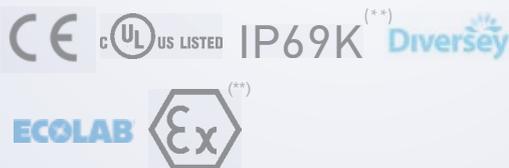


# S8



**IO-Link**<sup>(\*)</sup>  
New ASIC



## COMPACT SIZE AND HIGH PERFORMANCE FOR THE MOST CHALLENGING DETECTION APPLICATIONS LINKED TO YOUR INDUSTRY 4.0 APPLICATIONS

- Compact dimensions (14x42x25 mm)
- Background suppression for transparent and shiny objects
- Contrast sensors up to 25 kHz switching frequency
- Extremely focused spot, under 1 mm (LASER model)
- Very high resolution LASER models
- INOX AISI 316L model
- Extended IO-Link parametrization with counter
- All output fully PNP/NPN/PP IO-Link configurable
- IO-link COM2
- IO-Link dual channel with no jitter addition

### APPLICATIONS

- Processing and Packaging machinery
- Beverage/Food/ Cosmetics/Pharmaceutical industries
- Electronics assembling

(\*) IO-Link models available from July 2020

(\*\*) Stainless steel models. ATEXII 3DG

S8		
<b>Through beam</b>	0...25 m	
<b>Polarized retroreflective</b>	0,1...5 m	
<b>Polarized retroreflective (coaxial)</b>	0...10 m (class 1 LASER - B51,B53...OZ)	
<b>Retroreflective for transparent (coaxial)</b>	0...0,8 m (T51), 0...2 m (T53...OZ, T50)	
<b>Diffuse proximity</b>	0...500 mm	
<b>Background suppression</b>	50...300 mm	
<b>Background suppression for clear detection</b>	20...200 mm (class 1 LASER)	
	100...300 mm (LED)	
	50...150 mm (class 1 LASER)	
<b>Contrast sensor</b>	10 mm (Wxx, W03...OZ)	
<b>Luminescence sensor</b>	10...30 mm (U03, U03...OZ)	
<b>Power supply</b>	Vdc	12...30 V
	Vac	
	Vac/dc	
<b>Output</b>	PNP	•
	NPN	•
	NPN/PNP	IO-Link PNP/NPN/Push Pull (S8...B53/T53/W03/U03...OZ)
	relay	
	other	IO-Link dual channel COM2 2,3ms cycle time
<b>Connection</b>	cable	•
	connector	•
	pig-tail	•
<b>Approximate dimensions (mm)</b>	14x42x25	
<b>Housing material</b>	ABS, Stainless Steel AISI 316L	
<b>Mechanical protection</b>	IP69K (Stainless Steel AISI 316L vers.), IP67	

