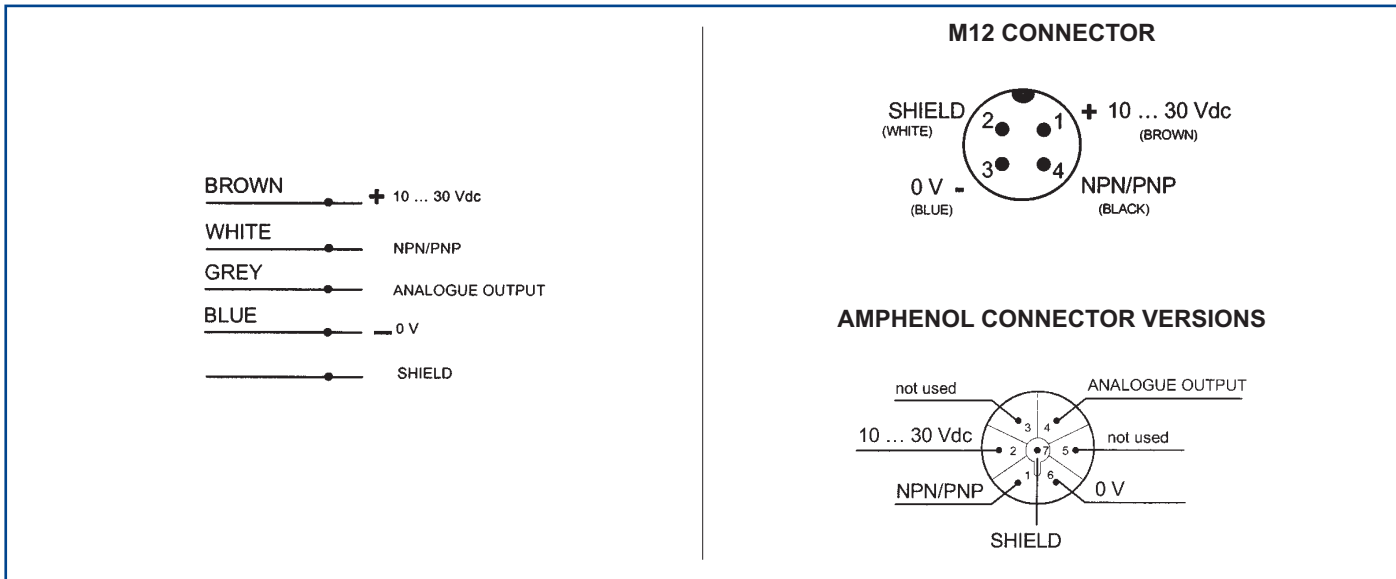
| | |
|---------------------------------------|---|
| Power supply: | 10 ... 30 Vdc, reverse polarity protection |
| Consumption: | 80 mA max. |
| Light emission: | red 630 nm / green 526 nm LED |
| Spot dimension: | 1.5 x 5 mm (9 mm lens) 2 x 7 mm (18 mm lens) 3 x 10 mm (28 mm lens) |
| Operating distance: | 7 ... 11 mm (9 mm lens) 16 ... 20 mm (18 mm lens) 25 ... 31 mm (28 mm lens) |
| Operating distance with fibre-optics: | 0 ... 5 mm proximity 0 ... 15 mm through beam |
| Depth of field: | ±2 mm (9 and 18 mm lenses) ±3 mm (28 mm lens) |
| Setting: | multi-turn trimmer |
| Indicators: | red OUTPUT LED red LEDs for trimmer rotation direction |
| Output type: | NPN or PNP, Rpull-down/up 10 kΩ |
| Saturation voltage: | 1.2 V max. (NPN vers.) 2.2 V max. (PNP vers.) |
| Output current: | 200 mA max.; short-circuit protection |
| Response time: | 50 μs (8, 18 mm, fibre-optic vers.) 166 μs (28 mm vers.) |
| Switching frequency: | 10 KHz max. (8, 18 mm, fibre-optic vers.) 3.3 KHz max. (28 mm vers.) |
| Operating mode: | dark/light selectable |
| Analog output range: | 0 ... 5.5 Vdc (2 Vdc on white 90%) 2.2 kΩ output resistance |
| Timing function: | 20 ms minimum output ON |
| Connection: | M12 4-pole conn., 3 m Ø 5 mm cable or cable with Amphenol connector |
| Electrical protection: | class 1 |
| Mechanical protection: | IP67 |
| Housing material: | ZAMA |
| Lens material: | glass |
| Fibre-optic material: | fibre in glass / sheath in metal fibre in PMMA / sheath in PE (OF-30) |
| Weight: | 550 g max. |
| Operating temperature: | -10 ... +55°C |
| Storage temperature: | -20 ... +70°C |
| Fibre operating temperature: | -30 ... +150°C (glass OF vers.) -30 ... +60°C (OF-30) |
| Reference standard: | EN 60947-5-2 |
| Certifications: | CE |

