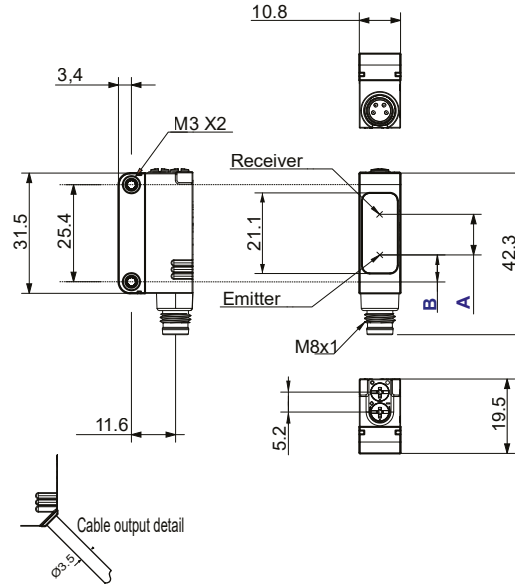




## DIMENSIONS

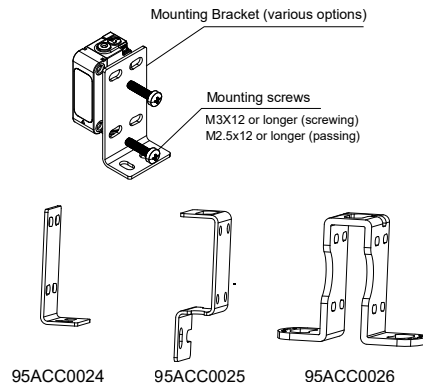
NOTE: "A" and "B" values in the following drawing are indicated in the "Optical Interaxes" table.



Optical Interaxes		
Version	A	B
S3N-PH-X-B01-XX	6.2	7.2
S3N-PH-X-M01-XX	10.7	7.2
S3N-PH-X-FG01-XX (EMITTER)	---	13.8
S3N-PH-X-FG01-XX (RECEIVER)	14.2	---

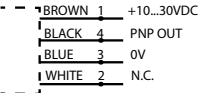
## INSTALLATION

The sensor can be positioned by mean of the two threaded holes (M3) using two screws (M3x12 or longer, or M2.5 passing screw + nuts) and relative washers. Maximum tightening torque is 0.4Nm. Various brackets are available to ease the sensor positioning (please refer also to accessories listed in the catalogue)

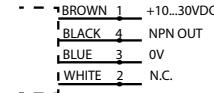


## CONNECTIONS

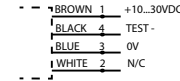
### PNP



### NPN



### G01



### M8 CONNECTOR



## SETTINGS

**S3N-PH-X-B01-XX** Position the sensor and reflector on opposite sides of the sensing range. Turn the sensitivity trimmer to the maximum. Adjust the direction of the sensor in the middle of the angular sensing range. To perform this procedure: find the angles where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal directions, and fix the sensor at the center between these angles. Adjust sensitivity (sensitivity knob) to match your application requirements. The optimal operation result is obtained when the green LED turns ON. Adjust the L/D function to match your application requirements.

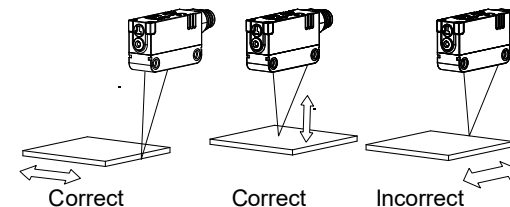
Tab.1: S3N-PH-X-B01-XX operating distance table (m)

Available Reflectors	REFLECTORS							
	R1	R2	R3	R4	R5	R6	R7	
-B01	5	12	8	10	14	12	12	

**S3N-PH-FG01-X** Position the emitter and receiver on opposite sides of the desired sensing range. Once the position of the receiver is defined (F01), adjust the direction of the transmitter (G01) in the middle of the angular sensing range. To perform this procedure: find the angles where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal directions, then fix the emitter in the center between these angles. Adjust sensitivity (sensitivity knob) to match your application requirements. The optimal operation result is obtained when the green LED turns ON. Adjust the L/D function to match your application requirements.

**S3N-PH-X-M01-XX** Position the sensor and turn the adjustment screw to maximum (clockwise). Place the target in front of the sensor at a slightly greater distance than the desired one. Turn the screw counterclockwise until the sensor switches. Verify the adjustment moving the target closer and farther the sensor; tune the adjustment if necessary. Adjust the L/D function to match your application requirements

NOTE: This sensor can detect objects correctly when the sensor head is installed perpendicular to the moving object. Install the sensor head as shown below to minimize sensing errors.



