

ADVANCED SENSORS



Excellent performances in small dimensions

- **Compact dimensions (14x42x25 mm)**
- **10 kHz switching frequency**
- **Extremely focussed spot, under 1 mm (Laser vers.)**
- **Very high resolutions**
- **Coaxial versions**

S8 SERIES

The new **S8** series of compact sensors offers excellent detection performances, usually associated with sensors that have larger dimensions and a higher price.

The **S8** series is able to solve the most critical sensor applications. A solution for packaging lines, food and beverage industries, automotive, test and assembling machines and electronic plants.

Laser models with coaxial polarized retroreflex and background suppression are available. Base models with LED emission are also offered featuring polarized retroreflex, diffuse proximity, background suppression, coaxial polarized retroreflex for transparents and contrast sensors.

The Laser versions present extremely focused spot inferior to 1 mm and switching frequencies that are amongst the highest on the market reaching 10 kHz.

The contrast sensor is the most compact sensor available today with RGB emission and coaxial optics.

Connector M8 or M12 'pig-tail' versions are available.

S8 SERIES

The Laser versions present extremely focused spot inferior to 1 mm and switching frequencies that are amongst the highest on the market reaching 10 kHz. Offering excellent reading repeatability, and the object can be 'detected' always in the same position!

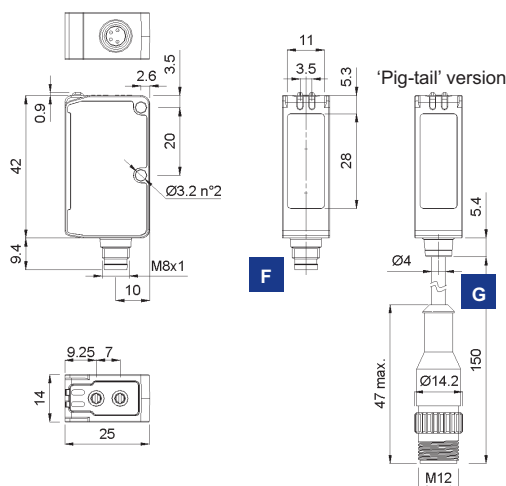
The coaxial retroreflex version with LED emission guaranteeing an excellent resolution in detecting transparent objects that, associated to a 2 kHz frequency and ALARM output for dirty lenses, offer great reliability and plant productivity.

The contrast sensor is the most compact sensor with RGB emission and coaxial optics available today on the market, offering excellent detection resolution and field of depth typical of sensors with a higher price/dimension ratio.

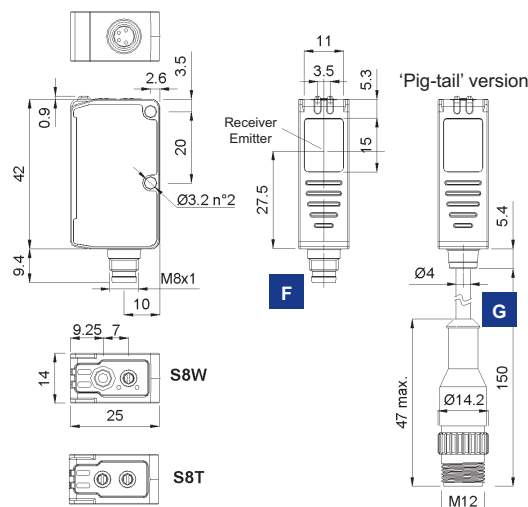
The retroreflex modes offer an additional alarm signal for received signal problems or dirty lenses.

DIMENSIONS

LASER B and M VERSIONS

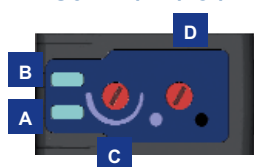


T and W VERSIONS



INDICATORS AND SETTINGS

S8...M / B / C / T01



S8...W / T53

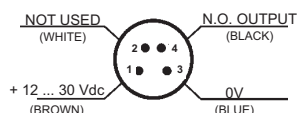


- | | |
|---|---------------------------------|
| A Output status LED | E Delay trimmer |
| B Ready LED or Power ON LED | F M8 connector |
| C Sensitivity adjustment trimmer | G M12 pig-tail connector |
| D Dark/light trimmer | H SET push-button |