DETECTION DIAGRAMS

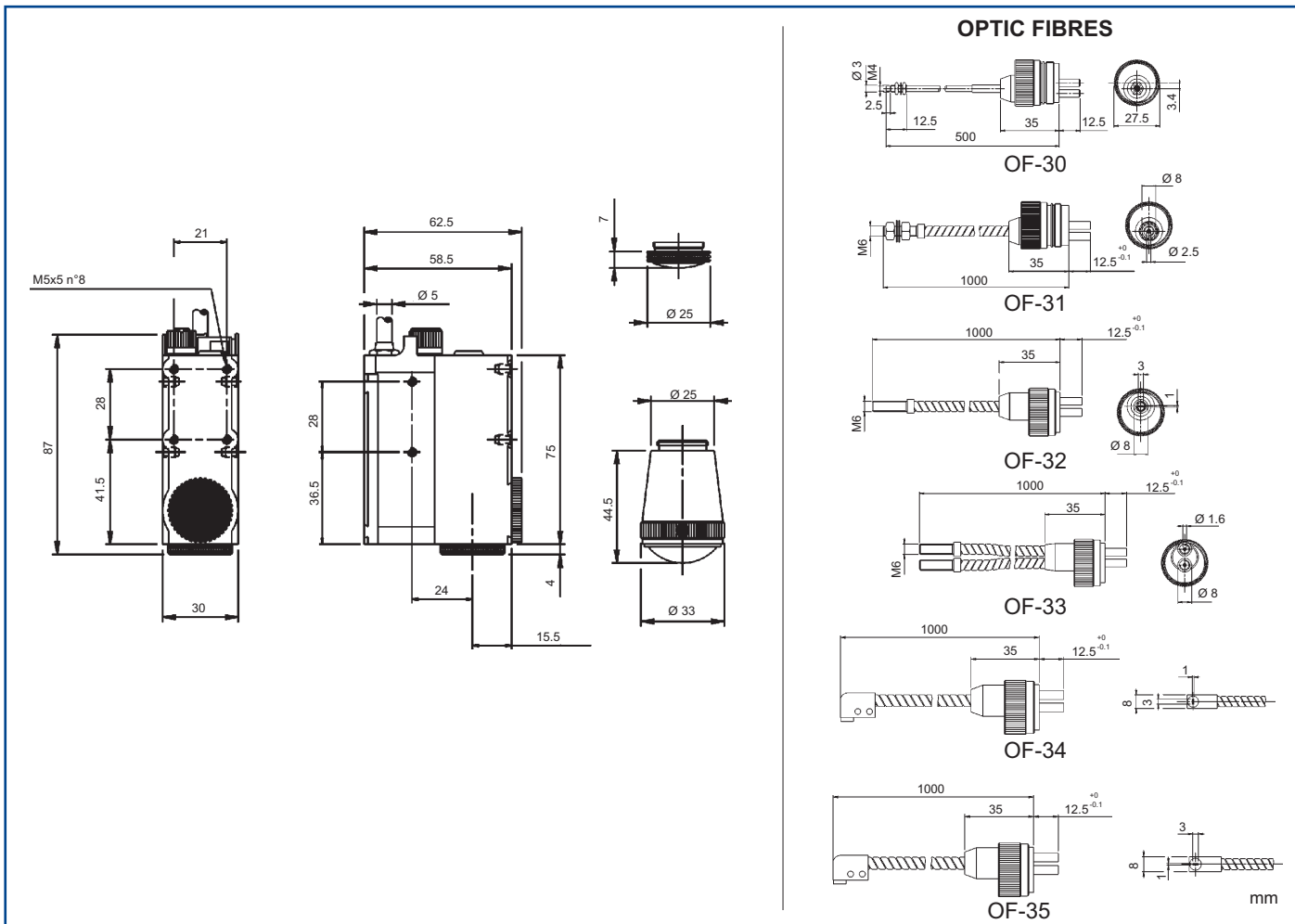




CONNECTIONS



DIMENSIONS





MODEL SELECTION AND ORDER INFORMATION

| MODEL | SPOT | OPTICS | CONNECTION | CODE N° |
|-----------|------------------------|-------------|--------------------|-----------|
| TL80-011 | vertical | 9 mm | cable | 964051000 |
| TL80-011L | horizontal | 9 mm | cable | 964051010 |
| TL80-012 | vertical | 9 mm | Amphenol connector | 964051020 |
| TL80-012L | horizontal | 9 mm | Amphenol connector | 964051030 |
| TL80-015 | vertical | 9 mm | M12 connector | 964051040 |
| TL80-015L | horizontal | 9 mm | M12 connector | 964051050 |
| TL80-061 | vertical | 18 mm | cable | 964051180 |
| TL80-065 | vertical | 18 mm | M12 connector | 964051220 |
| TL80-021 | vertical | 28 mm | cable | 964051060 |
| TL80-025 | vertical | 28 mm | M12 connector | 964051100 |
| TL80F-041 | <i>refer to fibers</i> | optic fibre | cable | 964051120 |
| TL80F-042 | <i>refer to fibers</i> | optic fibre | Amphenol connector | 964051130 |
| TL80F-045 | <i>refer to fibers</i> | optic fibre | M12 connector | 964051140 |

ACCESSORY SELECTION AND ORDER INFORMATION

| MODEL | DESCRIPTION | CODE N° |
|----------|--|-----------|
| OF-30-5 | plastic fibre-optic L 50 cm - point-shaped spot proximity | 96B001070 |
| OF-31-10 | glass fibre-optic L 100 cm - point-shaped spot proximity | 96B201000 |
| OF-32-10 | glass fibre-optic L 100 cm - rectangular spot proximity | 96B211000 |
| OF-33-10 | glass fibre-optic L 100 cm - through beam | 96B221000 |
| OF-34-10 | glass fibre-optic L 100 cm - horizontal spot 90° proximity | 96B231000 |
| OF-35-10 | glass fibre-optic L 100 cm - vertical spot 90° proximity | 96B241000 |

Please refer also to **Sensor Accessories**

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HEADQUARTERS

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