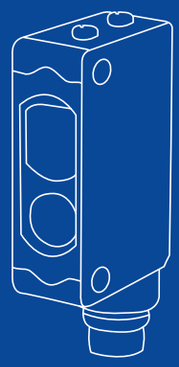
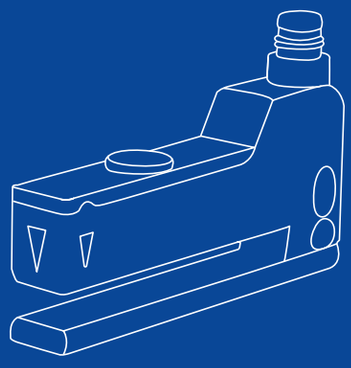
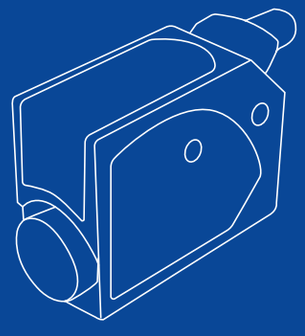
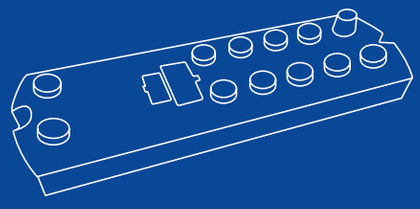
CATALOG

Photoelectric Sensors





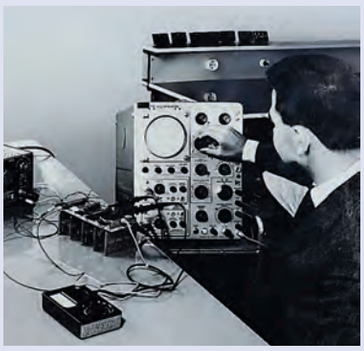




LIESA

DATALOGIC
EMPOWER YOUR VISION

DATALOGIC AT A GLANCE



Datalogic began its entrepreneurial adventure in 1972, when **Dr. Romano Volta** started developing and producing optical-electronic control appliances for the packaging, textile and ceramics sectors. Romano Volta sensed the revolutionary scope of the bar code and started developing a manual reader able to read it, combining electronics, mechanics, optics and information technology. In 1974 Datalogic brought this technology into the Retail world, in a supermarket in Troy, Ohio and then applied it to the whole industrial world, giving life to the only true Bar Code Company at a global level.

Today, Datalogic is a global leader in the automatic data capture and process automation markets, specialized in the design and production of bar code readers, mobile computers, sensors for detection, measurement and safety, RFID, vision and laser marking systems. Throughout the entire value chain, Datalogic solutions increase the efficiency and quality for processes in the Retail, Manufacturing, Transportation & Logistics and Healthcare industries.

45+ years
of experience

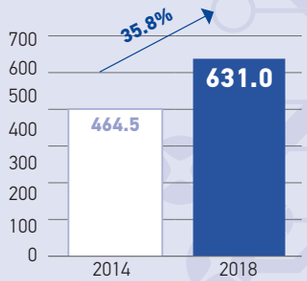
500 engineers
in 14 R&D centers in: Italy, USA, Vietnam, China, and Germany

1,200 patents
filed and more than 350 in approval

3,000+ Employees
in 27 countries:
21% Americas,
56% EMEA, 23% APAC

A costant growth

(total revenues mln Euros)



