

S51 SERIES

The **S51** series offers the most cost-effective solution in M18 photoelectric sensors which is today improved thanks to the increase of the operating distances. The range includes the tubular metal housing as well as a brand news flat plastic housing which make installation. The tubular plastic and metal models are both available with either axial or radial optics; in both cases the optic head and lenses do not protrude beyond the external 18 mm diameter of the sensor housing. The diffuse proximity model presents a 10 cm fixed operating distance with wide emission spectrum and the another model with 1 - 40 cm trimmer-adjustable operating distance. Standard retroreflective models have an operating distance up to 4 m whilst the polarised retroreflective models used for reliable detection of reflective objects are fitted with sensitivity adjustment and have a 3.5 m operating distance. The emitter and receiver models, used for longer operating distances, reach 18 meters. The sensors of the **S51** series, with cable or M12 connector and PNP or NPN output, provide a 3 wire connection configuration in compliance with the EN60947-5-2 standard.

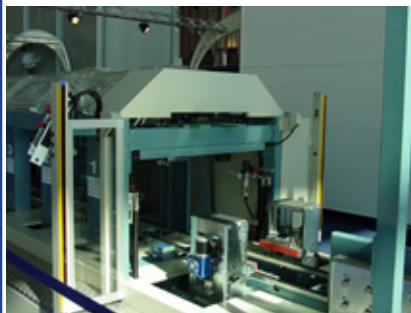


HIGHLIGHTS

- Flat plastic or cylindrical metal housing
- Versions with axial or radial optics
- Cable or M12 connection with NPN or PNP output
- Standard 3 wire connection configuration
- Selectable dark or light output

APPLICATIONS

Ceramics



Transportation lines



Beverage & Bottling



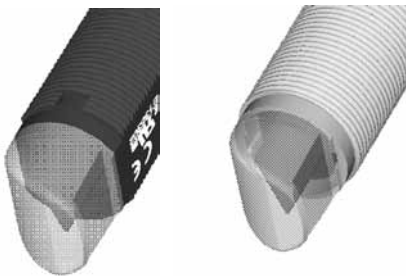
Packaging lines



M18 STANDARD



RADIAL OPTICS

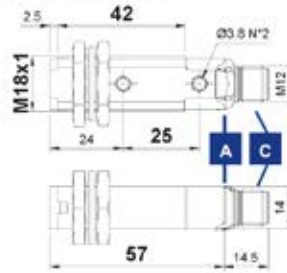


ACCESSORIES

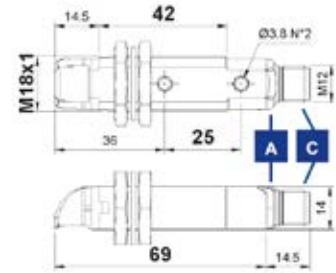
Refer also to **Reflector, Connectors and Fixing brackets** of the **General Catalogue**.

DIMENSIONS

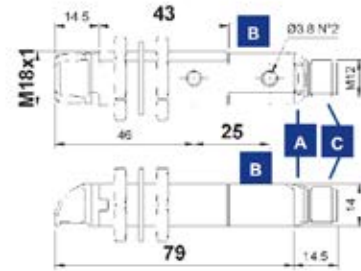
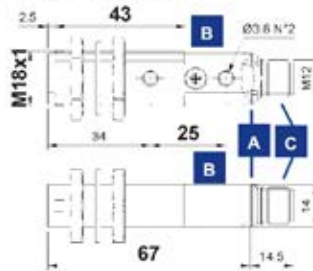
A00/C10/G00 MODELS



PLASTIC HOUSING

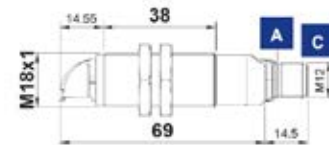
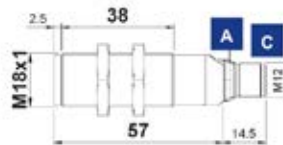


