

S15 SERIES

The new S15 series of M18 tubular sensors offers both plastic case version S15-PA and stainless steel IP69K housing version S15-NA. S15-PA plastic version is recommended for cost and space savings with a wide selection of optic functions, ranging from 5 m retroreflex to 1 m diffuse proximity and 12 cm background suppression. Each model is available with or without trimmer setting to fit the most varied applications in assembling and conveyor lines, processing and packaging machinery.

In order to maximize the installation flexibility, the sensor connectivity is available with 2 m cable, M12 4-pole connector or even a pig-tail version. A dedicated input allows the Light/Dark model selection.

S15-NA metal version include a widest optic function selection, all equipped with trimmer setting and metal M12 connector to improve the sensor robustness.

Thanks to the IP69K protection to frequent washdowns and corrosion-resistant AISI316L stainless steel housing, these sensors are recommended for processing and packaging machinery in food, beverage, dairy, and pharmaceutical industries, as well as paper and printing machinery, conveyor lines, and material handling in general.

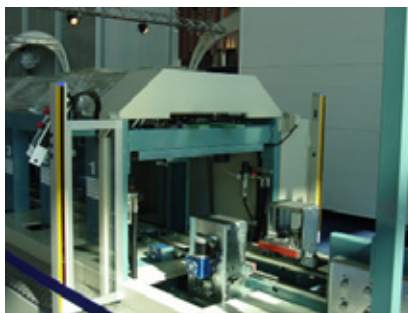
HIGHLIGHTS

- Plastic short case version for cost and space saving
- Stainless steel case version for IP69K protection
- All optic functions at optimal operating distance
- Models with fixed setting or trimmer adjustment
- Cable, M12 connector and pig-tail versions

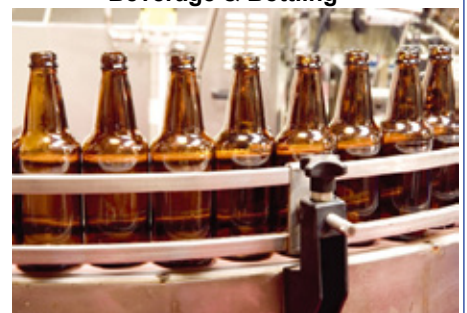


APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines for food and pharma



INSTALLATION

The sensor can be fixed by means of the M18x1 threaded body using CH.24 nuts (1.5 Nm maximum tightening torque) or low-profile flared nut provided specifically supplied for various orientable fixing brackets are available to ease sensor positioning (please refer to the accessories listed in the general catalogue). The operating distance is measured from the front surface of the sensor lens.

Proximity (C and D) models: the object has to be moved closer or further away from the front surface of the sensor lens to improve detection. In case of lateral translation, the object must move as indicated in the figure.

In models with the sensitivity trimmer and the green LED (STABILITY), we can obtain an optimal installation. Turn the trimmer and move sensor until the yellow LED (OUT) and the green LED (STABILITY) switch ON permanently, in order to mount the sensor in the correct position.



DIMENSIONS

S15-PA/NA-5

Technical drawing of the S15-PA/NA-5 LED light fixture, showing front, side, and top views with dimensions.

Front View Dimensions:

- Overall diameter: $\varnothing 27.7 \text{ max.}$
- Mounting hole diameter: $\varnothing 7.7 \text{ max.}$
- Mounting hole offset: 1.5
- Overall width: 24

Side View Dimensions:

- Overall length: 48.8
- Distance from mounting face to trimmer: 26.65
- Distance from mounting face to output LED: 18.4
- Mounting face diameter: $\varnothing 15.6$
- Mounting face thickness: 1.5
- Mounting face offset: 4
- Mounting face offset: 4

Top View Dimensions:

- Overall length: 32.85
- Trimmer location: TRIMMER
- Trimmer diameter: $\varnothing 16.6$
- Trimmer offset: 1.5

Labels:

- STABILITY LED POWER ON LED (S15...001)
- OUTPUT LED
- TRIMMER

S15-PA-2/3

STABILITY LED
POWER ON LED (S15...G001)
OUTPUT LED

Ø27.7 max.
24

44.8
1.5
26.65
M10x1
Ø16.6
4
4
Ø4
4.25

Technical drawing of the LED module showing front, side, and top views with dimensions:

- Front View (Left):** Shows the circular face with an "OUTPUT LED" label pointing to the center. The outer diameter is $\varnothing 27.7 \text{ max.}$ and the mounting hole diameter is $\varnothing 24$.
- Side View (Top):** Shows the module's profile with a total height of 48.3. The mounting flange has a diameter of $\varnothing 16.6$ and a thickness of 1.5. The base has a diameter of $\varnothing 4$ and a height of 4.25. The mounting hole is $M18 \times 1$. The distance from the base to the top of the flange is 26.65.
- Top View (Bottom):** Shows the circular base with a diameter of $\varnothing 4$.