10% Revenues
invested in R&D

10 Manufacturing and Repair facilities
in US, Brazil, Hungary, Slovakia, Italy, China, Vietnam and Australia

WHY DATALOGIC

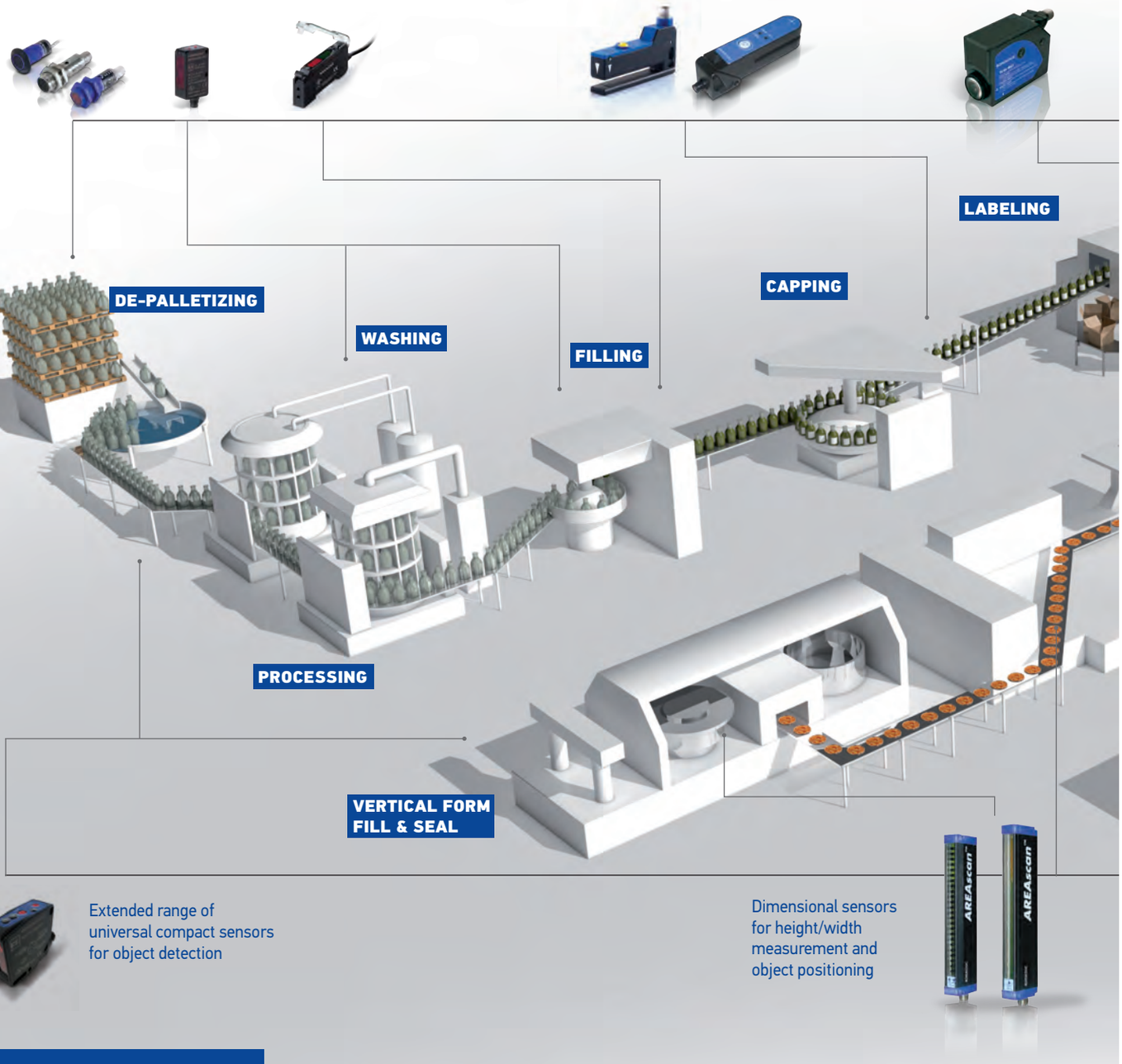
- **Unique Player** in both automatic data capture and industrial automation
- Recognized worldwide **leader**
- **Global player** expanding in different verticals
- Leading **innovator**
- Reliable products for **all needs**
- Wide range of **customizable service solutions** worldwide

PHOTOELECTRIC SENSORS

Tubular, Miniature and Fiber Optic sensors for object detection in reduced space

Fork sensors for label detection

Contrast and Luminescence sensors for registration marks detection



Extended range of universal compact sensors for object detection

Dimensional sensors for height/width measurement and object positioning

Applications

- **De-Palletizing**
- **Washing**
- **Filling**
- **Capping**
- **Labeling**
- **Case Packing**
- **Stretch-wrapping**
- **Palletizing**
- **Storage & Retrieval**
- **Cartoning**
- **Wrapping**
- **Vertical Form Fill & Seal**
- **Processing**

