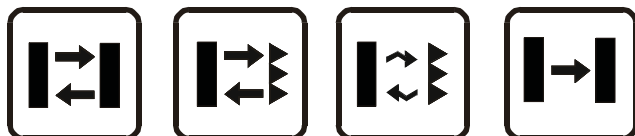


Universal Sensors
Tubular: S51 Series
M18 Photoelectric Sensors



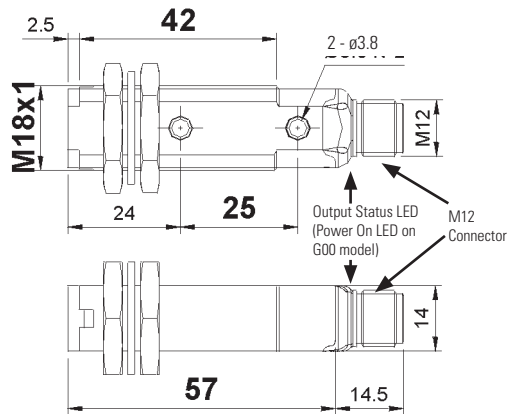
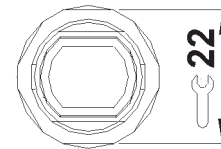
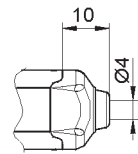
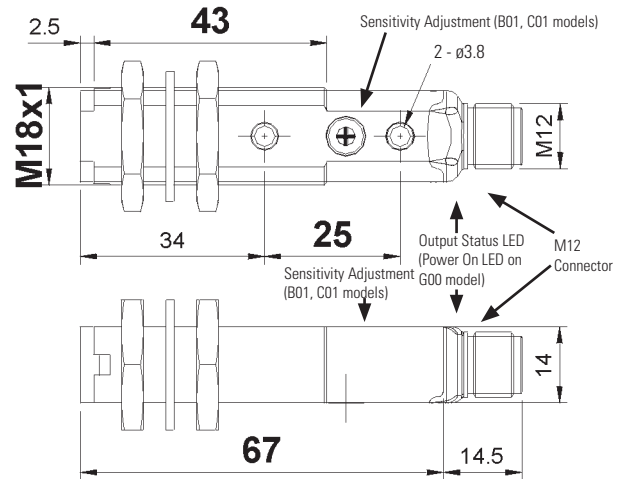
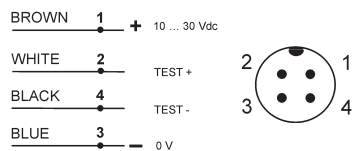
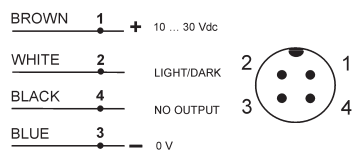
- Flat plastic housing
- Cable or M12 connection with NPN or PNP output
- Standard 3-wire connection configuration
- Selectable dark or light output

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.

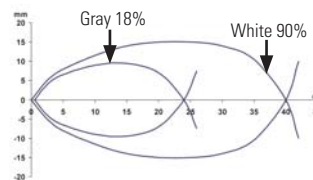


Specifications

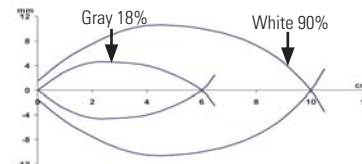
Long Diffuse Proximity Operating Distance	1 - 40cm
Short Diffuse Proximity Operating Distance	0 - 10cm
Retro-reflective Operating Distance	0.1 - 4m on R2
Polarized Retro-reflective Operating Distance	0.1 - 3m on R2
Through-beam Operating Distance	0 - 18m
Power Supply	10 - 30V DC ¹
Ripple	≤ 2 Vpp
Current 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

Detection Diagrams

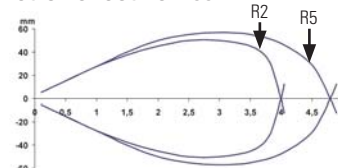
Long Diffused C01



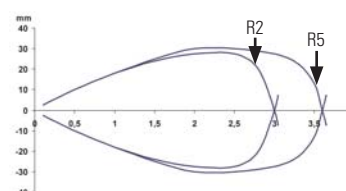
Short Diffused C10



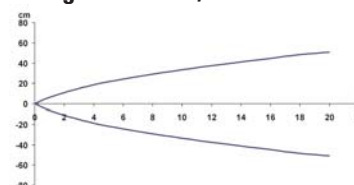
Retro-reflective A00



Polarized Retro-reflective B01

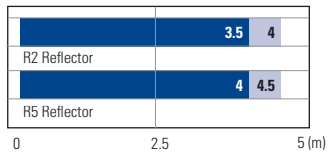
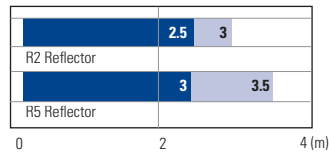
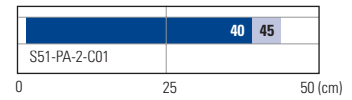


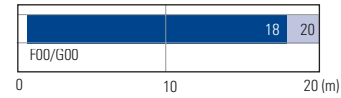
Through-beam F00/G00



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



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.