CONNECTIONS

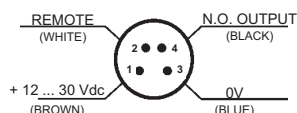
S8...M/C

Connettore M8



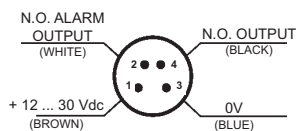
S8...W/T53

M8 connector



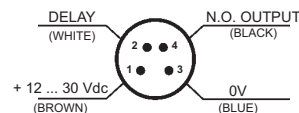
S8...T01/B01 / S8B-Laser

M8 connector

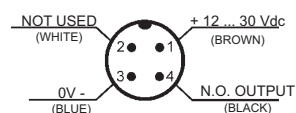


S8M-Laser

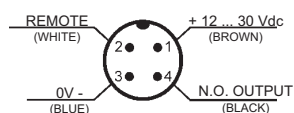
M8 connector



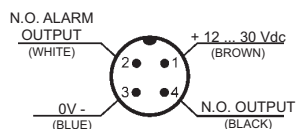
Connettore M12



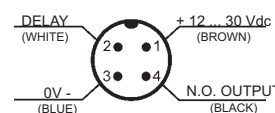
M12 connector



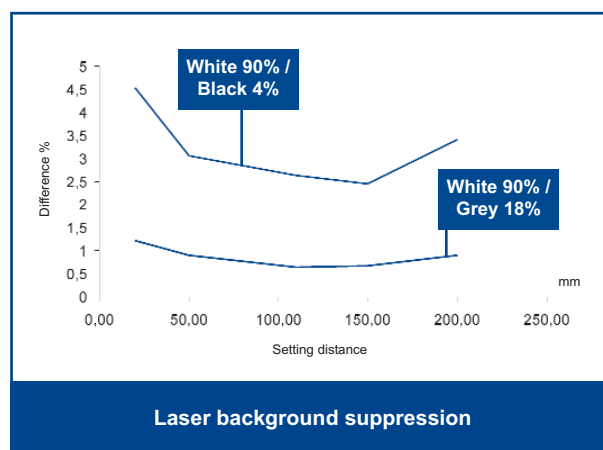
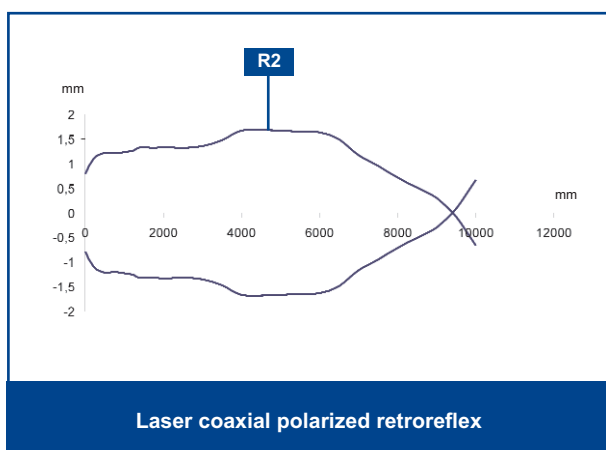
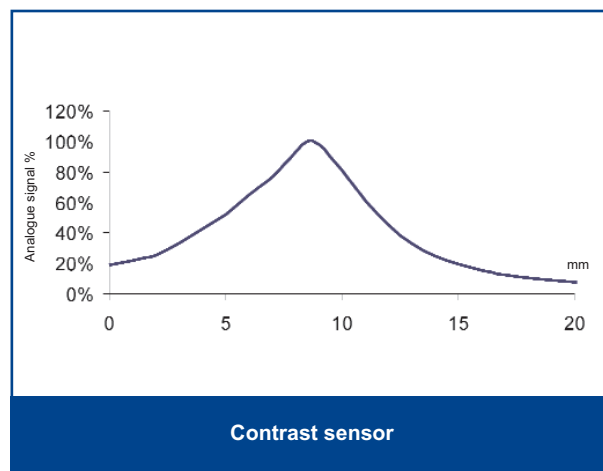
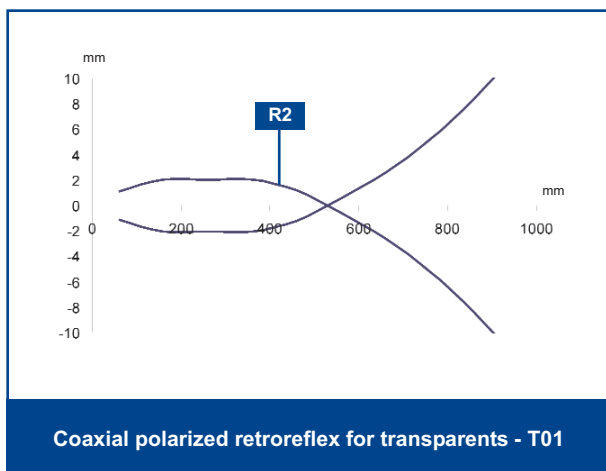
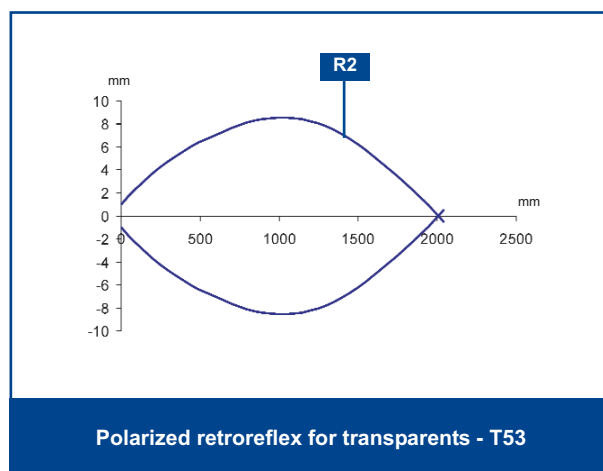
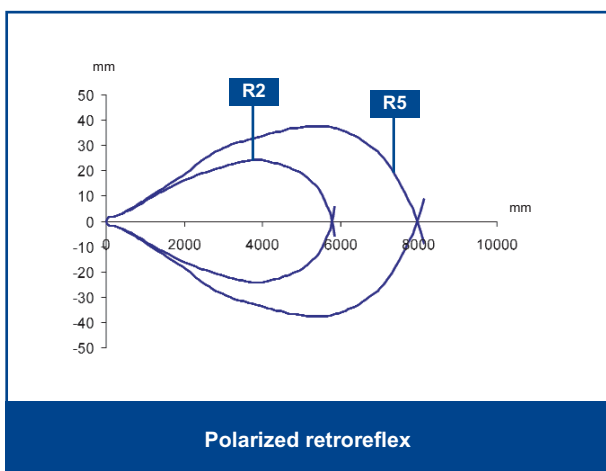
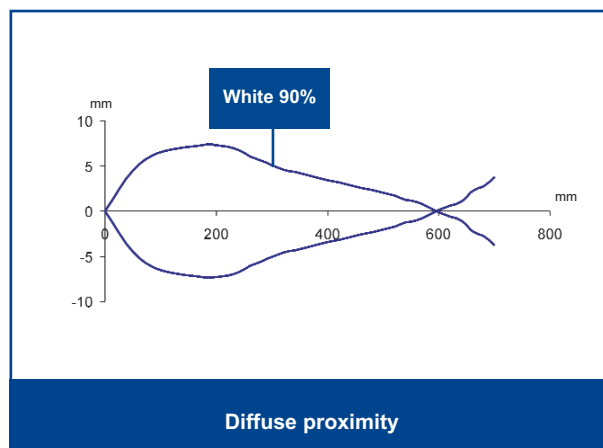
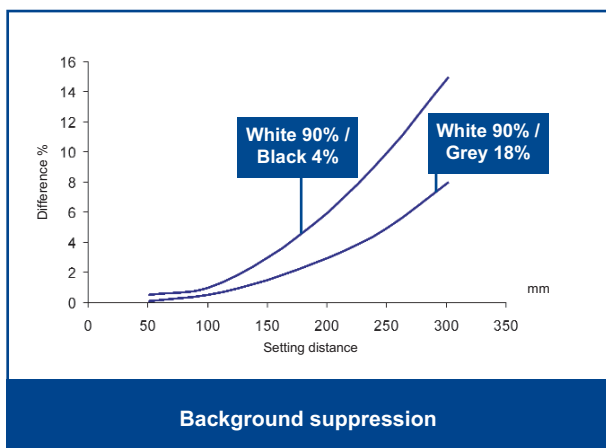
M12 connector