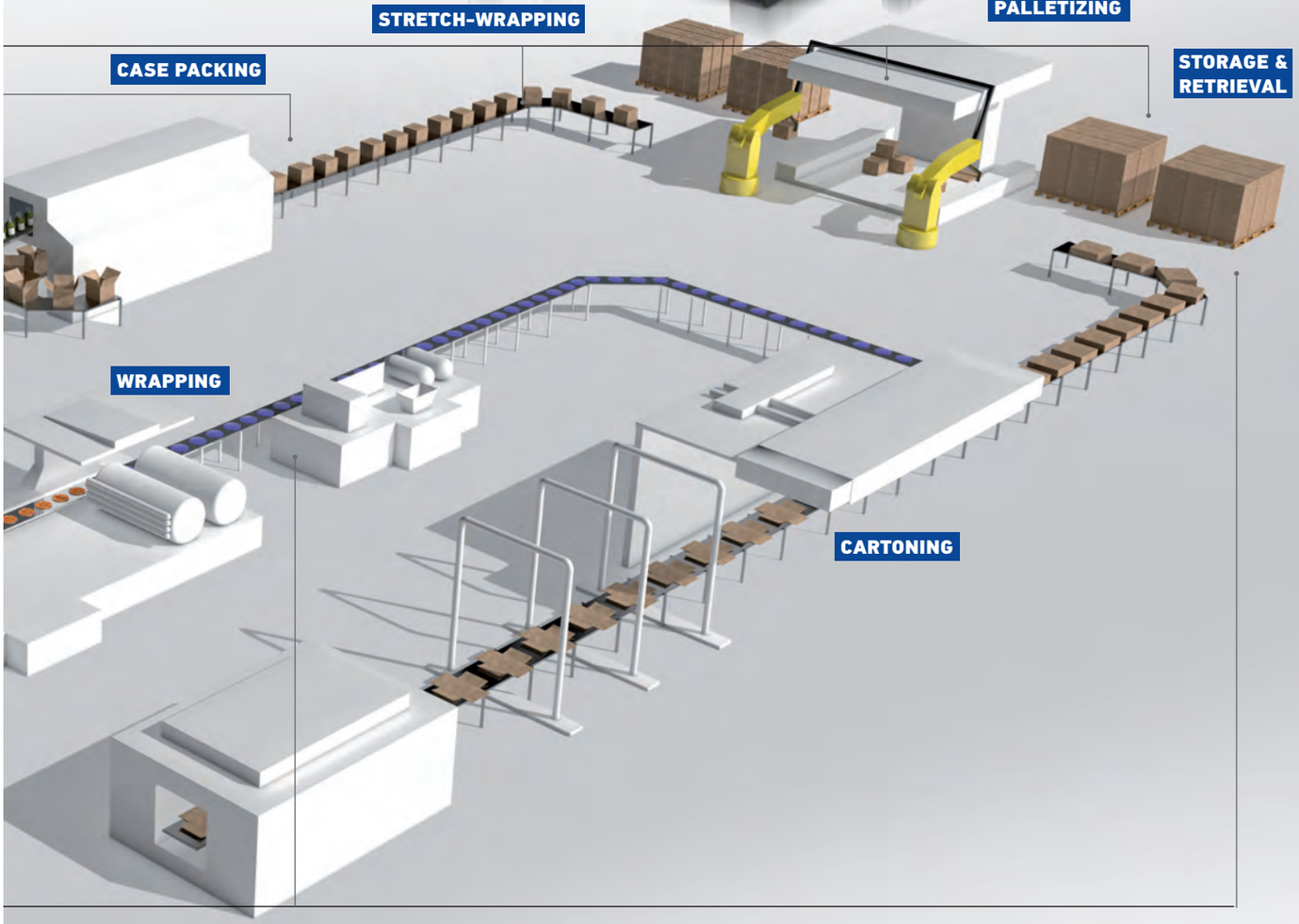
Datalogic has more than 40 years of experience in the sensors and safety sector, developing their first product, a **Photoelectric Sensor**, in 1972. Today, Datalogic is one of the largest manufacturers of sensor and safety products worldwide.

Datalogic is the market leader in Italy for photoelectric sensors and safety light curtains, ranking among the **top-10 manufacturers** in Europe by market share.