Technical drawing of the M12 cable gland (type 100) showing dimensions:

- Total length: 150
- Mounting hole diameter: Ø4
- Gland body diameter: Ø14.2
- Threaded section length: 47 max.

dimensions in mm

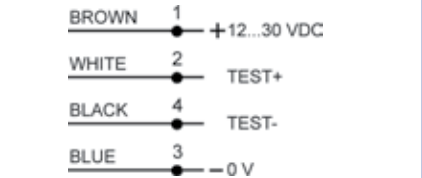
CONNECTIONS

Cable and Pig Tail

S15...A00/B00/C00/C10/F00/D50 **S15-...G00**



S15-...G00

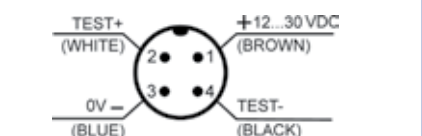


M12 Connector

S15...A01/B01/C11/C31/T01/F01 **S15...G01**



S15...G01



* in case of white wire or pin 2 not connected the sensor operates in LIGHT mode for the proximity models (S15...Cxx/D50) and in DARK mode for the retroreflex (S15...A0x/B0x/T01) and receiver models (S15...F0x).

TECHNICAL DATA

Power supply	12 ... 30 Vdc ¹
Ripple	≤ 2 Vpp
Consumption	≤ 25 mA
Output current	≤ 100 mA
Saturation voltage	≤ 2 V
Dielectric strength	500 Vac 1 min., between electronics and housing
Insulation resistance	>20 MΩ 500 Vdc, between electronics and housing
Mechanical protection	IP65, IP67, IP69K
Ambient light rejection	According to EN 60947-5-2
Vibrations	0.5 mm amplitude, 10 ... 55 Hz frequency, for each axis (EN60068-2-6)
Protection devices	A, B ²
Housing	Plastic version ABS TERLURAN Metal version INOX AISI 316L
Indicators	yellow OUTPUT LED green STABILITY LED, POWER LED (through beam emitter S15-xx-x-G0x)
Operating mode	selectable dark/light ³
Auxiliary functions	Test + and Test - Emitter off with Test+ on Vdc and Test- on 0 V
Connection	Cable vers. 2 m Ø 4 mm (PVC, 4 x 0,14 mm ²) Connector vers. M12 4-pole connector pig-tail vers. 150 mm cable + M12 4-pole connector
Lens material	plastic PMMA
Weight	40 g max mod. M12 55 g max mod. cable 35 g max mod. pig-tail
Operating temperature	-25 ... +55°C
Storage temperature	-25 ... +70°C
Reference directives	EN 60947-5-2, UL 508