B01/C01/F00 MODELS

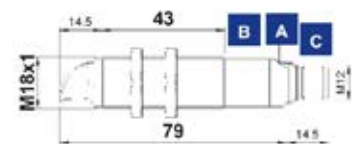
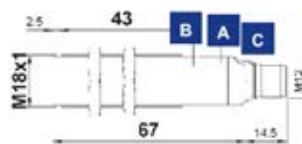


METAL HOUSING

A00/C10/C20/G00 MODELS



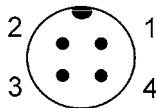
B01/C01/F00 MODELS



CONNECTIONS

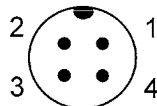
G00 MODEL

| | | | |
|-------|---|---|---------------|
| BROWN | 1 | + | 10 ... 30 Vdc |
| WHITE | 2 | | TEST + |
| BLACK | 4 | | TEST - |
| BLUE | 3 | - | 0 V |

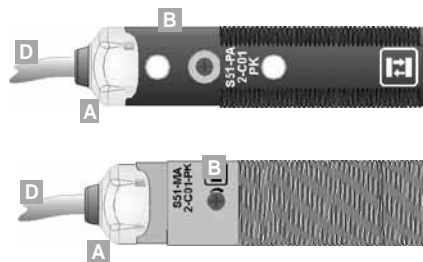


A00/B01/C01/C10/C20/F00 MODELS

| | | | |
|-------|---|---|---------------|
| BROWN | 1 | + | 10 ... 30 Vdc |
| WHITE | 2 | | LIGHT/DARK |
| BLACK | 4 | | NO OUTPUT |
| BLUE | 3 | - | 0 V |



INDICATORS AND SETTINGS



- A** OUTPUT status LED; POWER ON LED on G00 model
- B** Adjustment trimmer (B01, C01 models)
- C** M12 connector
- D** Cable connection

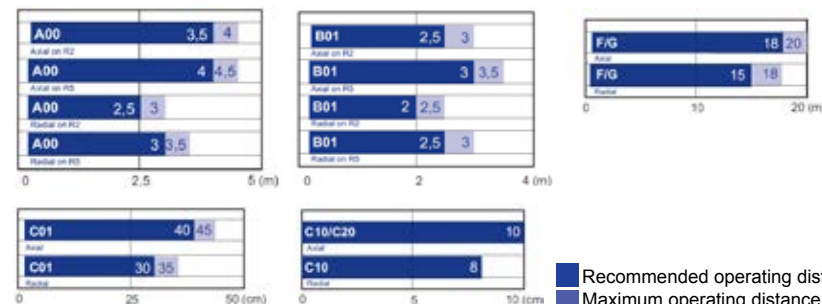
Trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

TECHNICAL DATA

| | |
|--|--|
| Long diffuse proximity operating dist.: | 1 ... 40 cm (radial version 30 cm) |
| Short diffuse proximity operating dist.: | 0 ... 10 cm (radial version 8 cm) |
| Narrow beam proximity operating dist.: | 0.2...10 cm |
| Retroreflex operating distance: | 0.1...4 m (radial version 3 m) on R5 |
| Polarised retroreflex operating distance: | 0.1...3 m (radial version 2.5 m) on R5 |
| Through beam operating distance: | 0...20 m (radial version 18 m) |
| Power supply: | 10 ... 30 Vdc ¹ |
| Ripple: | ≤2 Vpp |
| Consumption: | ≤35 mA |
| Light emission² : | infrared LED 880 nm red LED 650 nm (B01, C01 mod.) |
| Setting: | sensitivity trimmer (B01, C01 mod.) ³ |
| Indicators: | yellow OUTPUT LED (excl. G00 mod.) green POWER LED (G00 mod.) |
| Output type: | NPN vers. or PNP vers. |
| Output current: | ≤100 mA |
| Saturation voltage: | ≤2 V |
| Response time: | 1 ms 4 ms (F00 mod.) |
| Switching frequency: | ≤500 Hz ≤120 Hz (F00 mod.) |
| Operating mode: | dark/light selectable ⁴ |
| Auxiliary functions: | Test + and Test - (G00 mod.) ⁵ |
| Connection: | 2 m Ø 4 mm cable ⁶ M12 4-pole connector ⁷ |
| Electrical protection: | class 2 |
| Mechanical protection: | IP67 |
| Protection devices: | A, B ⁸ |
| Housing material: | PBT (S51-P vers.) nickel-plated brass (S51-M vers.) |
| Lens material: | PMMA |
| Weight: | 25 g max. (S51-PA/PR-5 vers.) 75 g max. (S51-PA-/PR-2 vers.) 60 g max. (S51-MA/MR-5 vers.) 100 g max. (S51-MA/MR-2 vers.) |
| Operating temperature: | -25 ... +55°C |
| Storage temperature: | -25 ... +70°C |
| Reference standard: | EN 60947-5-2, UL 508 |