Datalogic's **Sensors and Safety** portfolio solves customer applications in **Factory Automation**, specializing in Processing and Packaging machinery, and Automated Material Handling Systems related to manufacturing industries such as Automotive, Electronics, Pharmaceutical, Food & Beverage, Paper and Printing, Wood-working, Ceramics, Glass, and Textiles.

Area sensors for the detection of objects with different shape and dimensions

Maxi and Compact sensors for object detection



TOF distance sensors for measurement and object positioning

PHOTOELECTRIC SENSORS PRODUCTS RANGE

SENSORS PRODUCT RANGE

Photoelectric

- Universal function
  - M18 Tubular
  - Fiber optic
  - MINI size
  - MIDI size
  - MAXI size
- Application specific function
  - Fork
  - Contrast / Color
  - Luminescence
  - Area
  - Dimensional
  - Distance

other sensors

- Inductive
- Ultrasonic
- Capacitive
- Temperature

INDEX

PHOTOELECTRIC SENSORS

A **Photoelectric sensor** is a device used to detect the distance, absence or presence of an object, as well as to distinguish different items on the basis of their light absorption and reflection properties.

A photoelectric sensor consists of an emitter and receiver unit, coupled by either a modulated LED or LASER light beam.

Photoelectric sensors are available in three different functional types depending the environment and the detection objects physical properties: through beam, retroreflective, and proximity.

These sensors are ideal for generic industrial applications such as counting, presence control, or automatic positioning.

In addition, Datalogic offers solutions in a variety of applications such as contrast reading, distance and area measuring, as well as luminescence and color detection.

PHOTOELECTRIC SENSORS

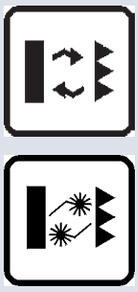
THROUGH BEAM

The light emitter and receiver are contained in two different housings and installed facing each other. The light beam released by the emitter directly hits the receiver; every object interrupting the beam is therefore detected. This system is used to obtain significant signal differences (when the light directly hits the receiver and when the object interrupts the beam) with the highest Excess Gain and the largest operating distance (up to 60 m). Moreover, these sensors can operate in the harshest working conditions, such as dirty or dusty environments. The through beam optic function typically operates in the dark mode: the output is activated when the object interrupts the light beam between emitter and receiver.

RETROREFLECTIVE

Both emitter and receiver are located inside the same housing for retro-reflective photoelectric sensors. Utilizing a prismatic reflector, the emitted light beam is reflected onto the receiver, detecting the object when it interrupts the light beam.

POLARIZED RETROREFLECTIVE



In polarized retroreflective sensors, the emitted light is polarized on a vertical plane through a polarization filter. The prismatic reflector rotates the light plane by 90°. A polarization filter placed on the receiver selects only the horizontal plane reflected by the prismatic reflector, ignoring the light reflected by other light sources.This technique guarantees a reliable signal reception, reaching significant distances-

RETROREFLECTIVE FOR TRANSPARENT

For the detection of transparent objects, such as PET bottles or Mylar sheets, a low-hysteresis polarized retroreflective model (which detects small signal differences) can be used.
These sensors elaborate the slight signal differences received when the light beam passes through a transparent object, avoiding false detections due to the nature of this kind of targets.
This technique mostly suits applications for the detection of objects positioned at considerable distances, where a prismatic reflector can be installed.

Typically, the operating distance proportionally increases with the reflector's dimensions.

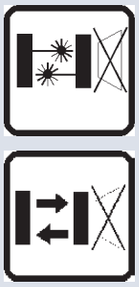
DIFFUSE PROXIMITY

In photoelectric sensors with this optic function, both emitter and receiver are placed inside the same housing.These sensors work with weaker signals because the emitted light beam is reflected to the receiver by the object. As a consequence, the excess gain and the operating distance are reduced. However objects are detected without a prismatic reflector, making installations quick and easy.

FIXED FOCUS PROXIMITY

Fixed focus proximity sensors have a simple fixed background suppression distance, beyond which no objects are detected. The fixed triangulation of the optics greatly reduces the detection distance of reflective objects. The visible red emission simplifies the sensor's installation.

