

S6 SERIES INSTRUCTION MANUAL

CONTROLS

OUTPUT LED

The red LED indicates the output status.

STABILITY LED (S6/S6T/S6R-5-M25)

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

SENSITIVITY TRIMMER (S6/S6T/S6R-x-A/B/C/F/T)

ADJUSTMENT SCREW (S6/S6T/S6R-5-M25)

This control can be used to adjust sensitivity (trimmer) or cutoff distance (screw); the operating distance increases turning the control clockwise.

DARK/LIGHT TRIMMER (S6-1-A/B/C/F/T)

The DARK/LIGHT mode can be set rotating the trimmer counterclockwise or clockwise.

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

POWER ON LED (S6/S6T-x-G)

The red LED indicates that the sensor is operating.

CONNECTIONS

S6-5-A/B/C/M/T

RED → DARK-/LIGHT +

BROWN → + 10 ... 30 Vdc

BLUE → - 0 V

WHITE → 100mA NPN

BLACK → 100mA PNP

S6-5-F

RED → DARK-/LIGHT +

BROWN → + 10 ... 30 Vdc

BLUE → - 0 V

CYAN → PNP ALARM OUT 30mA

WHITE → 100mA NPN

BLACK → 100mA PNP

S6-5-G

BROWN → + 10 ... 30 Vdc

WHITE → TEST +

BLACK → TEST -

BLUE → - 0 V

S6R-5-A/B/C/F/M/T

NC (WHITE) → + 10 ... 30 Vdc (BROWN)

0 V (BLUE) → -

NO (BLACK)

S6T-5-G

TEST + (WHITE) → + 10 ... 30 Vdc (BROWN)

0 V (BLUE) → -

TEST - (BLACK)

S6T-5-A/B/C/F/M/T

DARK-/LIGHT (WHITE) → + 10 ... 30 Vdc (BROWN)

0 V (BLUE) → -

PNP (BLACK)

S6-1-A/B/C/F/T

RED → + 3A 250 Vdc RESISTIVE LOAD

BROWN → + 15 ... 264 Vdc/Vdc

BLUE → -

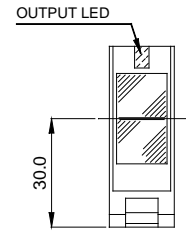
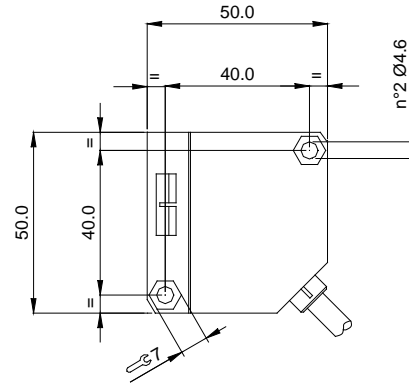
BLACK → -

