



## S8-MH...B Laser

*Polarised Retroreflex*



## S8-MH...M Laser

*Background suppression*

### INSTRUCTION MANUAL



### CONTROLS

**LED DI USCITA (giallo)**  
Il LED giallo acceso indica lo stato dell'uscita.  
**OUTPUT LED (yellow)**  
The yellow LED ON indicates the output status.

**POWER ON LED (green)**  
The green LED ON indicates the powering status and the laser emission presence.

**SENSITIVITY TRIMMER (ADJ.) (S8...B)**  
The sensitivity and operating distance can be adjusted using this trimmer. See the "SETTING" paragraph for procedure indications.

**DISTANCE ADJUSTMENT TRIMMER (ADJ.) (S8...M)**  
The multiturn trimmer with clutch (8 turns) adjusts the suppression distance through the mechanical variation of the optic triangulation angle. The operating distance increases rotating the trimmer in a clockwise direction. Please refer to the "SETTING" paragraph for the correct procedure.

**LIGHT/DARK TRIMMER**  
The light/dark mode can be selected using this mono-turn trimmer. See the "SETTING" paragraph for procedure indications.

**WARNING: the maximum mechanical rotation range of the TEACH-IN trimmer is 240°. Do not force over of the maximum and minimum positions.**

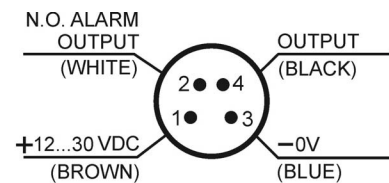
### INSTALLATION

The sensor can be positioned by means of the two housing holes using two screws (M3x18 or longer, 0.8 Nm maximum tightening torque) with washers. Several fixing brackets are available which can be oriented in various positions to ease the sensor installation, (please refer to the accessories listed in the general catalogue). The operating distance is measured from the front surface of the sensor optics.

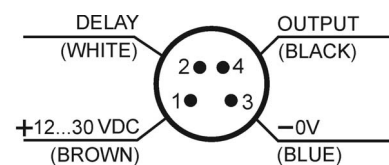


### CONNECTIONS

#### S8...B



#### S8...M



### TECHNICAL DATA

	S8...B	S8...M
Power supply:	12 ... 30 VDC Class 2 Type 1 UL508	
Ripple:	2 Vpp max.	
Consumption (output current excluded):	30 mA max	
Outputs:	PNP and NPN; 30 Vdc max. (short-circuit protection)	
Output current:	100 mA (overload protection)	
Output saturation voltage:	≤ 2 V	
Response time:	50 μs	100 μs
Switching frequency:	10 KHz	5 KHz
Emission type:	RED LASER (λ = 645...665nm): Class 1 IEC 60825-1 (2014), Class II CDRH 21 CFR PART 1040.10 Pulsed emission: pot. max ≤ 5 mW; pulse duration = 3 μs; frequency = 40kHz (S8...B) / 20kHz (S8...M) / 10kHz (S8...M53)	
Spot dimension:	< 0.5 mm @ 500 mm	< 0.2 mm @ 110 m
Operating distance (typical values):	see tab.1	20...200 mm
Setting:	Sensitivity trimmer	8 turns distance adj. trimmer
LIGHT/DARK selection:	Mono-turn trimmer	
Indicators:	OUTPUT LED (yellow) / POWER ON LED (green)	
Operating temperature:	-10 ... 55 °C	
Storage temperature:	-20 ... 70 °C	
Dielectric strength:	1500 VAC 1 min between electronic parts and housing	
Insulating resistance:	>20 MΩ 500 VDC between electronic parts and housing	
Ambient light rejection:	according to EN 60947-5-2	
AtEx 2014/34/EU:	II 3G Ex nA II T6° II 3D Ex tD A22 IP67 T85°C	
Vibrations:	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)	
Shock resistance:	11 ms (30 G) 6 shocks per every axis (EN60068-2-27)	
Housing material:	INOX AISI 316L	
Lens material:	window in PMMA; lens in PC	
Mechanical protection:	IP67; IP69K	
Connections:	M8 4-pole connector	
Weight:	70 g. max.	

### S8...B SETTINGS

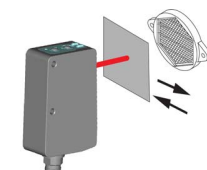
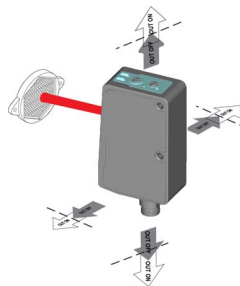
#### DARK/LIGHT MODE SETTING

LIGHT mode: Rotate trimmer in an anti-clockwise.  
DARK mode: Rotate trimmer in a clockwise.



#### SENSITIVITY SETTING

**Alignment:** Position and align the sensor and reflector on opposite side at the desired distance. Rotate sensitivity adjustment trimmer (ADJ.) to maximum point (clockwise direction). Move the sensor vertically and horizontally to determine the powering on and powering off points of the yellow LED (OUT) and fix the sensor in the middle of these two points. To detect very small objects, reduce the sensitivity using the specific trimmer (if necessary). Repeat procedure reducing progressively the sensitivity to improve alignment.