TECHNICAL NOTE

¹Limit values

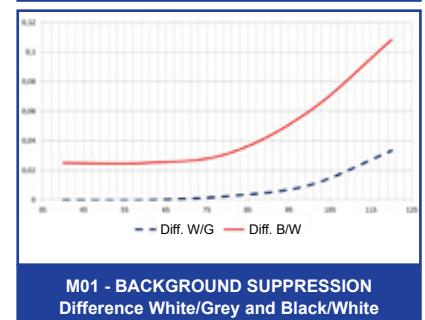
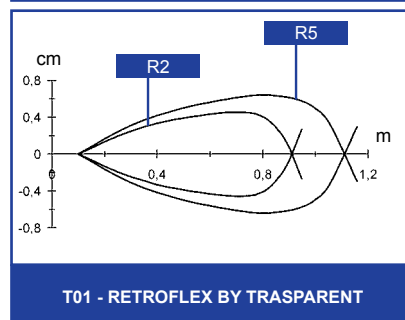
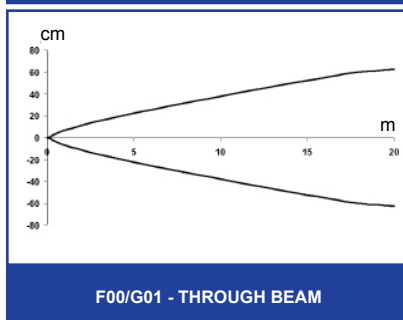
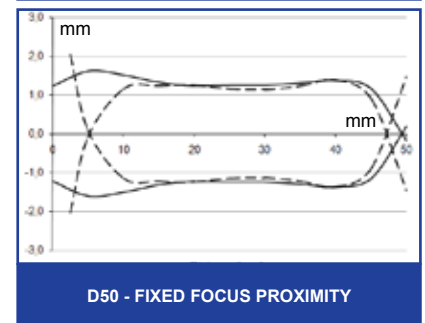
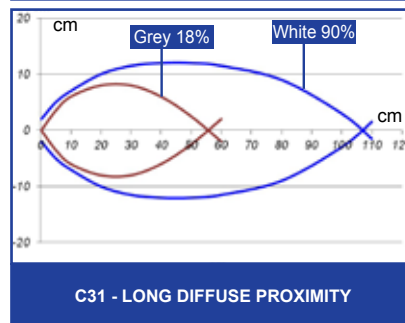
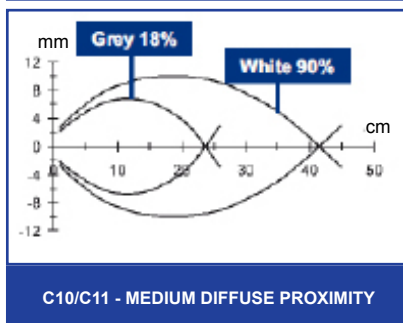
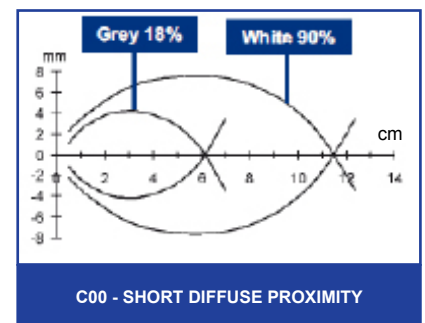
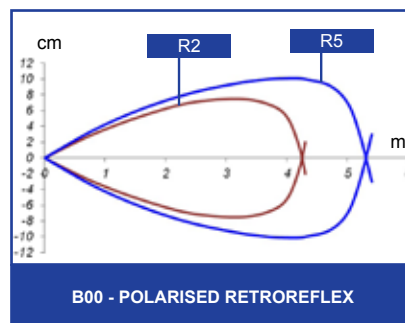
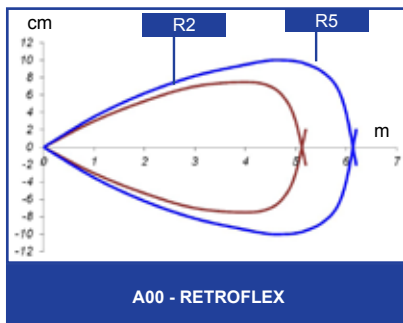
²A - reverse polarity protection

B - overload and short-circuit protection

³With L/D input not connected the proximity models function in the light mode and the retroreflex and through beam models in the dark mode; the light mode can be selected connecting the L/D input to +Vdc, the dark mode connecting it to 0Vdc.



DETECTION DIAGRAMS



S15 - PA (PLASTIC VERS.)

OPTIC FUNCTION	LIGHT EMISSION ¹	OPERATING DISTANCE	CONNECTION	SETTING	SWITCH FREQUENCY	RESPONSE TIME
non-polarised retroflex	infrared LED 880 nm	0,1...5 m on R2	connector M12	sensitivity trimmer	500 Hz	1 ms
			cable	fixed		
			pig-tail	fixed		
polarised retroflex	red LED 660 nm	0,1...4 m on R2	connector M12	sensitivity trimmer	500 Hz	1 ms
			cable	fixed		
			pig-tail	fixed		
diffuse proximity	infrared LED 880 nm	short: 1...10 cm	cable	fixed	500 Hz	1 ms
			pig tail	fixed		
		medium: 1...35 cm	connector M12	sensitivity trimmer		
			cable	fixed		
			pig-tail	fixed		
		long: 1...100 cm	connector M12	sensitivity trimmer		
fixed focus proximity	red LED 660 nm	1...5 cm	cable	fixed	1 KHz	500 µs
			pig-tail	fixed		
through beam receiver	n/a	0...20 m	connector M12	sensitivity trimmer	250 Hz	2 ms
			cable	fixed		
			pig-tail	fixed		
through beam emitter	infrared LED 880 nm	0...20 m	connector M12	light emission power trimmer	n/a	2 ms
			cable	fixed		
			pig-tail	fixed		
retro-reflex by transparent	red LED 660 nm	0,1...0,8 m on R2	connector M12	sensitivity trimmer	500 Hz	1 ms
background suppression	red LED 660 nm	40...120 mm	connector M12	sensitivity trimmer	500 Hz	1 ms

¹ Average life of 100.000 h with TA = +25 °C

S15 - NA (METAL VERS.)