S6-1-G

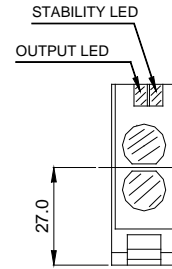
BLACK → + 15 ... 264 Vdc/Vdc

BLUE → -

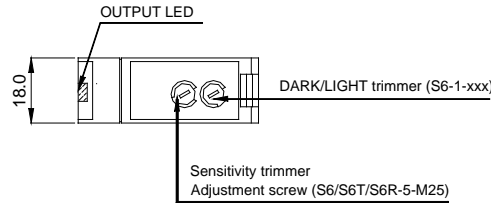
DIMENSIONS



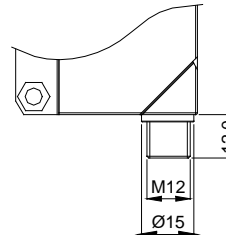
S6/S6T/S6R-5-M25



M12 CONNECTOR
S6T/S6R-5-xx



mm



TECHNICAL DATA

	S6/S6T/S6R-5-xx	S6-1-xx
Power supply:	10 ... 30 Vdc limit values	15 ... 264 Vac (48 ... 60 Hz) limit values
Ripple:	2 Vpp max.	-
Current consumption (output current excluded):	30 mA max.	40 mA max.
Output:	S6: NPN/PNP; 30 Vdc max. S6T: PNP; 30 Vdc max. S6R: NPN or PNP NC/NO; 30 Vdc max.	Relay 1 NO and NC contact 250 Vac, 30 Vdc min. applicable load: 5 Vdc, 10 mA
Output current:	100 mA max. (short-circuit protection)	3 A max. (resistive load)
Output saturation voltage:	1.5 V max. (NPN/PNP output)	-
Response time:	1 ms max. / 2 ms max. mod. F/G	30 ms max.
Switching frequency:	500 Hz max. / 250 Hz max. mod. F/G	2 Hz max.
Indicators:	OUTPUT LED (RED) / STABILITY LED (GREEN) mod. M25 / POWER ON LED (RED) mod. G	
Setting:	sensitivity trimmer excluding mod. G/M10 adjustment screw mod. M25	sensitivity trimmer excluding mod. G dark/light trimmer excluding mod. G
Operating temperature:		-25 ... 55 °C
Storage temperature:		-25 ... 70 °C
Electric shock protection:	Class 2	Class 1
Operating distance (minimum):	A6 0.1 ... 6 m on R2 / B5 0.1 ... 5 m on R2 / T1: 0.1 ... 1 m on R2 C90: 1 ... 90 cm / C200: 1 ... 200 cm M10: 3 ... 10 cm / M25: 3 ... 25 cm F20/G20: 0 ... 20 m	
Emission type:	INFRARED (880 nm) / RED (660 nm) mod. B/T/M10	
Ambient light rejection:	according to EN 60947-5-2	
Vibration:	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)	
LIGHT/DARK selection:	cable or connector	trimmer
Housing:	ABS UL 94V-O	
Lenses:	PMMA plastic	
Protection class:	IP65	
Connections:	2 m cable Ø 6 mm vers. S6-1 and Ø 5 mm vers. S6-5 / M12 4-pole connector vers. S6T/S6R	
Weight:	160 g. max. cable versions / 40 g. max. connector versions	

SETTING

The following procedures are valid for LIGHT mode operation.

Alignment S6/S6T/S6R-x-A/B/T

Position the sensor and reflector on opposite sides. Turn the sensitivity trimmer to maximum. Find the points where the red 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 using the trimmer, in order to detect very small or transparent targets. In order to improve alignment, repeat the procedure detailed above whilst progressively reducing the sensitivity.

Alignment S6/S6T/S6R-x-F/G

Position the sensors on opposite sides. Turn the sensitivity trimmer to maximum. Find the points where the red 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 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 S6/S6T/S6R-x-C

Position the sensor and turn the sensitivity trimmer at minimum: the red LED is OFF. Place the target opposite the sensor. Turn the sensitivity trimmer clockwise until red LED turns ON. (Target detected state, pos.A).

Remove the target, the red LED turns OFF. Turn the trimmer clockwise until the red 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.

Alignment S6/S6T/S6R-5-M25

Position the sensor and turn the adjustment screw to maximum. Place the target opposite the sensor at a slightly greater distance than desired. Turn the screw counterclockwise until the sensor switches. Verify the adjustment moving the target closer and further the sensor; tune the adjustment if necessary.

It is recommended to operate with the stability LED turned ON.

TEST FUNCTION (S6/S6T-5-G)

The TEST+ and TEST- inputs 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.

ALARM FUNCTION (S6/S6T-5-F)

The alarm output switches ON whenever the received signal remains without a safety margin (greater than 30% compared to the output switching level) for longer than 3 seconds.

The sensors are NOT safety devices, and so MUST NOT be used in the safety control of the machines where installed.

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The warranty period for this product is 36 months. See General Terms and Conditions of Sales for further details.



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S6R-5-M10/M25/M50 Background suppression proximity

S6R-5-N20 Foreground and background suppression proximity

INSTRUCTION MANUAL

CONTROLS

OUTPUT LED

The red LED indicates the output status.

STABILITY LED (S6R-5-M25/M50/N20)

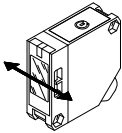
The green LED ON indicates that the received signal has a reserve greater than 30% compared to the output switching value.

ADJUSTMENT SCREW (S6R-5-M25/M50/N20)

This control can be used to adjust the foreground and/or background suppression distance.

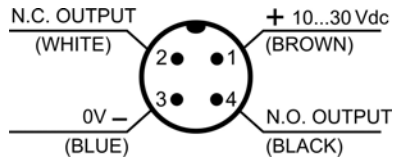
INSTALLATION

The target must move orthogonally respect to the short side of the lens, to get the correct reading.