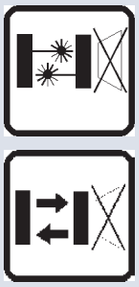
BACKGROUND SUPPRESSION



Background suppression sensors detect objects while avoiding reflections from the background. When the sensor is used for the first time, the proper background suppression distance has to be set through a distance adjustment trimmer. Once the background has been acquired, the objects can be detected regardless of their color. Background suppression sensors are not very reliable with highly clear, transparent or shiny objects.

BACKGROUND SUPPRESSION

FOR CLEAR DETECTION



Background suppression technology often has difficulty reliably detecting transparent, clear, or shiny objects. These objects generate false detections due to their highly reflective surfaces. Datalogic's patented background suppression technology guarantees reliable and repeatable detection, ignoring the false detections. Models are available with LED emission, ideal for reflections caused by moving surfaces such as conveyor belts, or with LASER emission for the detection of small objects on fixed or highly reflective backgrounds. Since background suppression sensors do not require a prismatic reflector, these sensors can substitute for a polarized retroreflective sensor for transparent objects for shorter distances.

PHOTOELECTRIC SENSORS

CONTRAST

Contrast sensors distinguish the received light beams on the basis of their degrees of intensity, which depend on the color or material of the detected surfaces. A typical application of these sensors is the detection of colored registration marks used in packaging machines to synchronize the folding, cutting and welding phases.In presence of colored surfaces, the contrast is highlighted using a LED with colored light emission, typically a selectable red, green or blue LED. The white light emission allows to detect very slight contrasts in similar materials and colors.

LUMINESCENCE

Luminescence sensors emit invisible ultraviolet light, which is reflected at a higher wavelength (minor energy) on the fluorescent and phosphorescent surface, shifting into the visible light spectrum.
The ultraviolet emission is modulated and the visible light reception is synchronized. The maximum immunity against external interferences, like reflections caused by very shiny surfaces, is obtained and fluorescent targets, invisible to the human eye, can be detected. Luminescence sensors are used in several industrial fields to detect items containing phosphorous such as labels on glass or mirrors, fluorescent marks marked on tiles, fluorescent glues on paper, cutting and sewing guides, as well as fluorescent paints or lubricants.

FORK

A fork sensor, is based on a particular model of the through beam sensor, where emitter and receiver are placed opposite to each other on the internal sides of an “U-shaped” housing. Any target passing through the internal slot interrupts the beam and is detected. The most typical fork sensor applications are hole/teeth detection on wheels, label detection on thin supports, and control of edge and continuity of sheets of labels or tapes. The emission is generally infrared or red light in order to detect colored registration marks on translucent films.

COLOR

The color of an object is identified according to the different reflection coefficients obtained with the red (R), green (G) and blue (B) light emissions. For instance, yellow is characterized by R=50% G=50% B=0% reflections, orange by R=75% G=25% B=0%, pink by R=50% G=0% B=0%, the combinations are infinite. Color sensors cover a wide variety of applications, ranging from quality and process controls to automatic material handling for the identification, orientation, and selection of objects according to their color.

DISTANCE

Datalogic distance sensors are based on Time of Flight (T.O.F.): the distance is calculated on the basis of the time between the moment the LASER pulse is generated and the moment the emitted light is reflected off the object, back to the sensor. These sensors are generally used to measure an object's distance within a selected range, while the output is linearly scaled to the analog signal (4...20mA). This technology provides high precision and fast measurements in many applications, such as automatic warehousing (to drive industrial vehicles and avoid collisions), packaging and material handling.

AREA/DIMENSION LIGHT GRIDS

Area and Dimension light grids utilize several light beams for area or dimensional measurements of objects. An object's area and size are measured using parallel cross-beams, which identify obscured beams, providing accurate information to a host GUI or PC. Models of light grids vary by length to match each application requirements.