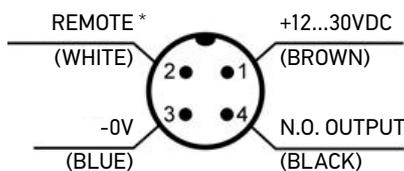
# TECHNICAL DATA

<b>Power supply</b>	12 ... 30 Vdc (battery inversion protected)
<b>Ripple</b>	2 Vpp max.
<b>Consumption (output current excluded)</b>	30 mA; 35 mA (mod. S8...M01); 20 mA (mod. S8...F), 15 mA (mod. S8...G) max.; 40mA max. all IO-Link Models red LED 660 nm (mod. S8...B01/C/M/G/T)
<b>Light emission</b>	RGB LEDs: blue 465 nm, green 520 nm, red 630nm with automatic selection (mod. S8...W)
	UV LED 375 nm (mod. S8...U)
	red Laser 645..665 nm (mod. S8...B51/B53/M) Class 1
<b>Sensitivity Setting</b>	8-turn distance adjustment trimmer (mod. S8...M53/M)
	teach-in push button (mod. S8...B53/B53...OZ/M53/W03/W03...OZ/W13/T53/T53...OZ/U03/U03...OZ)
	remote input (mod. S8...M53)
	mono-turn trimmer (mod. S8...B01/C/F/M/T51)
<b>Operating mode</b>	automatic auto adjustment (mod. S8...W/T50)
	remote input (mod. S8...M53)
	LIGHT / DARK mono-turn trimmer (mod. S8...B/C/F/T51/T53/U)
<b>Indicators</b>	yellow OUTPUT LED (all models excl. mod. S8...G), OUTPUT/ALARM LED (mod. S8...M53/M/C) green POWER LED
<b>Output</b>	PNP or NPN N.O. ; PNP/NPN/Push Pull fully configurable outputs for all IO-Link models (S8...B53/T53/W03/U03...OZ)
<b>Output current</b>	100 mA (overload protection and short circuit)
<b>Saturation voltage</b>	2 V max.
<b>Response time</b>	1 ms (mod. S8...M53/M)
	500 µs (mod. S8...B/F/C)
	250 µs (mod. S8...T/T53...OZ IO-Link)
	100 µs (Laser vers. mod. S8...M)
	50 µs (mod. S8...W00/W03/W03...OZ IO-Link and Laser mod. S8...B51/B53...OZ IO-Link)
	20 µs (mod. S8...W13)
	250 µs...1 ms (mod. S8...U) and U03...OZ IO-Link
<b>Switching frequency</b>	500 Hz (mod. S8...M53/M)
	1 kHz (mod. S8...B/F/C)
	2 kHz (mod. S8...T/T53...OZ IO-Link)
	5 kHz (Laser vers. mod. S8...M)
	10kHz (mod. S8...W00/W03/W03...OZ IO-Link and Laser mod. S8...B51/B53...OZ IO-Link)
	25 kHz (mod. S8...W13)
	500 Hz...2 kHz (mod. S8...U) and U03...OZ IO-Link
	IO-Link COM2 V1.1.2 2,3ms cycle time
<b>Communication</b>	
<b>Connection</b>	M8 4-pole connector, 150 mm length Ø 4 mm cable with M12 4-pole connector (pig-tail vers.)
<b>Dielectric strength</b>	1500 VAC 1 min between electronic parts and housing
<b>Insulating resistance</b>	>20 MΩ 500 VDC between electronic parts and housing
<b>Mechanical protection</b>	IP67, IP69K (mod. S8-M)
<b>Ambient light rejection</b>	according to EN 60947-5-2
<b>Vibrations</b>	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
<b>Shock resistance</b>	11 ms (30 G) 6 shocks per every axis (EN60068-2-27)
<b>Housing material</b>	ABS, Stainless Steel AISI 316L
<b>Optical window material</b>	window in PMMA; lens in PC
<b>Operating temperature</b>	-10 ... 55 °C
<b>Storage temperature</b>	-20 ... 70 °C
<b>Weight</b>	12 g max. conn. vers., 50 g pig-tail vers., 70 g max. (mod. S8-M)