#### Control:

Enter object laterally in the detection area and check that the yellow LED turns ON (in dark mode). Remove object and check that the yellow LED turns OFF immediately (in dark mode).

#### ALARM OUTPUT

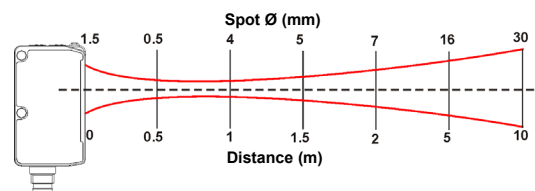
The alarm output is active (ON) when the received signal remains without safety margin for more than 1 second (30% respect to output switching value).

### S8...B PERFORMANCES

TAB.1: Operative distance

REFLECTOR	R2	R6	R7	R8
	10 m	10 m	12 m	1 m

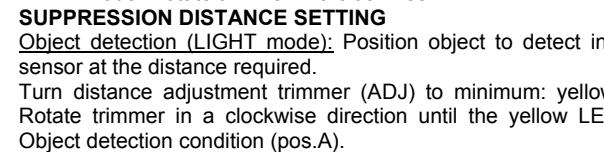
N.B.: Si sconsiglia l'uso della pellicola riflettente RT3970.



### S8...M SETTINGS

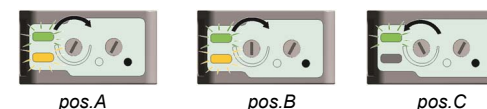
#### DARK/LIGHT MODE SETTING

LIGHT mode: Rotate trimmer in an anti-clockwise.  
DARK mode: Rotate trimmer in a clockwise.

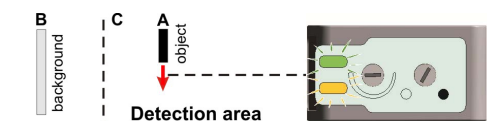


#### SUPPRESSION DISTANCE SETTING

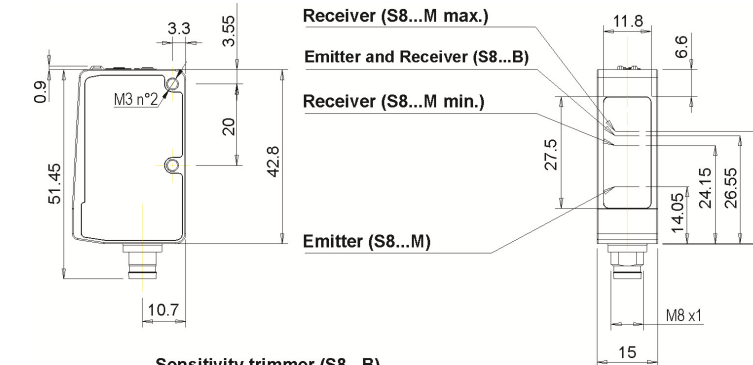
**Object detection (LIGHT mode):** Position object to detect in front of the sensor at the distance required. Turn distance adjustment trimmer (ADJ) to minimum: yellow LED OFF. Rotate trimmer in a clockwise direction until the yellow LED turns ON: Object detection condition (pos.A).



**Background detection:** Remove object and ensure that the background is in front of the sensor: yellow LED OFF. Rotate trimmer in a clockwise direction until the yellow LED turns ON: background detection condition (pos.B). The trimmer reaches maximum level with yellow LED OFF if the background is outside the operating range. Rotate trimmer in an anticlockwise direction until yellow LED turns OFF: condition where background is outside operating range (pos.C). **Setting and control:** Rotate trimmer in an anti-clockwise direction until the trimmer reaches an intermediate point between position A and C. If position A and C are close to each other, leave trimmer on position C. The sensor is now ready to function correctly and in stable conditions.



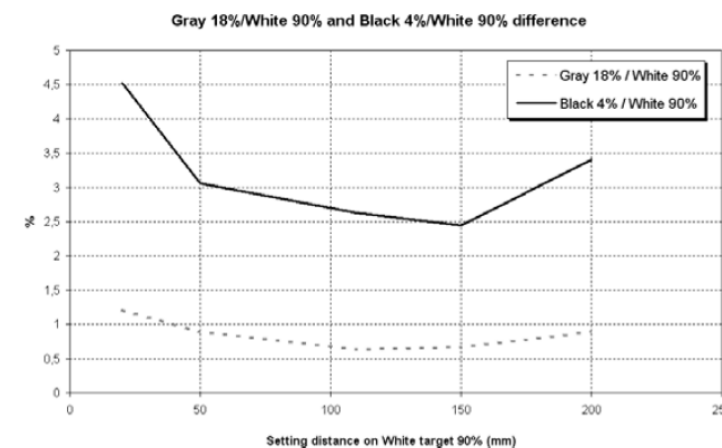
### DIMENSIONS



Sensitivity trimmer (S8...B)  
Distance Adjustment trimmer (S8...M)



### DETECTION DIAGRAM



### SAFETY PRECAUTIONS

All the safety electrical and mechanical regulations and laws have to be respected during sensor functioning. The sensor has to be protected against mechanical damages. Place the given labels in a visible position close to the laser emission.

*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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