SELECTION CHART

LIESA

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SELECTION CHART

UNIVERSAL PHOTOELECTRIC SENSORS

	TUBULAR		MINIATURE			
	S15	S5N	SMall	S3Z	S45	S100
MAX OPERATING DISTANCE						
Through beam	0...20 m	0...30 m CL1 0...60 m	0...2 m	0...15 m 0...30 m CL1	0...15 m 0...20 m CL1	0...12 m
Retroreflective	0,1...5 m	0,1...5 m	0,05...1,5 m			0,01...8 m
Polarized retroreflective	0,1...4 m	0,1...4,5 m 0,1...16m CL1	0,1...1 m	0,05...4 m 0,3...10 m CL1	0,1...7 m 0...2 m (coaxial) 0,1...15 m CL1	0,01...3 m 0,01...5,5 m
Retroreflective for transparent	0,1...0,8 m	0,1...1,7 m		0...2 m	0...2 m	
Diffuse proximity	1...100 mm 1...350 mm 1...1000 mm	0...100 mm 0...400 mm 0...700 mm 0...350 mm CL1		5...150 mm 0...700 mm	0...800 mm 1...250 mm CL1	2...300 mm 2...500 mm
Fixed focus	0...50 mm	100 mm	3...15 mm 3...20 mm 3...30 mm 3...50 mm			70 mm
Background suppression	40...120 mm	0...150 mm 0...100 mm		0...300 mm 0...300 mm CL1	1...200 mm 3...400 mm 4...120 mm CL1	0...100 mm
Fiber optic		0...100 mm (through beam) 0...30 mm (diffuse proximity)				
Contrast		10 ±2 mm			10 ±2 mm	
Luminescence		0...20 mm				
Page	22	30	46	50	56	64

(*) The maximum operating distance is determined by the optic fiber and accessory lens used and the response speed selected in the specific model

The table shows the maximum operating distance reached by different sensors models. Some measures indicate only the highest performances obtained by the corresponding sensor. Other operating distance values might be available for the same series and some optic functions might be carried out through LED or LASER emission, reaching different distances. For more specific information refer to the dedicated product page in this guide or download datasheets and manuals from our website (www.datalogic.com)

	COMPACT				MAXI		FIBER OPTIC	
	S8	S6	S60	S62	S300 PA	S300 PR	S7	S70
								
	0...25 m	20 m	0...20 m 0...60 m CL1	0...25 m	0...50 m	0...60 m	0...300 mm (*)	0...1740 mm (*)
		0,1...6 m		0,1...13 m	0,1...15 m			
5	0...5 m 0...10 m CL2	0,1...5 m	0.1...8 m 0...4 m (coaxial) 0.1...20 m CL1	0,1...8 m 0,3...20 m CL2	0,1...10 m	0,1...22 m		
	0...0,8 m 0...2 m		0...2 m (coaxial)					
	0...500 mm	10...900 mm 10...2000 mm	0...100 cm 0...200 cm (long range) 0...60 cm CL1	0...900 mm 0...2000 mm 0...900 mm CL2	50...2000 m	0...5000 mm	0...100 mm (*)	0...550 mm (*)
	50...300 mm 20...200 mm CL2	10...100 mm 30...250 mm 100...500 mm	7...20 cm 5...10 cm CL1	30...300 mm 60...600 mm 60...1200 mm 200...2000 mm 30...1500 mm 50...350 mm CL2	0,2...2 m	400...2500 mm		
	9 ±2 mm		19 mm +/-2 mm (white)					
	10...20 mm		0...40 mm					
	74	82	88	98	106	112	118	122

APPLICATION PHOTOELECTRIC SENSORS

	FORK				CONT RAST		
MAX OPERATING DISTANCE	SR21 	SR23 	SRF 	SRX3 	TLμ 	TL46 	
Slot (width)	2 mm	5 mm	30, 50, 80, 120 mm	4 mm			
Contrast					6...60 mm (*)	9 ±3 mm (*)	
Luminescence							
Color & Contrast							
Area							
Dimensional							
Distance							
Page	138	142	146	150	154	160	

(*) The maximum operating distance is determined by the lens used in the specific model