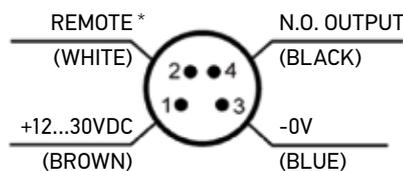
## CONNECTIONS

### STANDARD MODELS

M12 PIGTAIL

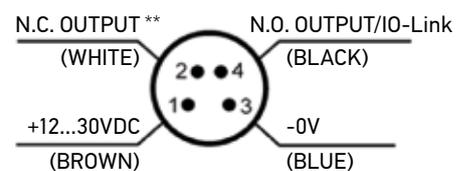


M8 CONNECTOR



### IO-LINK MODELS (M8 CONNECTOR ONLY)

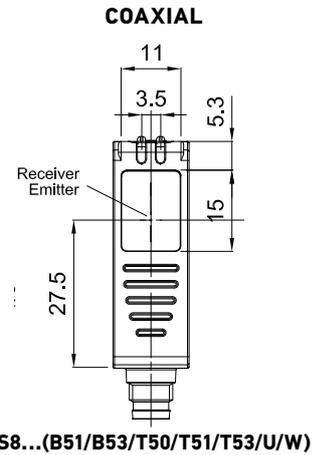
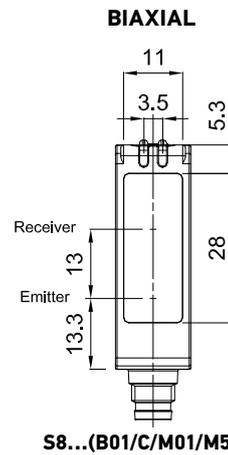
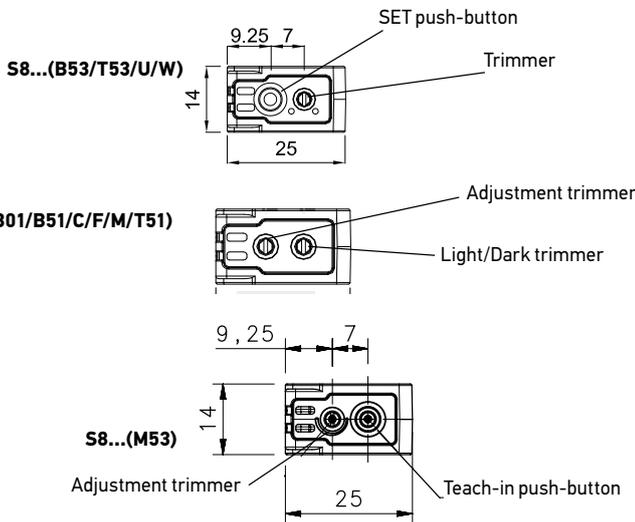
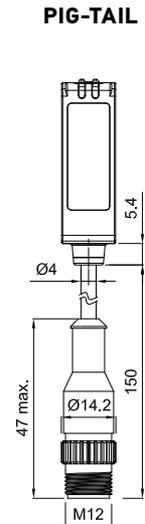
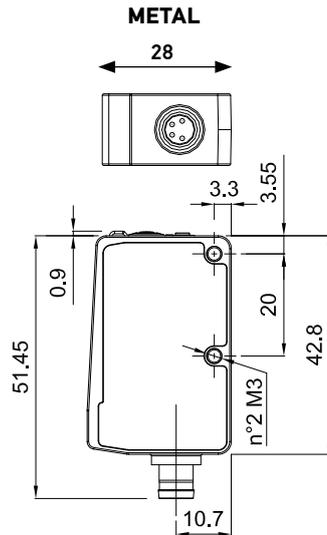
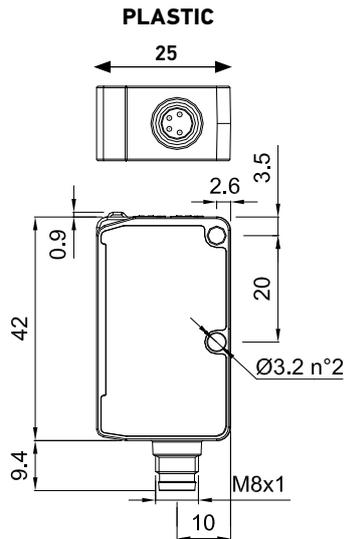
M8 CONNECTOR



\* REMOTE INPUT (mod. S8...W, U, T50, T53), LIGHT / DARK INPUT (mod. S8...M53), DELAY (mod. S8...M Laser), TEST INPUT (mod. S8...G), ALARM OUTPUT (mod. S8...B, T51), NOT USED (mod. S8...C, M, F)

