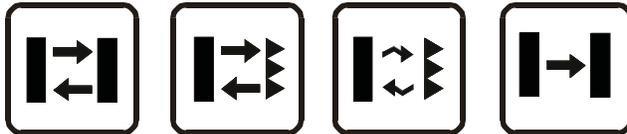


Universal Sensors
Tubular: S51 Series
M18 Photoelectric Sensors



- Flat plastic housing
- Cable or M12 connection with NPN or PNP output
- Standard 3-wire connection configuration
- Selectable dark or light output

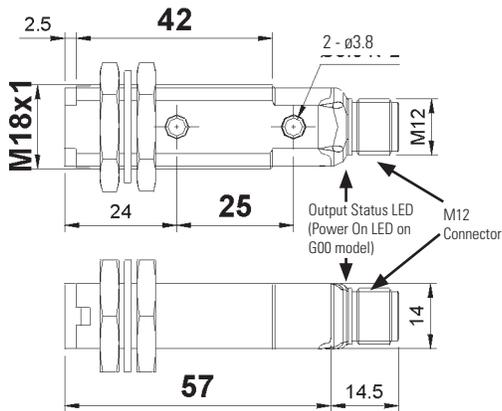
The S51 series offers a cost-effective solution in M18 photoelectric sensors, with a wide range of operating distances.

The diffuse proximity model has a 10cm fixed operating distance with a wide emission spectrum. Also available is a version with a 1 - 40cm adjustable operating distance.

Standard retro-reflective models have an operating distance up to 4m while the polarized retro-reflective models, used for reliable detection of reflective objects, are fitted with a sensitivity adjustment and have a 3.5m operating distance. The emitter and receiver models, used for longer operating distances, reach 18 meters.

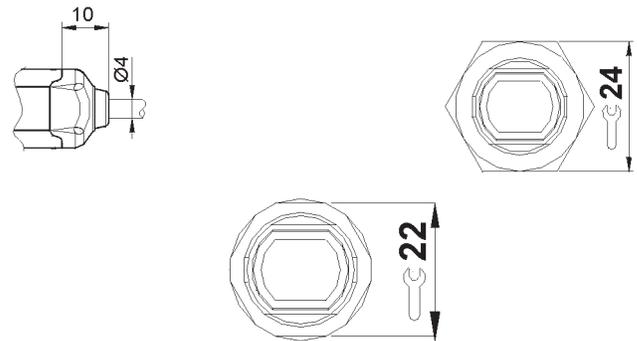
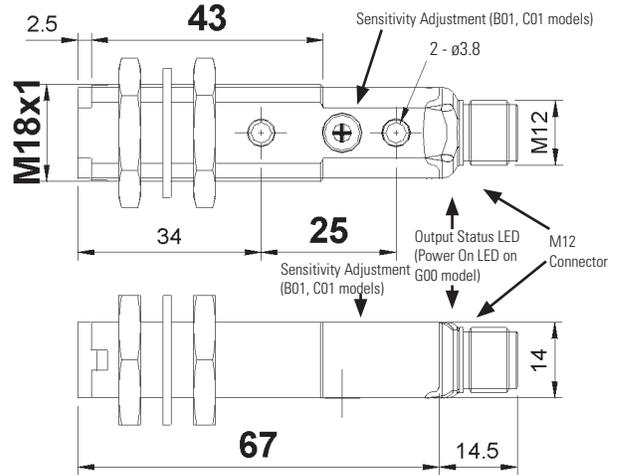
The S51 series sensors, with cable or M12 connector and PNP or NPN output, provide a 3-wire connection configuration in compliance with the EN60947-5-2 standard. The normally open output is activated in light mode in proximity models and in dark mode in retro-reflective models. The output mode can be inverted using the dark/light selection input wire provided, making these extremely versatile sensors.

Retro-reflective A00, Short Diffused C10, Through-beam G00



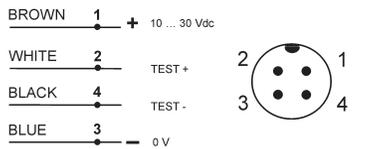
Dimensions (mm)

Polarized Retro-reflective B01, Long Diffused C01, Through-beam F00

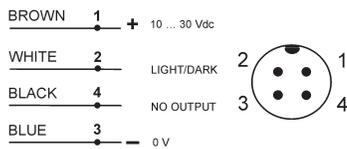


Connections

Through-beam G00



Retro-reflective A00, Polarized Retro-reflective B01, Long Diffused C01, Short Diffused C10, Through-beam F00



Indicators & Settings



For information on accessories, see page 171.

Specifications

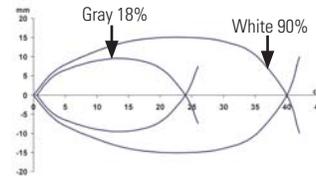
| | |
|--|--|
| Long Diffuse Proximity Operating Distance | 1 - 40cm |
| Short Diffuse Proximity Operating Distance | 0 - 10cm |
| Retro-reflective Operating Distance | 0.1 - 4m on R2 |
| Polarized Retro-reflective Operating Distance | 0.1 - 3m on R2 |
| Through-beam Operating Distance | 0 - 18m |
| Power Supply | 10 - 30V DC ¹ |
| Ripple | ≤ 2 Vpp |
| Current Draw | ≤ 35 mA |
| Light Emission ² | Infrared LED 880 nm Red LED 650 nm (B01 models) |
| Setting | Sensitivity adjustment (B01, C01 models) ³ |
| Indicators | Yellow OUTPUT LED (excl. G00 models) Green POWER LED (G00 models) |
| Output Type | NPN or PNP versions |
| Output Current | ≤ 100mA |
| Saturation Voltage | ≤ 2V |
| Response Time | 1ms 4ms (F00 mod.) |
| Switching Frequency | ≤ 500Hz ≤ 120Hz (F00 mod.) |
| Operating Mode | dark/light selectable ⁴ |
| Auxiliary Functions | Test + and Test - (G00 mod.) ⁵ |
| Connection | 2m ø4 mm cable ⁶ M12 4-pole connector ⁷ |
| Electrical Protection | Class 2 |
| Mechanical Protection | IP67 |
| Protection Devices | A, B ⁸ |
| Housing Material | PBT |
| Lens Material | PMMA |
| Weight | 25g max. |
| Operating Temperature | -25 to +55°C |
| Storage Temperature | -25 to +70°C |
| Reference Standard | EN60947-5-2, UL 508 |