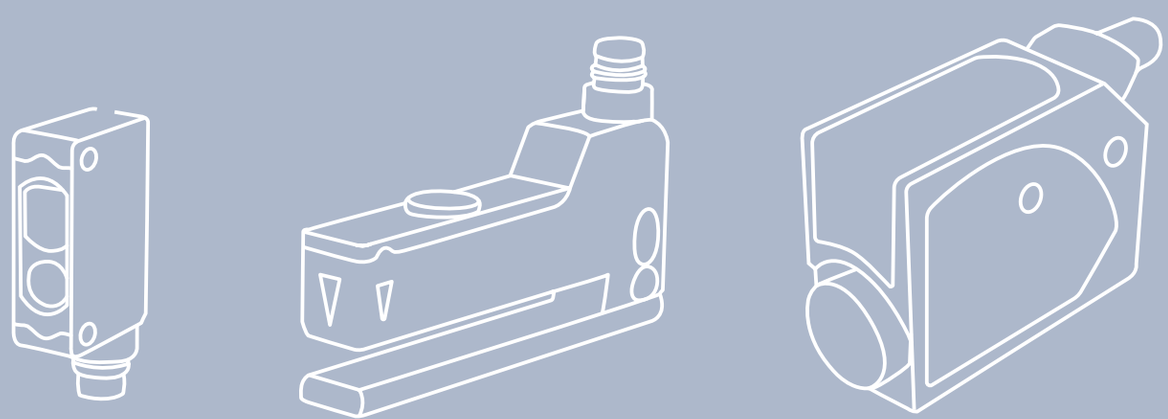
The table shows the maximum operating distance reached by different sensors models. Some measures indicate only the highest performances obtained by the corresponding sensor.
Other operating distance values might be available for the same series and some optic functions might be carried out through LED or LASER emission, reaching different distances.
For more specific information refer to the dedicated product page in this guide or download datasheets and manuals from our website (www.datalogic.com)

	LUMINESCENCE	COLOR & CONTRAST	AREA	DIMENSION LIGHT GRIDS		DISTANCE		
	LD46	S65	AS1	DS1	DS2	S65-M	S67	S85
								
		12...20 mm						
	10...50 mm (*)							
		5...45 mm						
			0,3...3 m					
				0,15...4 m	0,3...10 m			
						0,3...5m (white 90%)	50...300 mm (Y03) 100...600 mm (Y13)	0,2...20 m
	166	170	176	180	184	188	192	198

ACCESSORIES

	FIBER OPTIC	IO-LINK CONNECTIVITY	CONNECTORS		REFLECTORS
	OF/OFA	MASTER IO-LINK	CS	CAB	R
					
Page	204	210	218	220	222

REFERENCE GUIDE



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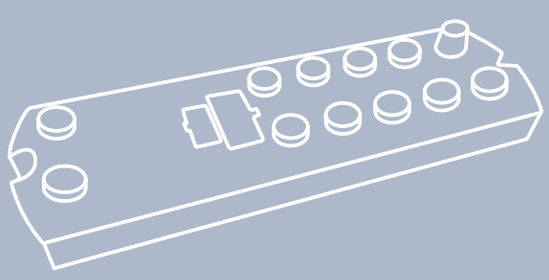

DATALOGIC
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S15

PLASTIC AND STAINLESS STEEL TUBULAR M18 PHOTOELECTRIC SENSORS EVERY ENVIRONMENT

- Short case models for cost and space savings
- Plastic and stainless steel case with IP69K protection
- All optic functions at optimal operating distances
- Models with fixed settings or adjustment trimmer
- Cable, M12 connector and pig-tail models

IP69K

(*)

APPLICATIONS

- Processing and Packaging machinery
- Assembling and Conveyor lines

(*) Stainless steel models.
ATEX II 3DG

S15		
Through beam		0...20 m
Retroreflective (on R2 reflector)		0,1...5 m
Polarized retroreflective		0,1...4 m
Retroreflective for transparent (on R2 reflector)		0,1...0,8 m
Diffuse proximity		short distance 0...100 mm
		medium distance 0...350 mm
		long distance 1 m
Fixed focus		0...50 mm
Background suppression		40...120 mm
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	•
	pig-tail	•
Approximate dimensions (mm)		M18x44/48
Housing material		ABS, INOX AISI 316L
Mechanical protection		IP65 - IP67 - IP69K