\*\* Fully configurable I/O Pin input or output by IO-Link setting

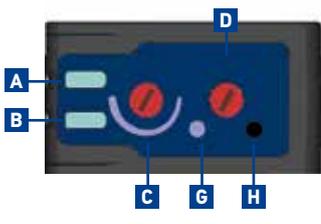
# DIMENSIONS



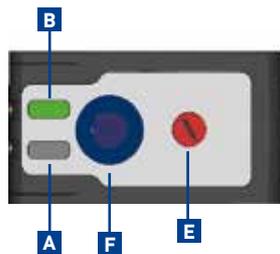
Note : T50 has no settings, only indicators

# INDICATOR AND SETTING

**S8...B01/B51//C/F/M/T51**



**S8...B53/T53/U/W**

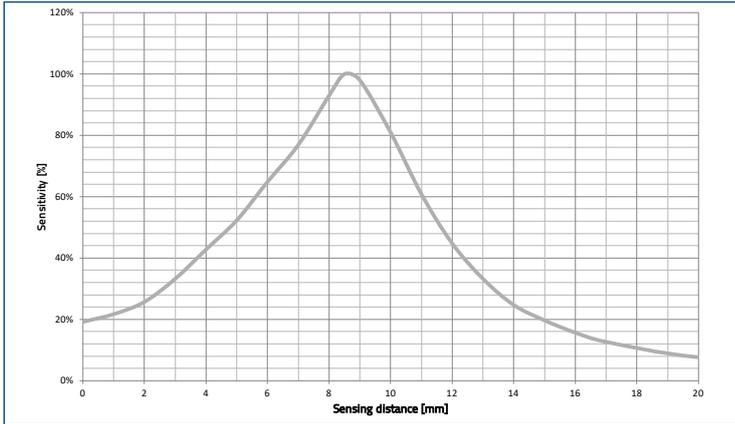


- A** Output status LED
- B** Ready LED or Power ON LED
- C** Sensitivity adjustment trimmer
- D** Dark/light trimmer

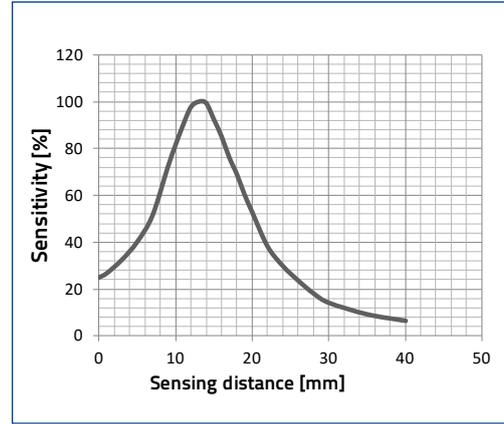
- E** Delay trimmer
- F** SET push-button
- G** Light
- H** Dark

Note : T50 has no settings, only indicators

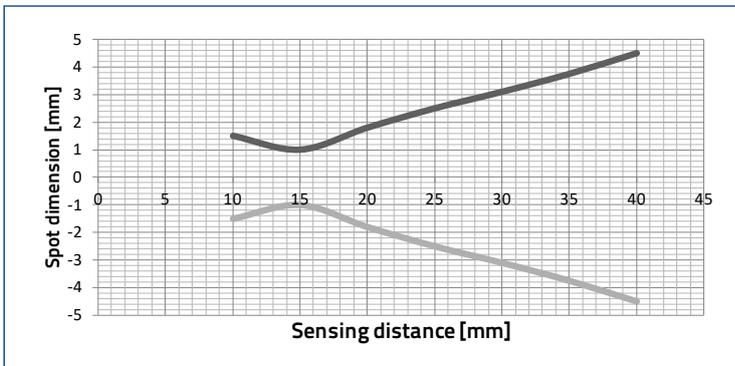
# READING DIAGRAMS



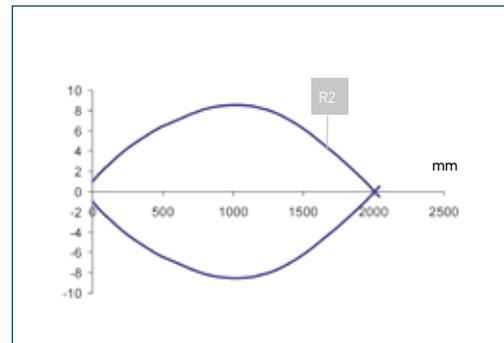
Contrast sensor (W00, W03...OZ, W13)