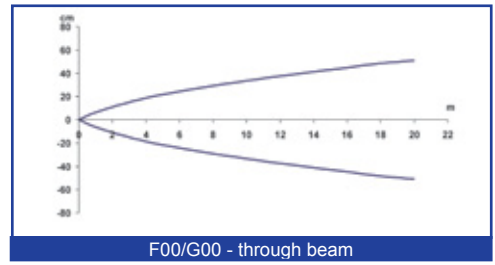
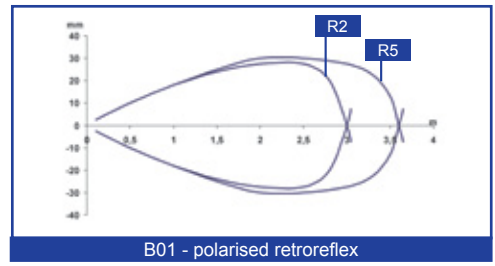
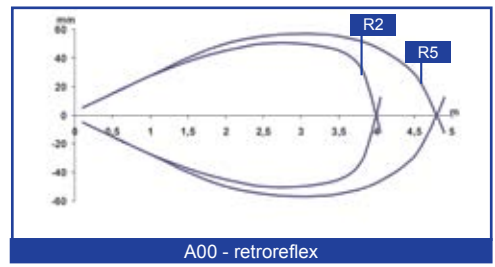
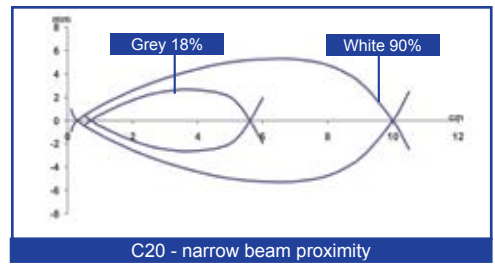
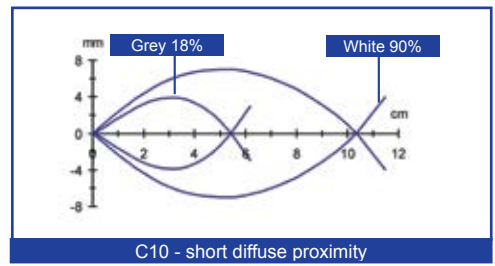
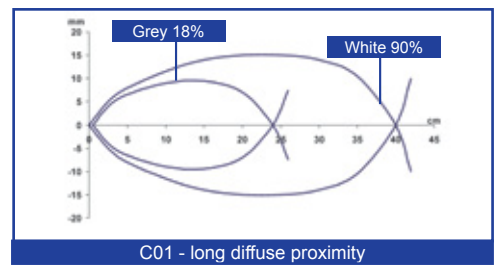
TECHNICAL NOTES

- ¹Limit values
- ²Average life of 100.000 h with TA = +25 °C
- ³270° single-turn trimmer
- ⁴With L/D input not connected the proximity models function in the light mode and the retroreflex and through beam models in the dark mode; the light mode can be selected connecting the L/D input to +Vdc, the dark mode connecting it to 0Vdc
- ⁵Emitter off with Test+ connected to +Vdc and Test- to 0 Vdc
- ⁶PVC, 4 x 0.14 mm²
- ⁷M12 connector compatible with quick connection systems
- ⁸A - reverse polarity protection
B - overload and short-circuit protection



