



## S10 SERIES INSTRUCTION MANUAL

### CONTROLS

#### OUTPUT LED (S10...A01/B01/C01/C11/C21/D01/F01/T01)

The yellow LED indicates the output status.

#### STABILITY LED (S10...A01/B01/C01/C11/C21/D01/F01)

green LED ON indicates that the received signal has a safety margin greater than 30% compared to the output switching value.

#### POWER ON LED (S10...G00)

The green LED indicates that the sensor is operating.

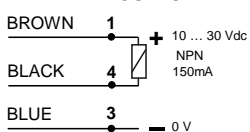
#### TRIMMER (S10...A01/B01/C01/C11/C21/D01/F01/T01)

The trimmer can be used to adjust sensitivity; the operating distance increases turning the trimmer clockwise.

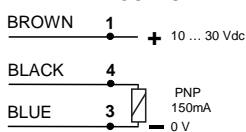
**WARNING:** The trimmer rotation is limited to 270° by a mechanical stop. Do not apply excessive torque when adjusting (max 40 Nmm).

### CONNECTIONS

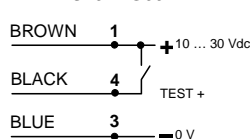
#### NPN OUTPUT



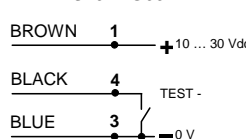
#### PNP OUTPUT



#### S10...G00-XE



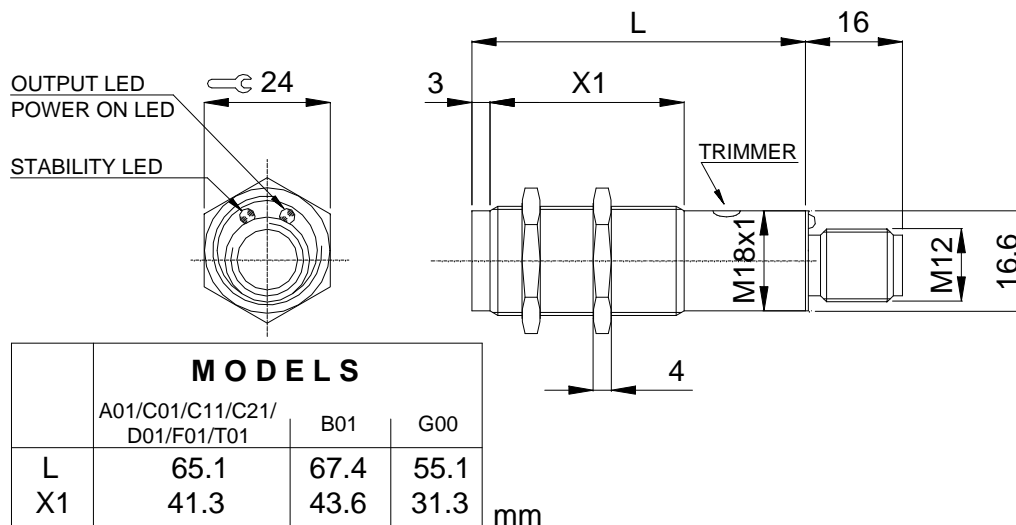
#### S10...G00-XF



#### M12 CONNECTOR



### DIMENSIONS



MODELS			
	A01/C01/C11/C21/ D01/F01/T01	B01	G00
L	65.1	67.4	55.1
X1	41.3	43.6	31.3

mm

### TECHNICAL DATA

Power supply:	10 ... 30 Vdc limit values
Ripple:	2 Vpp max.
Current consumption (output current excluded):	30 mA max.
Outputs:	NPN or PNP; 30 Vdc max. (short-circuit protection at 200 mA)
Output current:	150 mA max.
Output saturation voltage:	1 V max.
Response time:	1 ms max.
	2 ms max. mod. F01/G00
Switching frequency:	500 Hz max.
	250 Hz max. mod. F01/G00
Indicators:	OUTPUT LED (YELLOW) G00 mod. excluded STABILITY LED (GREEN) A01/B01/C01/C11/C21/D01/F01 mod. POWER ON LED (GREEN) G00 mod.
Setting:	sensitivity trimmer (G00 mod. excluded)
Selection Dark/Light:	selection light (L) selection dark (D)..
Operating temperature:	-25 ... 55 °C
Storage temperature:	-25 ... 70 °C
Dielectric strength:	500 Vac 1 min., between electronics and housing
Insulating resistance:	>20 MΩ 500 Vdc, between electronics and housing
Operating distance (minimum values):	A01: 0.1...4 m on R2 / B01: 0.1...3 m on R2 / T01: 0.1...0.8 m on R2 C01: 1...10 cm / C11: 1...35 cm / C21: 1...60 cm D01: 14 mm with 1.5 mm spot F01/G00: 0...18 m
Emission type:	infrared (880 nm) mod.A01/C01/C11/C21/G00 red (660 nm) mod.B01/D01/T01
Ambient light rejection:	according to EN 60947-5-2
Vibrations:	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing/connector material:	Nichel-plated brass (S10-MA vers.) / AISI 316L stainless steel (S10-NA vers.)
Lens material:	PMMA plastic
Mechanical protection:	IP69K
Connections:	metal M12 4-pole connector
Weight:	50 g. max.

### SETTING

The following procedures are valid for the LIGHT mode. The yellow Output LED (OUT) works in the opposite manner in the DARK mode models.

#### Alignment S10...A01/B01

Position the sensor and reflector on opposite sides.