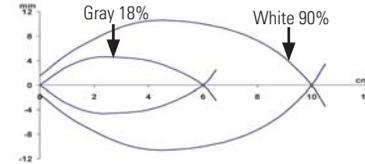
1. Limit values.
2. Average life of 100,000 hrs with $T_A = +25^\circ\text{C}$.
3. 270° single-turn sensitivity adjustment.
4. With L/D input not connected the proximity models function in the light mode and the retro-reflective and through-beam models in the dark mode; the light mode can be selected by connecting the L/D input to +V DC, the dark mode connecting it to 0V DC.
5. Emitter off with Test+ connected to +V DC and Test- to 0V DC.
6. PVC, 4 x 0.14mm²
7. M12 connector compatible with quick connection systems.
8. A - reverse polarity protection
B - overload and short-circuit protection

Detection Diagrams

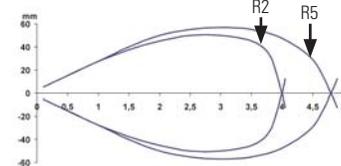
Long Diffused C01



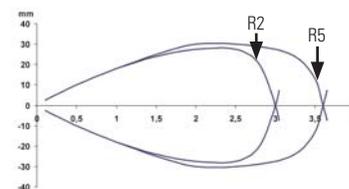
Short Diffused C10



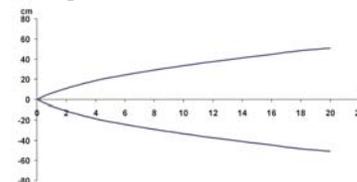
Retro-reflective A00

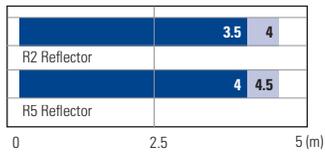
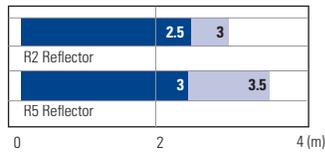
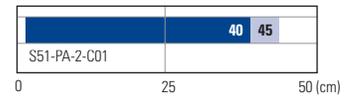
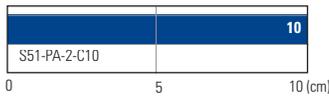
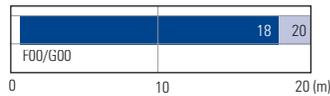


Polarized Retro-reflective B01



Through-beam F00/G00



Operating Distance
Retro-reflective A00

Polarized Retro-reflective B01

Long Diffused C01

Short Diffused C10

Through-beam F00/G00


■ Recommended operating distance
■ Maximum operating distance

Part Numbers

| Optic Function | Connection | Output | Part Number | |
|----------------|----------------------------|---------------|-------------|-----------------|
| | Retro-reflective | 2m cable | PNP | S51-PA-2-A00-PK |
| | Retro-reflective | 2m cable | NPN | S51-PA-2-A00-NK |
| | Retro-reflective | M12 connector | PNP | S51-PA-5-A00-PK |
| | Retro-reflective | M12 connector | NPN | S51-PA-5-A00-NK |
| | Polarized Retro-reflective | 2m cable | PNP | S51-PA-2-B01-PK |
| | Polarized Retro-reflective | 2m cable | NPN | S51-PA-2-B01-NK |
| | Polarized Retro-reflective | M12 connector | PNP | S51-PA-5-B01-PK |
| | Polarized Retro-reflective | M12 connector | NPN | S51-PA-5-B01-NK |
| | Long Diffuse Proximity | 2m cable | PNP | S51-PA-2-C01-PK |
| | Long Diffuse Proximity | 2m cable | NPN | S51-PA-2-C01-NK |
| | Long Diffuse Proximity | M12 connector | PNP | S51-PA-5-C01-PK |
| | Long Diffuse Proximity | M12 connector | NPN | S51-PA-5-C01-NK |
| | Short Diffuse Proximity | 2m cable | PNP | S51-PA-2-C10-PK |
| | Short Diffuse Proximity | 2m cable | NPN | S51-PA-2-C10-NK |
| | Short Diffuse Proximity | M12 connector | PNP | S51-PA-5-C10-PK |
| | Short Diffuse Proximity | M12 connector | NPN | S51-PA-5-C10-NK |
| | Receiver | 2m cable | PNP | S51-PA-2-F00-PK |
| | Receiver | 2m cable | NPN | S51-PA-2-F00-NK |
| | Receiver | M12 connector | PNP | S51-PA-5-F00-PK |
| | Receiver | M12 connector | NPN | S51-PA-5-F00-NK |
| | Emitter | 2m cable | — | S51-PA-2-G00-XG |
| | Emitter | M12 connector | — | S51-PA-5-G00-XG |



Additional models are available. Visit www.idec-ds.com for more information.