OPTIC FUNCTION	LIGHT EMISSION ¹	OPERATING DISTANCE	CONNECTION	SETTING	SWITCH FREQUENCY	RESPONSE TIME
non-polarised retroflex	infrared LED 880 nm	0,1...5 m on R2	connector M12	sensitivity trimmer	500 Hz	1 ms
polarised retroflex	red LED 660 nm	0,1...4 m on R2	connector M12	sensitivity trimmer	500 Hz	1 ms
diffuse proximity	infrared LED 880 nm	medium: 1...35 cm	connector M12	sensitivity trimmer	500 Hz	1 ms
		long: 1...100 cm	connector M12	sensitivity trimmer	500 Hz	1 ms
through beam receiver	n/a	0...20 m	connector M12	sensitivity trimmer	250 Hz	2 ms
through beam emitter	infrared LED 880 nm	0...20 m	connector M12	light emission power trimmer	n/a	2 ms
retro-reflex by transparent	red LED 660 nm	0,1...0,8 m on R2	connector M12	sensitivity trimmer	500 Hz	1 ms
background suppression	red LED 660 nm	40...120 mm	connector M12	sensitivity trimmer	500 Hz	1 ms

¹ Average life of 100.000 h with TA = +25 °C

MODEL SELECTION AND ORDER INFORMATION

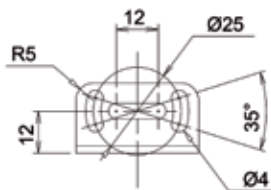
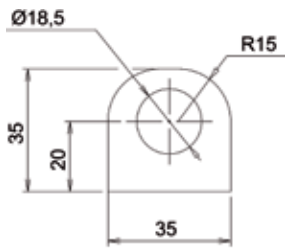
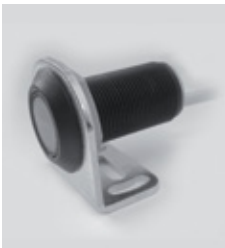
OPTIC FUNCTION	HOUSING	CONNECTION	OUTPUT	MODEL	ORDER NO.
retroreflex	PLASTIC	connector M12	PNP	S15-PA-5-A01-PK	952301220
			NPN	S15-PA-5-A01-NK	952301300
		2 m cable	PNP	S15-PA-2-A00-PK	952301001
			NPN	S15-PA-2-A00-NK	952301051
		pig-tail	PNP	S15-PA-3-A00-PK	952301111
			NPN	S15-PA-3-A00-NK	952301161
	METAL	connector M12	PNP	S15-NA-5-A01-PK	952301370
			NPN	S15-NA-5-A01-NK	952301450
polarised retroreflex	PLASTIC	connector M12	PNP	S15-PA-5-B01-PK	952301230
			NPN	S15-PA-5-B01-NK	952301310
		2 m cable	PNP	S15-PA-2-B00-PK	952301011
			NPN	S15-PA-2-B00-NK	952301061
		pig-tail	PNP	S15-PA-3-B00-PK	952301121
			NPN	S15-PA-3-B00-NK	952301171
	METAL	connector M12	PNP	S15-NA-5-B01-PK	952301380
			NPN	S15-NA-5-B01-NK	952301460
short distance diffuse proximity	PLASTIC	2 m cable	PNP	S15-PA-2-C00-PK	952301021
			NPN	S15-PA-2-C00-NK	952301071
		pig-tail	PNP	S15-PA-3-C00-PK	952301131
			NPN	S15-PA-3-C00-NK	952301181
medium distance diffuse proximity	PLASTIC	connector M12	PNP	S15-PA-5-C11-PK	952301250
			NPN	S15-PA-5-C11-NK	952301330
		2 m cable	PNP	S15-PA-2-C10-PK	952301031
			NPN	S15-PA-2-C10-NK	952301081
		pig-tail	PNP	S15-PA-3-C10-PK	952301141
			NPN	S15-PA-3-C10-NK	952301191
	METAL	connector M12	PNP	S15-NA-5-C11-PK	952301400
			NPN	S15-NA-5-C11-NK	952301480
long distance diffuse proximity	PLASTIC	connector M12	PNP	S15-PA-5-C31-PK	952301260
			NPN	S15-PA-5-C31-NK	952301340
	METAL	connector M12	PNP	S15-NA-5-C31-PK	952301410
			NPN	S15-NA-5-C31-NK	952301490
fixed focus proximity	PLASTIC	2 m cable	PNP	S15-PA-2-D50-PK	952301520
			NPN	S15-PA-2-D50-NK	952301530
		pig-tail	PNP	S15-PA-3-D50-PK	952301540
			NPN	S15-PA-3-D50-NK	952301550
retro-reflex by transparent	PLASTIC	connector M12	PNP	S15-PA-5-T01-PK	952301240
			NPN	S15-PA-5-T01-NK	952301320
	METAL	connector M12	PNP	S15-NA-5-T01-PK	952301390
			NPN	S15-NA-5-T01-NK	952301470
through beam (receiver)	PLASTIC	connector M12	PNP	S15-PA-5-F01-PK	952301280
			NPN	S15-PA-5-F01-NK	952301360
		2 m cable	PNP	S15-PA-2-F00-PK	952301041
			NPN	S15-PA-2-F00-NK	952301091
		pig-tail	PNP	S15-PA-3-F00-PK	952301151
			NPN	S15-PA-3-F00-NK	952301201
	METAL	connector M12	PNP	S15-NA-5-F01-PK	952301430
			NPN	S15-NA-5-F01-NK	952301510
through beam (emitter)	PLASTIC	connector M12	-	S15-PA-5-G01-XG	952301290
		2 m cable	-	S15-PA-2-G00-XG	952301101
		pig-tail	-	S15-PA-3-G00-XG	952301211
	METAL	connector M12	-	S15-NA-5-G01-XG	952301440
background suppression	PLASTIC	connector M12	PNP	S15-PA-5-M01-PK	952301270
			NPN	S15-PA-5-M01-NK	952301350
	METAL	connector M12	PNP	S15-NA-5-M01-PK	952301420
			NPN	S15-NA-5-M01-NK	952301500