M12 connector



DETECTION DIAGRAMS



TECHNICAL DATA OF MODELS WITH LED EMISSION

		S8-PR-5-B01-xx	S8-PR-3-B01-xx	S8-PR-5-M01-xx	S8-PR-3-M01-xx	S8-PR-5-C01-xx	S8-PR-3-C01-xx	S8-PR-5-T51-xx	S8-PR-3-T51-xx	S8-PR-5-W03-xx	S8-PR-3-W03-xx
Polarized retroreflex operating distance:	0 ... 5 m (on R2)	●	●								
Background suppression op. distance:	50 ... 300 mm			●	●						
Difuse proximity operating distance:	0 ... 500 mm					●	●				
RRX for transparents op. distance:	50 ... 800 mm							●	●		
	0 ... 2000 mm									●	
Constrast sensor operating distance:	9 ± 3 mm									●	●
Power supply:	12 ... 30 Vdc	●	●	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●	●	●
Consumption:	15 mA max.						●	●			
	30 mA max.	●	●	●	●	●				●	●
Light emission :	red LED 660 nm	●	●	●	●	●	●	●	●		
	blue LED 465nm/green LED 520nm/ red LED 630nm									●	●
Spot dimension:	3 x 1 mm ²									●	●
	<i>refer to diagrams for the other models</i>	●	●	●	●	●	●	●	●		
Setting:	monoturn trimmer for dark/light selection	●	●	●	●	●	●	●	●		
	monoturn trimmer for delay OFF 20msec. sel.									●	●
	monoturn sensitivity adjustment trimmer	●	●			●	●	●			
	multiturn trimmer (8 turns)			●	●						
	SET push-button									●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●
	green READY LED									●	●
	green POWER ON LED	●	●	●	●	●	●	●			
Output type:	PNP or NPN, N.O./N.C.	●	●	●	●	●	●	●	●	●	●
	ALARM OUTPUT (PNP/NPN)	●	●				●	●			
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●	●	●
Response time:	50 μs									●	●
	250 μs						●	●	●		
	500 μs	●	●		●	●					
	1 ms			●	●						
Max. switching frequency:	10 kHz									●	●
	2 kHz						●	●	●		
	1 kHz	●	●		●	●					
	500 Hz			●	●						
Operating mode:	selectable dark/light	●	●	●	●	●	●	●	●	●	●
Connection:	M8 4-pole connector	●	●	●	●	●	●	●	●		
	M12 4-pole, Ø 4 mm, pig-tail		●	●		●		●		●	
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B ²	●	●	●	●	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●	●	●	●	●
Lens material:	window in glass						●	●	●	●	
	lenses in PC	●	●	●	●	●				●	●
	lenti in vetro						●	●	●		
Weight:	12 g max. connector version	●	●	●	●	●	●	●	●	●	
	50 g max. pig-tail version		●	●	●	●	●	●		●	
Operating temperature:	-10 ... +55 °C	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-20 ... +70 °C	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●



TECHNICAL NOTES

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

² A - reverse polarity protection

B - overload and short-circuit protection

DETECTION DIAGRAMS OF MODELS WITH LASER EMISSION

		SS-PH-5-B51-xx	SS-PH-3-B51-xx	SS-PH-5-M01-xx	SS-PH-3-M01-xx
Coaxial retroreflex operating distance:	0 ... 10 m (su R2)	●	●		
Background suppression operat. distance:	20 ... 200 mm			●	●
Power supply:	12 ... 30 Vdc	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 30 mA	●	●	●	●
Light emission : ¹	red Laser 645...665 nm	●	●	●	●
	class II EN 60825-1	●	●	●	●
	class II CDRH21 CFR 1040.10	●	●	●	●
Spot dimension:	≤ 0.2 mm at 110 mm			●	●
	≤ 0.5 mm at 400 mm	●	●		
Focussing point:	110 mm			●	●
	400 mm	●	●		
Setting:	monoturn sensitivity adjustment trimmer	●	●		
	multi-turn sensitivity adjustment trimmer			●	●
	monoturn trimmer for dark/light selection	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green POWER ON LED	●	●	●	●
Output type:	PNP or NPN, N.O./N.C.	●	●	●	●
	ALARM OUTPUT (PNP/NPN)	●	●		
Output current:	≤ 100 mA	●	●	●	●
Saturation current:	≤ 2 V	●	●	●	●
Response time:	50 μs	●	●		
	100 μs			●	●
Max. switching frequency:	5 kHz			●	●
	10 kHz	●	●		
Operating mode:	selectable dark/light	●	●	●	●
Connection:	M8 4-pole connector	●		●	
	M12 4-pole, Ø 4 mm, pig-tail		●		●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B ²	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA	●	●	●	●
	lenses in PC	●	●	●	●
Weight:	12 g max. connector version	●		●	
	50 g max. pig-tail version		●		●
Operating temperature::	-10 ... +55 °C	●	●	●	●
Storage temperature:	-20 ... +70 °C	●	●	●	●
Reference standard:	EN 60947-5-2,	●	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10	●	●	●	●