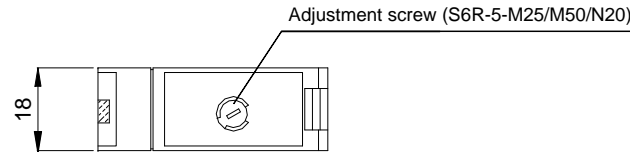
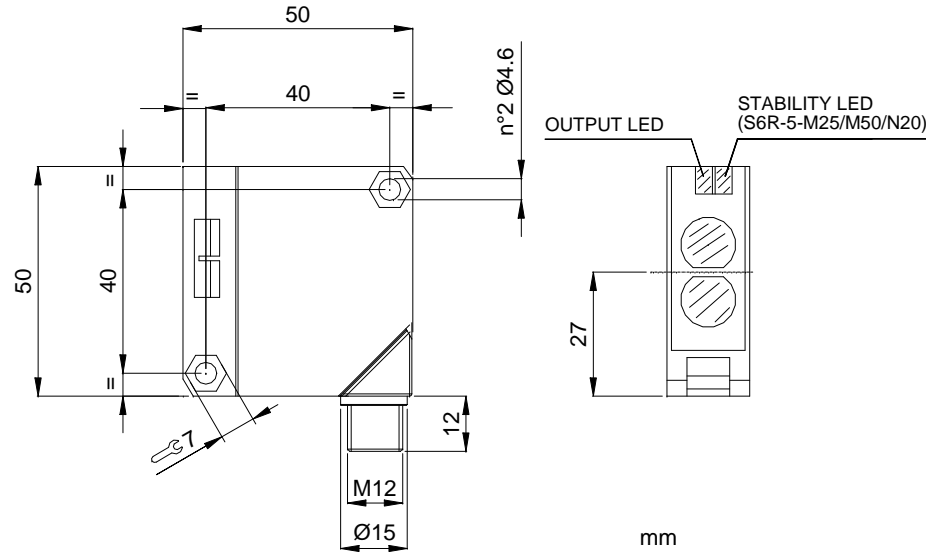


CONNECTIONS

The connections are configurated in compliance with the standard EN 60947-5-2.



DIMENSIONS



TECHNICAL DATA

Power supply:	10 ... 30 Vdc limit values
Ripple:	2 Vpp max.
Current consumption (output current excluded):	30 mA max.
Outputs:	PNP or NPN N.O./N.C.; 30 Vdc max.
Output current:	100 mA max. (short-circuit protection)
Output saturation voltage:	1.5 V max. (NPN/PNP output)
Response time:	1ms max.
Switching frequency:	500Hz max.
Indicators:	OUTPUT LED (RED) / STABILITY LED (GREEN)
Setting:	adjustment screw (S6R-5-M25/M50/N20)
Operating temperature:	-25 ... 55 °C
Storage temperature:	-25 ... 70 °C
Electric shock protection:	Class 2
Operating distance (minimum):	3...10cm (S6R-5-M10) / 3...25cm (S6R-5-M25) / 10...50cm (S6R-5-M50) 5...20cm foreground suppression area (S6R-5-N20) 12...110cm background suppression (S6R-5-N20)
Emission type:	INFRARED LED 880nm (S6R-5-M20/M25/N20) RED LED (S6R-5-M10)
Ambient light rejection:	according to EN 60947-5-2
Vibration:	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)
LIGHT/DARK selection:	by N.O./N.C. output
Housing:	ABS UL 94V-O
Lenses:	PMMA plastic
Mechanical protection:	IP65
Connections:	M12 4-pole connector
Weight:	40 g. max.

SETTING

S6R-5-M10 setting

Position the sensor in front of the background.
Move the sensor on the background until the red output LED turns off (move away if the output LED is ON).
The sensor is now ready to detect any object inside the operating range (output LED turns on).

S6R-5-M25/M50 setting

Place the background opposite the sensor.
Turn the adjustment screw counterclockwise until the RED OUTPUT LED turns OFF and the STABILITY LED turns ON.
During this phase it is very important to not move the background and/or the sensor, to avoid any setting failure.
Place the object in the detection area and verify that the STABILITY LED turns ON and the switching has occurred.

S6R-5-N20 setting

Place the target opposite the sensor.
Turn the adjustment screw counterclockwise, until the RED OUTPUT LED turns OFF and the STABILITY LED turns ON.
Turn the adjustment screw clockwise until the RED OUTPUT LED and the STABILITY LED turns ON.
The OUTPUT LED has to turn OFF when the target is moved closer to the sensor (foreground suppression area).

The sensors are NOT safety devices, and so MUST NOT be used in the safety control of the machines where installed.

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