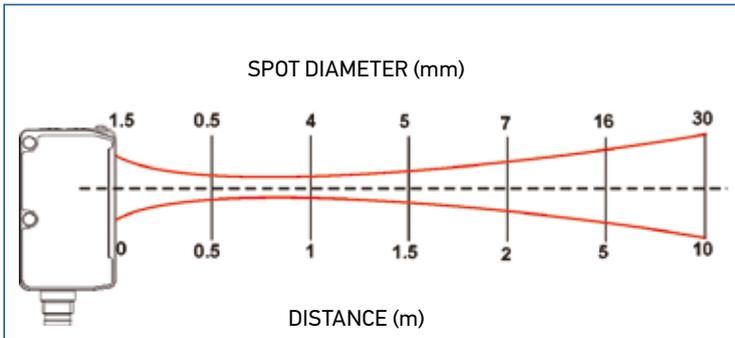
Luminescence sensor (U03...OZ)



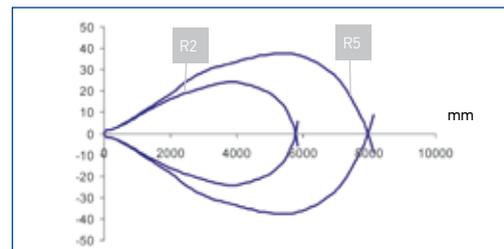
Luminescence sensor (U03/U03...OZ)



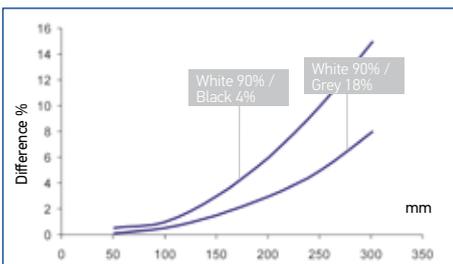
Coaxial Polarized Retroreflective for Transparents (T50/T53/T53...OZ)



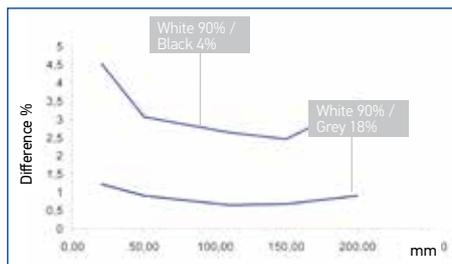
Spot Diameter Polarized Retroreflective Coaxial (LASER/B51/B53...OZ)



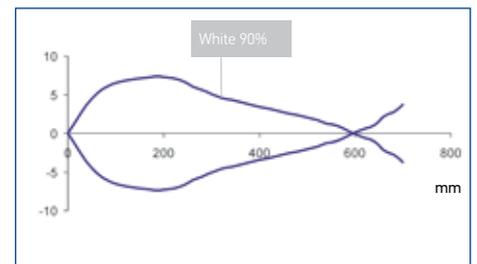
Polarized Retroreflective (LED/B01)



Background suppression (LED/M01)



Background suppression (LASER/M01)



Diffuse Proximity (C01)

# MODEL SELECTION AND ORDER INFORMATION

CLEAR DETECTION						
HOUSING	OPTIC TYPE	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI 316L)	Axial	LASER	M8 connector	PNP	S8-MH-5-M53-PP	950801451
		LED			S8-MR-5-M53-PP	950801600
LASER		S8-PH-5-M53-PP			950801381	
LED		S8-PR-5-M53-PP			950801590	
PLASTIC ABS						

