



S8-PH...M Laser
Background suppression

INSTRUCTION MANUAL



CONTROLS

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.

DISTANCE ADJUSTMENT TRIMMER (ADJ.)
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 "SETTING" paragraph for the correct use procedure.

LIGHT/DARK TRIMMER
The light/dark mode is selected using a mono-turn trimmer. Please refer to "SETTING" paragraph for the correct use procedure.

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

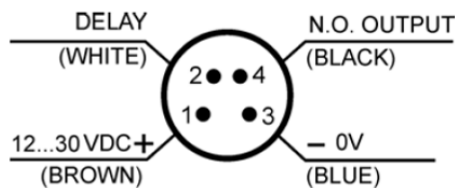
INSTALLATION

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

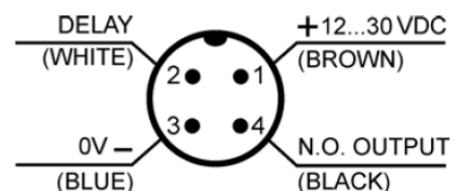


CONNECTIONS

M8 connector



Pig-tail with M12 connector



TECHNICAL DATA

Power supply:	12 ... 30 Vdc
Ripple:	2 Vpp max.
Consumption (output current excluded):	30 mA max
Outputs:	PNP or NPN N.O.; 30 VDC max. (short-circuit protection)
Output current:	100 mA (overload protection)
Output saturation voltage:	≤ 2 V
Response time:	100 μs
Switching frequency:	5 kHz
Emission type:	RED LASER (λ = 645...665nm): Class 2 EN 60825-1, Class II CDRH 21 CFR PART 1040.10 Pulsed emission: pot. max ≤ 5 mW; pulse duration = 3 μs; frequency = 20 kHz
Focalisation point:	110 mm
Spot dimension:	< 0.2 mm (a 110 mm)
Operating distance (typical values):	20...200 mm
Setting:	8-turn distance adjustment trimmer
LIGHT/DARK selection:	Mono-turn trimmer
Difference (90% white / 4% black)	< 5 % (refer to DETECTION DIAGRAM)
Hysteresis (90% white):	< 1 %
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
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:	ABS
Lens material:	PMMA window; PC lens
Mechanical protection:	IP67
Connections:	M8 4-pole connector / 150 mm cable Ø 4 mm with M12 4-pole connector (pig-tail)
Weight:	12 g. max. connector version / 35 g. pig-tail version

SETTING

LIGHT MODE SETTING

Rotate trimmer in an anti-clockwise direction to set the LIGHT mode (output ON when object is detected).



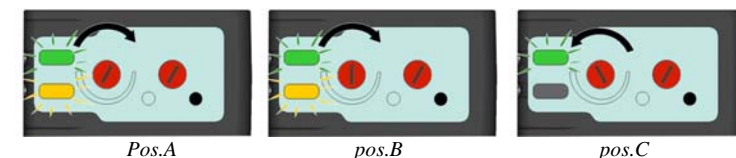
DARK MODE SETTING

Rotate trimmer in a clockwise direction to set the DARK mode (output ON with background).

SUPPRESSION DISTANCE SETTING

1. Object detection
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).



2. 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).

3. 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.



DELAY SETTING

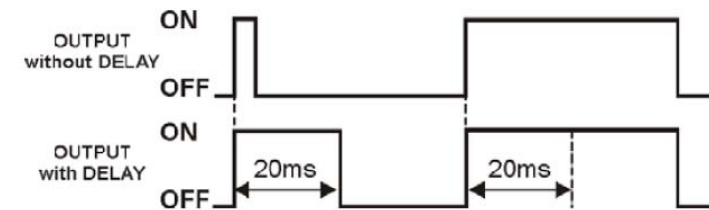
The DELAY extends to 20ms the minimum duration of the output activation allowing even slower interfacing systems to detect shorter pulses.

Delay activation

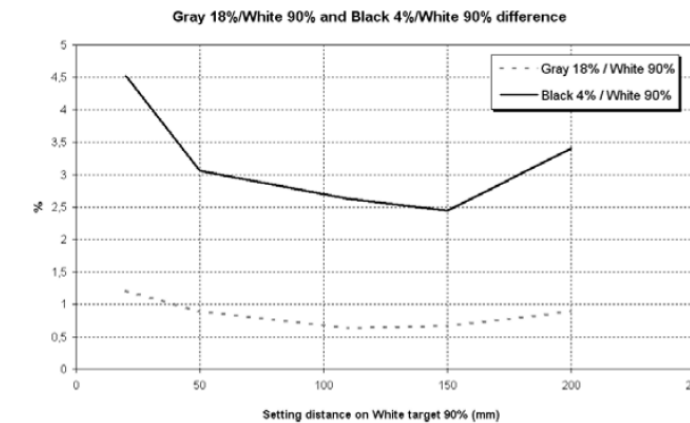
- Connect Delay signal (white wire) to power supply.

Delay de-activation

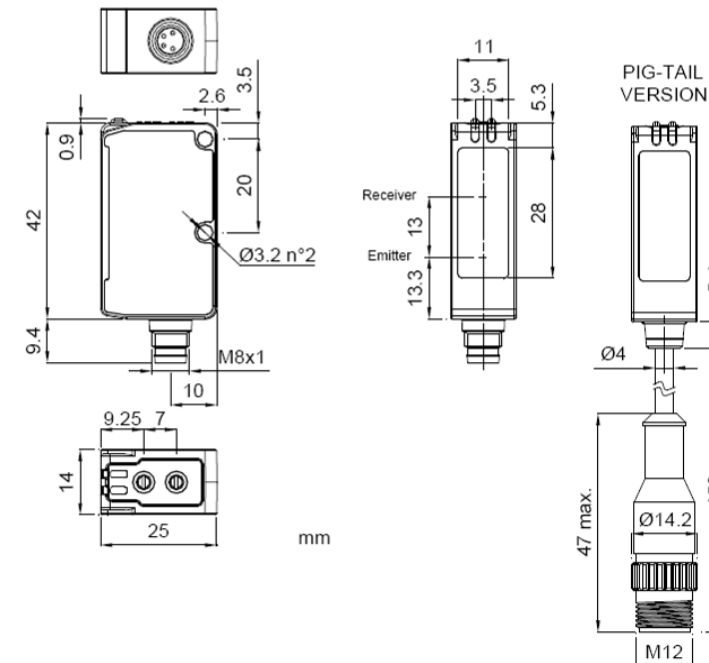
- Connect Delay signal (white wire) to 0V or leave it disconnected.



DETECTION DIAGRAM

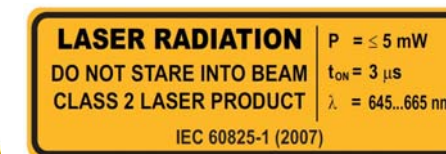


DIMENSIONS



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.



Do not look directly into the laser beam!
Do not point the laser beam towards people!
Eye irradiation for over 0.25 seconds is dangerous; refer to class 2 standard (EN60825-1). These sensors are not conform to safety applications!

DECLARATION OF CONFORMITY
We DATALOGIC AUTOMATION declare under our sole responsibility that these products are conform to the 2004/108/CE and successive amendments.

WARRANTY
DATALOGIC AUTOMATION warrants its products to be free from defects. DATALOGIC AUTOMATION 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 DATALOGIC AUTOMATION products.

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