Turn the sensitivity trimmer to maximum. Find the points where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal positions and fix the sensor in the centre between these points.

Optimum operation is obtained when both LEDs are switched ON.

If necessary, reduce sensitivity in order to detect very small targets.

In order to improve alignment, repeat the procedure detailed above whilst progressively reducing the sensitivity.

#### Alignment S10...T01

Position the sensor and reflector on opposite sides.

Turn the sensitivity trimmer to maximum. Find the points where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal positions and fix the sensor in the centre between these points.

If necessary, reduce sensitivity in order to detect transparent objects. In order to improve alignment, repeat the procedure detailed above whilst progressively reducing the sensitivity.

#### Alignment S10...F01/G00

Turn the sensitivity trimmer to maximum. Find the points where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal positions and fix the sensor in the centre between these points. Optimum operation is obtained when both LEDs are switched ON.

If necessary, reduce sensitivity using the trimmer, in order to detect very small targets. In order to improve alignment, repeat the procedure detailed above whilst progressively reducing the sensitivity.

#### Alignment S10...C01/C11/C21/D01

Position the sensor and turn the sensitivity trimmer at minimum:

The green LED is ON and the yellow LED is OFF.

Place the target opposite the sensor. Turn the sensitivity trimmer clockwise until the yellow LED

turns ON (*Target detected state, pos.A*).

Remove the target, the yellow LED turns OFF. Turn the trimmer clockwise until the yellow LED turns ON (*Background detected state, pos.B*).

The trimmer reaches maximum if the background is not detected.

Turn the trimmer to the intermediate position C, between the two positions A and B. The green LED must be ON.



### TEST FUNCTION (S10...G00)

The TEST input can be used to inhibit the emitter and verify that the system is correctly operating.

The receiver output should switch when the test is activated while the beam is uninterrupted.

The inputs activating voltage range is 10 ... 30 Vdc, whilst respecting the polarity.

#### DECLARATION OF CONFORMITY

We DATASENSOR S.p.A. declare under our sole responsibility that these products are conform to the 2004/108/CE, 2006/95/CE Directives and successive amendments.

#### WARRANTY

DATASENSOR S.p.A. warrants its products to be free from defects.

DATASENSOR S.p.A. will repair or replace, free of charge, any product found to be defective during the warranty period of 36 months from the manufacturing date.

This warranty does not cover damage or liability deriving from the improper application of DATASENSOR products.

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