RETROREFLECTIVE FOR TRSPARENT						
HOUSING	OPTIC TYPE	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI 316L)	Coaxial	LED	M8 connector	NPN	S8-MR-5-T50-NH	950801330
				PNP	S8-MR-5-T50-PH	950801320
			M8 connector	NPN	S8-MR-5-T53-NN	950801310
				PNP	S8-MR-5-T53-PP *	950801300
PLASTIC ABS			pig-tail	NPN	S8-PR-3-T51-NN	950801130
				PNP	S8-PR-3-T51-PP	950801120
			M8 connector	PNP/NPN/Push Pull	S8-PR-5-T53-OZ 	950800005
			M8 connector	NPN	S8-PR-5-T51-NN	950801050
M8 connector	PNP	S8-PR-5-T51-PP	950801040			
M8 connector	NPN	S8-PR-5-T53-NN	950801290			
M8 connector	PNP	S8-PR-5-T53-PP *	950801280			

\*Note: With Auto adaptive function

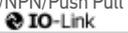
POLARIZED RETROREFLECTIVE						
HOUSING	OPTIC TYPE	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI 316L)	Coaxial	LASER	M8 connector	NPN	S8-MH-5-B51-NN	950801490
				PNP	S8-MH-5-B51-PP	950801480
	Axial	LED		NPN	S8-MR-5-B01-NN	950801420
				PNP	S8-MR-5-B01-PP	950801410
PLASTIC ABS	Coaxial	LASER	pig-tail	NPN	S8-PH-3-B51-NN	950801090
				PNP	S8-PH-3-B51-PP	950801080
			M8 connector	NPN	S8-PH-5-B51-NN	950801010
				PNP	S8-PH-5-B51-PP	950801000
	Axial	LED	pig-tail	PNP/NPN/Push Pull	S8-PH-5-B53-OZ 	950800006
				NPN	S8-PR-3-B01-NN	950801190
			M8 connector	PNP	S8-PR-3-B01-PP	950801180
				NPN	S8-PR-5-B01-NN	950801170
PNP	S8-PR-5-B01-PP	950801160				

BACKGROUND SUPPRESSION						
HOUSING	OPTIC TYPE	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI 316L)	Axial	LASER	M8 connector	NPN	S8-MH-5-M01-NN	950801470
				PNP	S8-MH-5-M01-PP	950801460
		LED		NPN	S8-MR-5-M01-NN	950801400
				PNP	S8-MR-5-M01-PP	950801390
PLASTIC ABS		LASER	pig-tail	NPN	S8-PH-3-M01-NN	950801110
				PNP	S8-PH-3-M01-PP	950801100
			M8 connector	NPN	S8-PH-5-M01-NN	950801030
				PNP	S8-PH-5-M01-PP	950801020
	LED	pig-tail	NPN	S8-PR-3-M01-NN	950801230	
			PNP	S8-PR-3-M01-PP	950801220	
		M8 connector	NPN	S8-PR-5-M01-NN	950801210	
			PNP	S8-PR-5-M01-PP	950801200	

IO-Link models available from July 2020

THROUGH BEAM						
HOUSING	OPTIC TYPE	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI 316L)	Axial	LED	M8 connector	NPN	S8-MR-5-F01-NN	950801570
				PNP	S8-MR-5-F01-PP	950801560
emitter				S8-MR-5-G00-XG	950801580	
PLASTIC ABS			pig-tail	NPN	S8-PR-3-F01-NN	950801530
				PNP	S8-PR-3-F01-PP	950801520
				emitter	S8-PR-3-G00-XG	950801550
M8 connector			NPN	S8-PR-5-F01-NN	950801510	
			PNP	S8-PR-5-F01-PP	950801500	
			emitter	S8-PR-5-G00-XG	950801540	