■ Recommended operating distance
■ Maximum operating distance

DETECTION DIAGRAMS



Note: the diagrams indicate the detection area typical of the axial optic versions; the maximum operating distance of the radial optic versions decreases as indicated in the tables given below



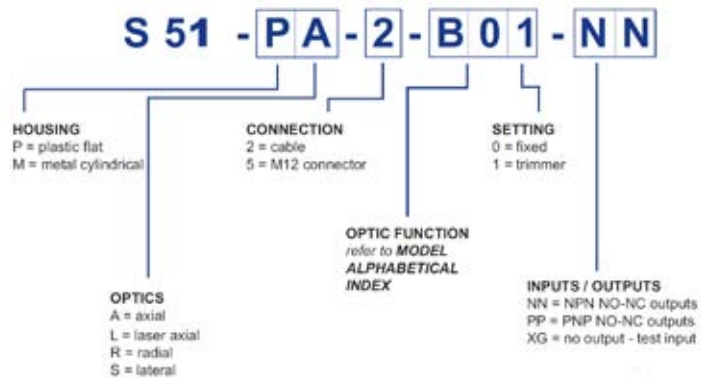
*Only on axial optic models

MODEL SELECTION AND ORDER INFORMATION

| MODEL | OPTIC FUNCTION | ORDER N° |
|-----------------|-------------------------|-----------|
| S51-PA-2-A00-PK | retroreflex | 952701001 |
| S51-PA-2-A00-NK | retroreflex | 952701071 |
| S51-PA-5-A00-PK | retroreflex | 952701261 |
| S51-PA-5-A00-NK | retroreflex | 952701331 |
| S51-PA-2-B01-PK | polarised retroreflex | 952701011 |
| S51-PA-2-B01-NK | polarised retroreflex | 952701081 |
| S51-PA-5-B01-PK | polarised retroreflex | 952701271 |
| S51-PA-5-B01-NK | polarised retroreflex | 952701341 |
| S51-PA-2-C01-PK | long diffuse proximity | 952701021 |
| S51-PA-2-C01-NK | long diffuse proximity | 952701091 |
| S51-PA-5-C01-PK | long diffuse proximity | 952701281 |
| S51-PA-5-C01-NK | long diffuse proximity | 952701351 |
| S51-PA-2-C10-PK | short diffuse proximity | 952701031 |
| S51-PA-2-C10-NK | short diffuse proximity | 952701101 |
| S51-PA-5-C10-PK | short diffuse proximity | 952701291 |
| S51-PA-5-C10-NK | short diffuse proximity | 952701361 |
| S51-PA-2-F00-PK | receiver | 952701051 |
| S51-PA-2-F00-NK | receiver | 952701121 |
| S51-PA-5-F00-PK | receiver | 952701311 |
| S51-PA-5-F00-NK | receiver | 952701381 |
| S51-PA-2-G00-XG | emitter | 952701061 |
| S51-PA-5-G00-XG | emitter | 952701321 |
| S51-PR-2-A00-PK | retroreflex | 952701131 |
| S51-PR-2-A00-NK | retroreflex | 952701201 |
| S51-PR-5-A00-PK | retroreflex | 952701391 |
| S51-PR-5-A00-NK | retroreflex | 952701461 |
| S51-PR-2-B01-PK | polarised retroreflex | 952701141 |
| S51-PR-2-B01-NK | polarised retroreflex | 952701211 |
| S51-PR-5-B01-PK | polarised retroreflex | 952701401 |
| S51-PR-5-B01-NK | polarised retroreflex | 952701471 |
| S51-PR-2-C01-PK | long diffuse proximity | 952701151 |
| S51-PR-2-C01-NK | long diffuse proximity | 952701221 |
| S51-PR-5-C01-PK | long diffuse proximity | 952701411 |
| S51-PR-5-C01-NK | long diffuse proximity | 952701481 |
| S51-PR-2-C10-PK | short diffuse proximity | 952701161 |
| S51-PR-2-C10-NK | short diffuse proximity | 952701231 |
| S51-PR-5-C10-PK | short diffuse proximity | 952701421 |
| S51-PR-5-C10-NK | short diffuse proximity | 952701491 |
| S51-PR-2-F00-PK | receiver | 952701181 |
| S51-PR-2-F00-NK | receiver | 952701251 |
| S51-PR-5-F00-PK | receiver | 952701441 |
| S51-PR-5-F00-NK | receiver | 952701511 |
| S51-PR-2-G00-XG | emitter | 952701191 |
| S51-PR-5-G00-XG | emitter | 952701451 |
| S51-MA-2-A00-PK | retroreflex | 952701541 |
| S51-MA-2-A00-NK | retroreflex | 952701601 |
| S51-MA-5-A00-PK | retroreflex | 952701531 |
| S51-MA-5-A00-NK | retroreflex | 952701801 |
| S51-MA-2-B01-PK | polarised retroreflex | 952701551 |
| S51-MA-2-B01-NK | polarised retroreflex | 952701611 |
| S51-MA-5-B01-PK | polarised retroreflex | 952701761 |
| S51-MA-5-B01-NK | polarised retroreflex | 952701811 |