ACCESSORY SELECTION AND ORDER INFORMATION

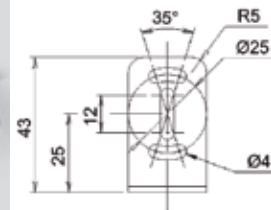
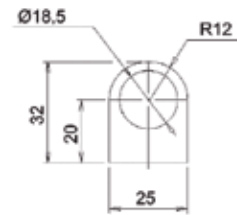
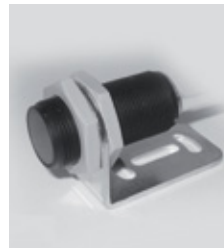
DESCRIPTION	MODEL	ORDER NO.
M18 fixing bracket	ST-5011	95ACC5240
M18 fixing bracket	ST-5012	95ACC5250
flared fixing nut	PLASTIC NUT	95ACC2630
M18 fixing bracket	ST-5017	95ACC5270
fixed support for tubular M18 sensors	SP-40	95ACC1370

ACCESSORIES

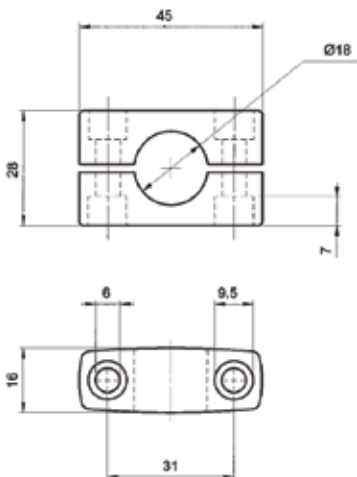
ST-5011



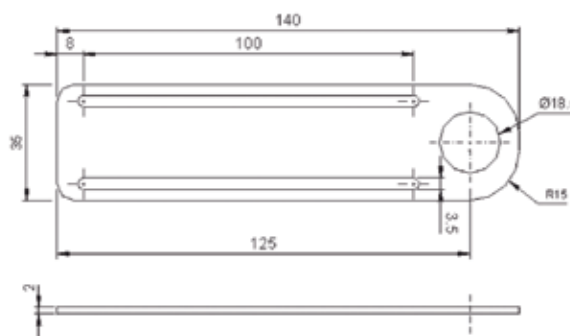
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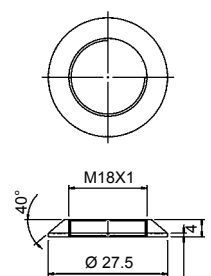
SP-40



ST-5017



PLASTIC NUT



dimensions in mm

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