DIFFUSE						
HOUSING	OPTIC TYPE	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI 316L)	Axial	LED	M8 connector	NPN	S8-MR-5-C01-NN	950801440
				PNP	S8-MR-5-C01-PP	950801430
pig-tail			NPN	S8-PR-3-C01-NN	950801270	
			PNP	S8-PR-3-C01-PP	950801250	
PLASTIC ABS			M8 connector	NPN	S8-PR-5-C01-NN	950801260
				PNP	S8-PR-5-C01-PP	950801240

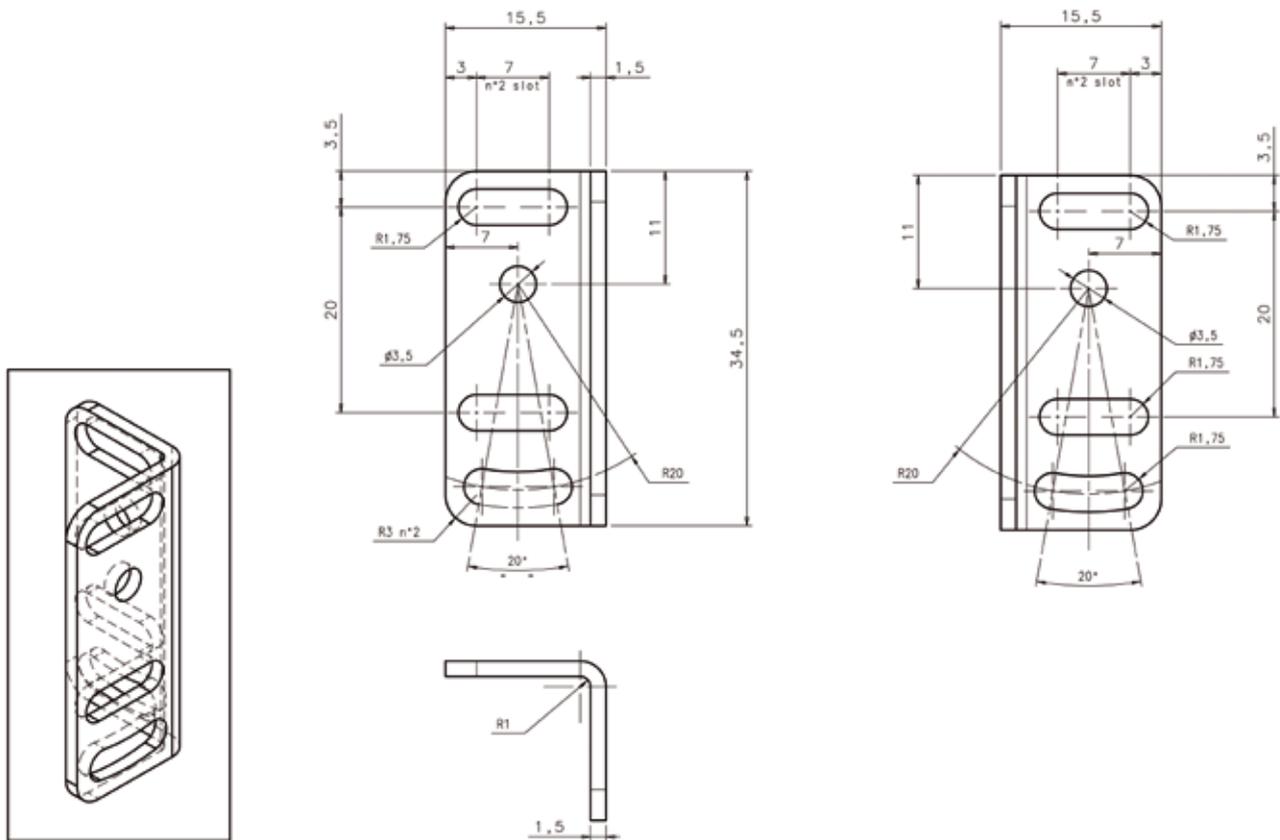
CONTRAST (RGB LED EMISSION LIGHT)							
HOUSING	OPTIC TYPE	SWITCHING FREQUENCY	CONNECTION	OUTPUT	MODEL	ORDER NO.	
METAL Stainless Steel (INOX AISI 316L)	Coaxial	10 kHz	M8 connector	PNP	S8-MR-5-W00-PH *	950801360	
				NPN	S8-MR-5-W00-NH *	950801370	
				PNP	S8-MR-5-W03-PP	950801340	
				NPN	S8-MR-5-W03-NN	950801350	
PLASTIC ABS			M12 pig-tail (150 mm)	PNP	S8-PR-3-W03-PP	950801140	
				NPN	S8-PR-3-W03-NN	950801150	
				PNP	S8-PR-5-W03-PP	950801060	
				NPN	S8-PR-5-W03-NN	950801070	
METAL Stainless Steel (INOX AISI 316L)		M8 connector	25 kHz	M8 connector	PNP/NPN/Push Pull 	S8-PR-5-W03-OZ	950800004
					PNP	S8-MR-5-W13-PP	950801670
					NPN	S8-MR-5-W13-NN	950801680
					PNP	S8-PR-5-W13-PP	950801650
PLASTIC ABS	M12 pig-tail (150 mm)	NPN		M12 pig-tail (150 mm)	PNP	S8-PR-3-W13-PP	950801690
					NPN	S8-PR-3-W13-NN	950801700