| MODEL | OPTIC FUNCTION | ORDER N° |
|-----------------|-------------------------|-----------|
| S51-MA-2-C01-PK | long diffuse proximity | 952701561 |
| S51-MA-2-C01-NK | long diffuse proximity | 952701621 |
| S51-MA-5-C01-PK | long diffuse proximity | 952701771 |
| S51-MA-5-C01-NK | long diffuse proximity | 952701821 |
| S51-MA-2-C10-PK | short diffuse proximity | 952701571 |
| S51-MA-2-C10-NK | short diffuse proximity | 952701631 |
| S51-MA-5-C10-PK | short diffuse proximity | 952701521 |
| S51-MA-5-C10-NK | short diffuse proximity | 952701831 |
| S51-MA-5-C20-PK | narrow beam proximity | 952701961 |
| S51-MA-2-F00-PK | receiver | 952701581 |
| S51-MA-2-F00-NK | receiver | 952701641 |
| S51-MA-5-F00-PK | receiver | 952701781 |
| S51-MA-5-F00-NK | receiver | 952701841 |
| S51-MA-2-G00-XG | emitter | 952701591 |
| S51-MA-5-G00-XG | emitter | 952701791 |
| S51-MR-2-A00-PK | retroreflex | 952701651 |
| S51-MR-2-A00-NK | retroreflex | 952701711 |
| S51-MR-5-A00-PK | retroreflex | 952701851 |
| S51-MR-5-A00-NK | retroreflex | 952701911 |
| S51-MR-2-B01-PK | polarised retroreflex | 952701661 |
| S51-MR-2-B01-NK | polarised retroreflex | 952701721 |
| S51-MR-5-B01-PK | polarised retroreflex | 952701861 |
| S51-MR-5-B01-NK | polarised retroreflex | 952701921 |
| S51-MR-2-C01-PK | long diffuse proximity | 952701671 |
| S51-MR-2-C01-NK | long diffuse proximity | 952701731 |
| S51-MR-5-C01-PK | long diffuse proximity | 952701871 |
| S51-MR-5-C01-NK | long diffuse proximity | 952701931 |
| S51-MR-2-C10-PK | short diffuse proximity | 952701681 |
| S51-MR-2-C10-NK | short diffuse proximity | 952701741 |
| S51-MR-5-C10-PK | short diffuse proximity | 952701881 |
| S51-MR-5-C10-NK | short diffuse proximity | 952701941 |
| S51-MR-2-F00-PK | receiver | 952701691 |
| S51-MR-2-F00-NK | receiver | 952701751 |
| S51-MR-5-F00-PK | receiver | 952701891 |
| S51-MR-5-F00-NK | receiver | 952701951 |
| S51-MR-2-G00-XG | emitter | 952701701 |
| S51-MR-5-G00-XG | emitter | 952701901 |

MODEL CODING TABLE



The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