TECHNICAL NOTES

¹ Average life of 50.000 h with $T_A = +25\text{ °C}$

² A - reverse polarity protection

B - overload and short-circuit protection

MODEL SELECTION AND ORDER INFORMATION

MODELS WITH LED EMISSION

MODEL	FUNCTION	CONNECTION	OUTPUT	ORDER N°
S8-PR-5-B01-PP	Polarized retroreflex 5 m	M8	PNP	950801160
S8-PR-5-B01-NN	Polarized retroreflex 5 m	M8	NPN	950801170
S8-PR-5-M01-PP	Background suppression 30 cm	M8	PNP	950801200
S8-PR-5-M01-NN	Background suppression 30 cm	M8	NPN	950801210
S8-PR-5-C01-PP	Difuse proximity 50 cm	M8	PNP	950801240
S8-PR-5-C01-NN	Difuse proximity 50 cm	M8	NPN	950801260
S8-PR-5-T51-PP	Retroreflex for transparents 0,8 m	M8	PNP	950801040
S8-PR-5-T51-NN	Retroreflex for transparents 0,8 m	M8	NPN	950801050
S8-PR-5-T53-PP	Retroreflex for transparents 2 m	M8	PNP	950801280
S8-PR-5-T53-NN	Retroreflex for transparents 2 m	M8	NPN	950801290
S8-PR-5-W03-PP	Contrast sensor, RGB	M8	PNP	950801060
S8-PR-5-W03-NN	Contrast sensor, RGB	M8	NPN	950801070
S8-PR-3-B01-PP	Polarized retroreflex 5 m	M12 pig-tail	PNP	950801180
S8-PR-3-B01-NN	Polarized retroreflex 5 m	M12 pig-tail	NPN	950801190
S8-PR-3-M01-PP	Background suppression 30 cm	M12 pig-tail	PNP	950801220
S8-PR-3-M01-NN	Background suppression 30 cm	M12 pig-tail	NPN	950801230
S8-PR-3-C01-PP	Difuse proximity 50 cm	M12 pig-tail	PNP	950801250
S8-PR-3-C01-NN	Difuse proximity 50 cm	M12 pig-tail	NPN	950801270
S8-PR-3-T51-PP	Retroreflex for transparents 0,8 m	M12 pig-tail	PNP	950801120
S8-PR-3-T51-NN	Retroreflex for transparents 0,8 m	M12 pig-tail	NPN	950801130
S8-PR-3-W03-PP	Contrast sensor, RGB	M12 pig-tail	PNP	950801140
S8-PR-3-W03-NN	Contrast sensor, RGB	M12 pig-tail	NPN	950801150

MODELS WITH LASER EMISSION

MODEL	FUNCTION	CONNECTION	OUTPUT	ORDER N°
S8-PH-5-B51-PP	Laser coaxial retroreflex 10 m	M8	PNP	950801000
S8-PH-5-B51-NN	Laser coaxial retroreflex 10 m	M8	NPN	950801010
S8-PH-5-M01-PP	Laser background suppression 20 cm	M8	PNP	950801020
S8-PH-5-M01-NN	Laser background suppression 20 cm	M8	NPN	950801030
S8-PH-3-B51-PP	Laser coaxial retroreflex 10 m	M12 pig-tail	PNP	950801080
S8-PH-3-B51-NN	Laser coaxial retroreflex 10 m	M12 pig-tail	NPN	950801090
S8-PH-3-M01-PP	Laser background suppression 20 cm	M12 pig-tail	PNP	950801100
S8-PH-3-M01-NN	Laser background suppression 20 cm	M12 pig-tail	NPN	950801110

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5072	fixing bracket	95ACC1470

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HEADQUARTERS

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