

S3 SERIES INSTRUCTION MANUAL

CONTROLS

OUTPUT LED

The red LED indicates the output status.

STABILITY LED (S3-x-A2.5/B2/C10/C50/D12/E1/F5)

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

TRIMMER (S3-x-A2.5/B2/C10/C50/D12/E1/F5/T0.8)

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).

POWER ON LED (S3-x-G5)

The red LED indicates that the sensor is operating.

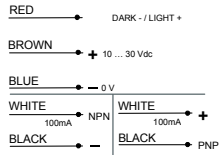
LOCK SCREW (S3-x-E1)

The screw is used to correctly lock the fibres. Unscrew before inserting, then screw for final locking.

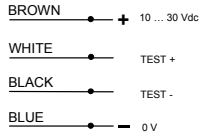
CONNECTIONS

CABLE VERSIONS

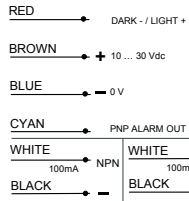
S3-5-A/B/C/D/E/T



S3-5-G5

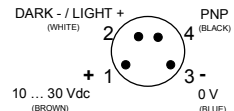


S3-5-F5

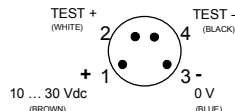


M8 CONNECTOR VERSIONS

S3T-x-A/B/C/D/E/F/T

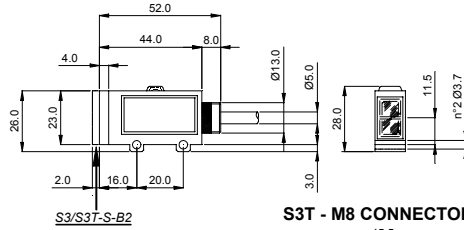


S3T-x-G5

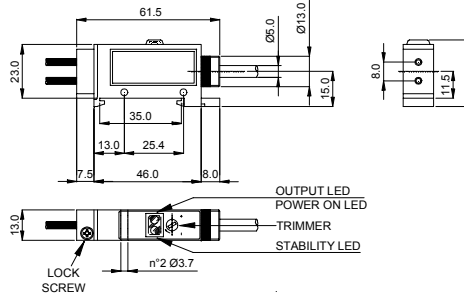


DIMENSIONS

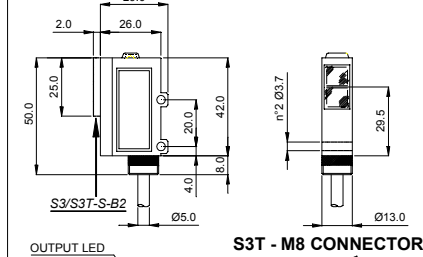
S3-S-A2.5/B2/C10/C50/D12/F5/G5/T0.8



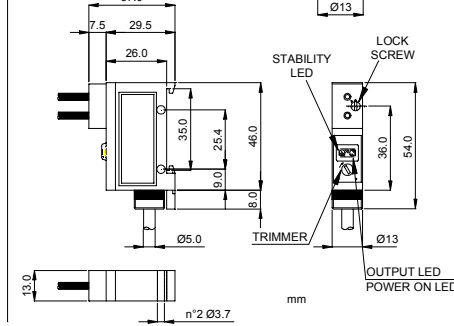
S3-S-E1



S3-R-A2.5/B2/C10/C50/D12/F5/G5/T0.8



S3-R-E1



TECHNICAL DATA

Power supply:	10 ... 30 Vdc limit values
Ripple:	2 Vpp max.
Current Consumption (output current excluded):	30 mA max.
Output:	NPN/PNP, 30 Vcc max. vers. S3 / PNP, 30 Vcc max. vers. S3T (short-circuit protection)
Output current:	100 mA max.
Output saturation voltage:	1.5 V max.
Response time:	1 ms max. / 2 ms max. mod. F5/G5
Switching frequency:	500 Hz max. / 250 Hz max. mod. F5/G5
Indicators:	OUTPUT LED (RED) / STABILITY LED (GREEN) / POWER ON LED (RED) mod. G5
Setting:	sensitivity trimmer mod. A2.5/B2/C10/C50/D12/E1/F5/T0.8
Operating temperature:	-25 ... 55 °C
Storage temperature:	-25 ... 70 °C
Electric shock protection:	Class 2
Operating distance (minimum):	T0.8: 0.2 ... 0.8 m on R2 / A2.5: 0.1 ... 2.5 m on R2 / B2: 0.1 ... 2 m on R2 C10: 0 ... 10 cm / C50: 0 ... 50 cm / D12: 10 ... 15 mm F5/G5: 0 ... 5 m E1 (OF-18/22/24): 33 mm / E1 (OF-19/23): 110 mm / E1 (OF-20): 12 mm / E1 (OF-21): 65 mm / E1 (OF-25): 25 mm / E1 (OF-26/28): 5 mm
Emission type:	INFRARED (880 nm) / RED (660 nm) mod. B2/D12/E1/T0.8
Ambient light rejection:	according to EN 60947-5-2
Vibration:	10 ... 55 Hz, 1.5 mm amplitude in each X, Y, Z axis for 2 hours
Shock resistance:	500 ms (approx. 50 G) 3 shock in each 3 axis
LIGHT/DARK selection:	cable or connector
Housing:	ABS UL 94V-0 (TYPE 1 ENCLOSURE)
Lenses:	PMMA plastic
Protection class:	IP66
Connections:	2 m cable Ø 5 mm vers. S3 / M8 4-pole connector vers. S3T
Weight:	90 g. max. cable versions / 20 g. max. connector versions

SETTING

The following procedures are valid for LIGHT mode operation.