## TECHNICAL DATA

	S3N-PH-B01	S3N-PH-FG01	S3N-PH-M01
Power Supply:	10-30 Vdc; reverse polarity protected		
Ripple:	p-p 10% max.		
Current consumption	≤35mA (≤50mA below 12V supply)		
Output:	PNP or NPN (short circuit protected);		
Output current:	100 mA max.		
Saturation voltage:	2 V max.		
Response time:	0.25 ms	0.25 ms	0.25 ms
Switching frequency:	2kHz	2kHz	2kHz
Indicators	Yellow: output status (G01 excluded) Green: Power ON		
Setting:	Sensitivity: 1 turn G01: none	6 turns adjustment screw	
	On dual trimmer models: L/D selector Single trimmer models and G01: None		
Operating Temperature:	-20°C...55°C (not condensing)		
Storage Temperature:	-40 ... +70 °C		
W/G and W/B difference:	n.a.	w/g=2%, w/b=5%	
Operating distance:	0.1...12m on R7	30m	150mm (W/B<1%), 600mm (White90%)
Emission Type:	Laser Light 650nm (red) Class 1 Laser product IEC 60825-1 Ed.3 2014		
Ambient light rejection:	According to 60947-5-2 plus reinforced immunity (internal test)		
Vibration:	0.5 mm amplitude, 10 ... 55 Hz frequency, for each axis (EN60068-2-6)		
Shock resistance:	11 ms (30 G) 6 shock for each axis (EN60068-2-27)		
LIGHT/DARK selection:	By selector (dual trimmer models)		
PNP/NPN Output:	Selection by purchasing code		
Housing:	Body: Glass filled technopolymer Indicators: TPE Actuators: POM		
Lenses:	PMMA		
Protection class:	IP67		
Connections:	On S3N-PH-2-xxxx: 2m 3 poles cable Ø3.5mm; On S3N-PH-5-xxxxx M8 connector 4 poles		
Weight:	50 g. max. cable versions / 10 g. connector versions		

# S3N SERIES

## LASER MODELS

### Safety Precautions

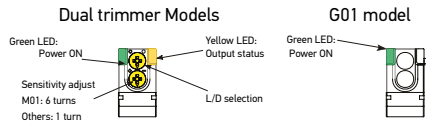
Read the precautions for all models at <http://www.datasensing.com>.

- WARNING: This product is not designed or rated to ensure personal safety either directly or indirectly. Do not use it for such purposes.
- WARNING: Do not exceed the rated voltage. There is a possibility of failure and fire.
- CAUTION: Do not use this product above its IP protection ratings. Failing to do so may damage its components.
- CAUTION: DC models shall never be used with AC mains power supply. Failing to do so may result in explosions or other damage.
- CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- ATTENTION: L'utilisation de commandes ou d'ajustements ou l'exécution de procédures autres que celles spécifiées ici peut entraîner une exposition à des rayonnements dangereux.
- CAUTION: Do not disassemble this product. Doing so may cause exposure to the built-in light source which can damage eyes and skin. Never disassemble it.

## DESCRIPTION

The Photoelectric sensors of the S3N series are characterized by compact dimensions, rugged package, excellent performances and wide range of models. The range of optic functions of Laser models subfamily includes: Polarized retroreflex, Barrier and background suppression. All models are available with 2m cable or M8 connector connection, with Light/Dark function selection knob and 100mA NPN or PNP output.

## GENERAL CONTROLS



### Sensitivity knob

This control can be used to adjust the cutoff distance (1 turn); the operating distance increases turning the control clockwise.

### Adjustment screw (S3N-PH-X-M01)

This control can be used to adjust the cutoff distance (6 turns screw); the operating distance increases turning the control clockwise.

### Dark/Light Trimmer (S3N-PH-B01/F01/M01)

This trimmer can be used to set LIGHT or DARK operation mode.

CAUTION: The trimmer rotation is limited to 250° by a mechanical stop. Do not apply excessive torque when adjusting (max 0.02 Nm).

### Output LED

The yellow LED indicates the output status.

### Power On LED (All Models)

The green LED indicates that the sensor is operating.

### Test Input (S3N...G01)

Pin 4/black wire on G01 is active low test input. Connecting it to negative power supply will interrupt the emission. Connecting it to the positive or leaving it unconnected will lead to normal operation.

See [www.patents.datasensing.com](http://www.patents.datasensing.com) for patent list.

This product is covered by one or more of the following patents:  
 Utility patents: IT102015000057325, IT102017000151097,  
 US10823878, US11146425, US11163090.

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