\*Note: Without regulation

LUMINESCENCE (UV LED EMISSION LIGHT)								
HOUSING	OPTIC TYPE	SETTINGS	CONNECTION	OUTPUT	MODEL	ORDER NO.		
METAL Stainless Steel (INOX AISI 316L)	Coaxial	Teach-in push-button; L/D trimmer selector; Remote Input	M8 connector	PNP	S8-MR-5-U03-PP	950801630		
				NPN	S8-MR-5-U03-NN	950801640		
PNP				S8-PR-5-U03-PP	950801610			
NPN				S8-PR-5-U03-NN	950801620			
PLASTIC ABS			pig-tail	PNP/NPN/Push Pull 	pig-tail	PNP	S8-PR-3-U03-PP	950801710
						NPN	S8-PR-3-U03-NN	950801720

IO-Link models available from July 2020





MODEL	FUNCTION	ORDER No.
ST-S8-FRM	mounting bracket for standard frame	95ACC7860
ST-5072	mounting bracket	95ACC1470
R4K	IP69K plastic reflector 51 x 61 mm	95A151220
ST-S8-TL-LD46	TL-LD46 adapting bracket	95ACC3430
ST-S8-S3Z	S8-miniature sensors adapting bracket	95ACC3440
ST-0387	Adapter bracket S8/S41	95ACC3410

#### IO-LINK CONNECTIVITY

MODEL	DESCRIPTION	ORDER No.
CBX-8IOL-EIP	CBX-8IOL-EIP 8P IOL M12 EIP MASTER	95ACC8180
CBX-8IOL-PNIO	CBX-8IOL-PNIO 8P IOL M12 PROFINET MASTER	95ACC8190

## CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M8 Connector	4-pole, grey, P.V.C.	3 m	CS-B1-02-G-03	95A251420
		5 m	CS-B1-02-G-05	95A251430
		7 m	CS-B1-02-G-07	95A251440
		10 m	CS-B1-02-G-10	95A251480
	4-pole, P.U.R.	2 m	CS-B1-02-R-02	95A251620
		5 m	CS-B1-02-R-05	95A251640
Radial M8 Connector	4-pole, grey, P.V.C.	3 m	CS-B2-02-G-03	95A251450
		5 m	CS-B2-02-G-05	95A251460
		7 m	CS-B2-02-G-07	95A251470
		10 m	CS-B2-02-G-10	95A251530
	4-pole, P.U.R.	2 m	CS-B2-02-R-02	95A251630
		5 m	CS-B2-02-R-05	95A251650
Axial M12-M/M8-F Double Headed Connector	4-pole, PVC IO-Link	3 m	CS-H1-02-B-03	95ACC0008