Alignment S3-x-A2.5/B2/T0.8

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 S3-x-F5/G5/E1 (E/R fibres)

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. Optimum operation is obtained when both LEDs switch 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 S3-x-C10/C50/D12/E1 (proximity fibres)

Position the sensor and turn the sensitivity trimmer at minimum: The green LED is ON and the red LED is OFF. Place the target opposite the sensor. Turn the sensitivity trimmer clockwise until the 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. The green LED must be ON.



TEST FUNCTION (S3/S3T-x-G5)

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 (S3/S3T-5-F5)

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.

DECLARATION OF CONFORMITY

We DATASENSOR S.p.A. declare under our sole responsibility that these products are conform to the 89/336 CEE, 73/23 CEE 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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S3W SERIES INSTRUCTION MANUAL

CONTROLS

OUTPUT LED

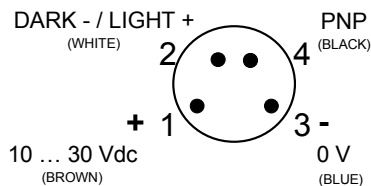
The red LED indicates the output status.

TRIMMER

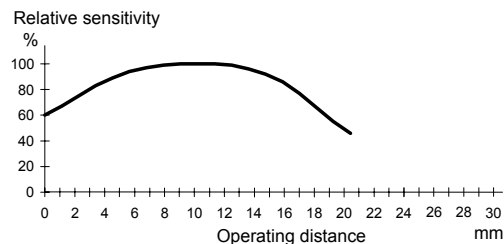
The trimmer can be used to adjust sensitivity; the operating distance increases turning the trimmer clockwise.

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

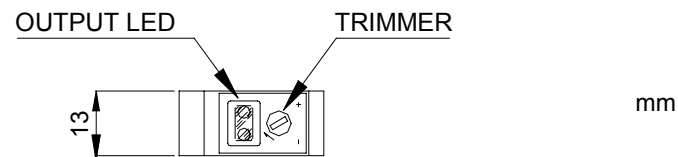
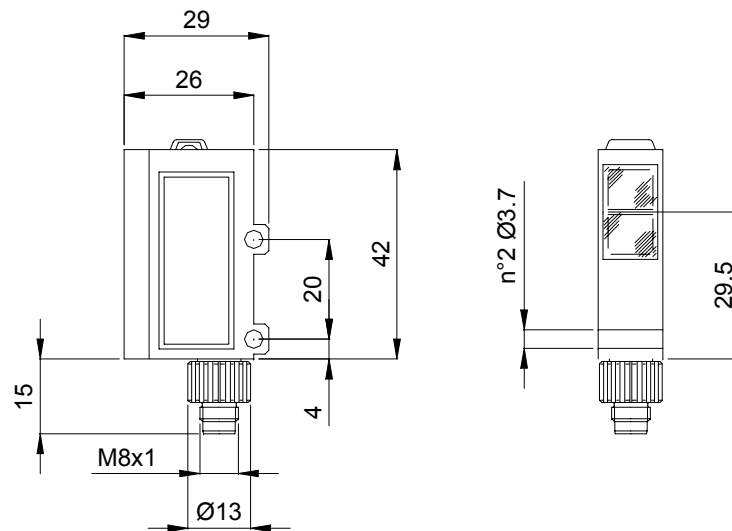
CONNECTIONS



DETECTION DIAGRAM



DIMENSIONI D'INGOMBRO



TECHNICAL DATA

Power supply:	10 ... 30 Vdc limit values
Ripple:	2 Vpp max.
Current consumption (output current excluded):	30 mA max.
Output:	PNP, 30 Vcc max. (short-circuit protection)
Output current:	100 mA max.
Output saturation voltage:	1.5 V max.
Response time:	333 µs max.
Switching frequency:	1500 Hz max.
Indicators:	OUTPUT LED (RED)
Setting:	sensitivity trimmer
Operating temperature:	-25 ... 55 °C
Storage temperature:	-25 ... 70 °C
Electric shock protection:	Class 2
Operating distance (minimum):	10 ... 12 mm
Minimum spot dimension:	Ø4 mm
Depth of field:	± 2 mm
Emission type:	LED with white light (400-700 nm)
Ambient light rejection:	according to EN 60947-5-2
Vibration:	10 ... 55 Hz, 1.5 mm amplitude in each X, Y, Z axls for 2 hours
Shock resistance:	500 ms (approx. 50 G) 3 shock in each 3 axls
LIGHT/DARK selection:	by connector
Housing:	ABS UL 94V-O (TYPE 1 ENCLOSURE)
Lenses:	PMMA plastic
Protection class:	IP66
Connections:	M8 4-pole connector
Weight:	20 g. max.

SETTING

Alignment procedure with dark mark on light background.

The following procedures are valid for DARK mode operation. Position the sensor and turn the sensitivity trimmer at maximum.

Place the mark opposite the sensor.

Turn the coarse sensitivity trimmer unclockwise until red LED turns ON (*Mark detected state*).

Place the background opposite the sensor and the red LED turns OFF.



Alignment procedure with light mark on dark background.

The following procedures are valid for LIGHT mode operation. Position the sensor and turn the sensitivity trimmer at maximum.

Place the mark opposite the sensor.

Turn the coarse sensitivity trimmer unclockwise until red LED turns ON (*Mark detected state*).

Place the background opposite the sensor and the red LED turns OFF.



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