TECHNICAL DATA

Power supply	12 ... 30 Vdc (limit values)
Ripple	2 Vpp max.
Consumption	25 mA max.
Light emission	red LED 660 nm (mod. S15...B/D/T/M)
	IR LED 880 nm (mod. S15...A/C/G)
Setting	mono-turn trimmer (mod. S15...A01/B01/Cx1/T01/F01) and 4 turns (mod. S15...M01)
Operating mode	white wire or pin 2 not connected: LIGHT mode (mod. S15...C/D/M)/DARK mode (mod. S15...A/B/T/F)
	white wire or pin 2 connected to: 0 V DARK mode, +Vcc LIGHT mode
Indicators	yellow OUTPUT LED
	green STABILITY LED, POWER LED (mod. S15...G)
Output	PNP or NPN
Output current	100 mA max.
Saturation voltage	2 V max.
Response time	1 ms (mod. S15...A/B/C/T/M)
	2 ms (mod. S15...F)
	500 µs (mod. S15...D)
Switching frequency	500 Hz (mod. S15...A/B/C/T/M)
	250 Hz (mod. S15...F)
	1 kHz (mod. S15...D)
Connection	M12 4-pole connector, 2 m cable Ø 4 mm, 150 mm length Ø 4 mm cable with M12 4-pole connector (pig-tail vers.)
Dielectric strength	500 Vac 1 min., between electronics and housing
Insulation resistence	>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)
Housing material	ABS TERLURAN, INOX AISI 316L (mod. S15-PA) - (mod. S15-NA)
Lens material	plastic PMMA
Operating temperature	-25 ... 55°C
Storage temperature	-25 ... 70°C
Weight	40 g max. conn. vers., 55 g max. cable vers., 35 g max. pig-tail vers.

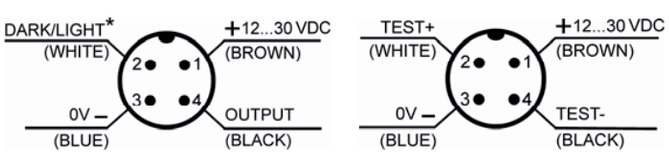
CONNECTIONS

CABLE AND PIG-TAIL

Through beam emitter

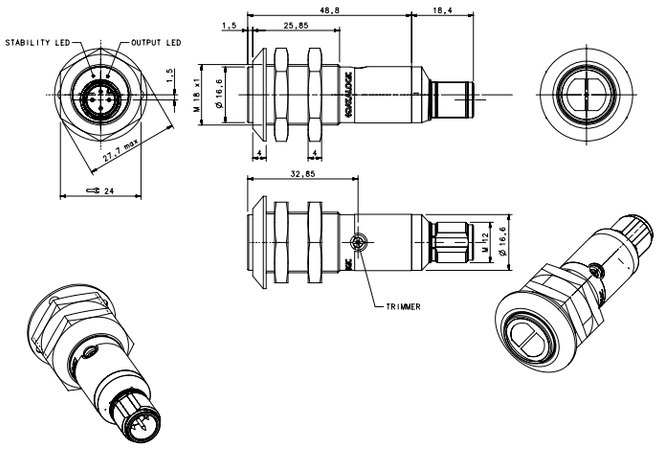
M12 CONNECTOR

Through beam emitter

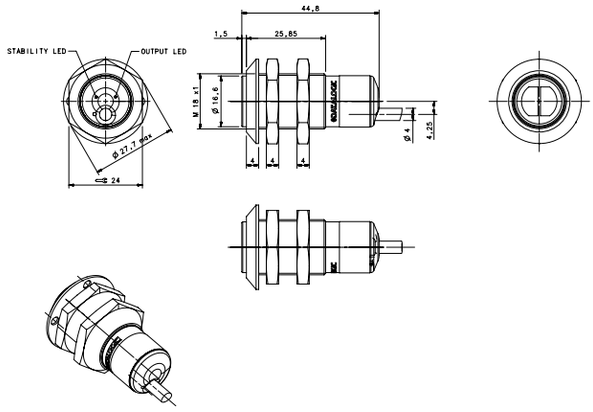


PLASTIC

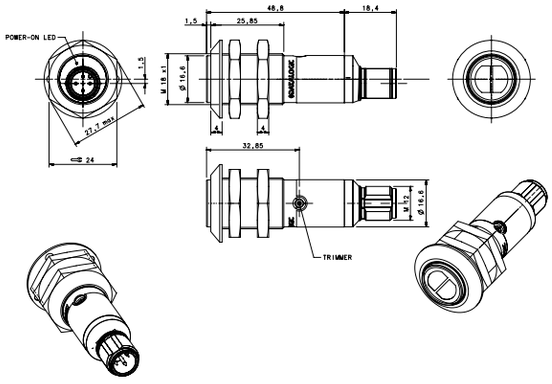
M12 connector version



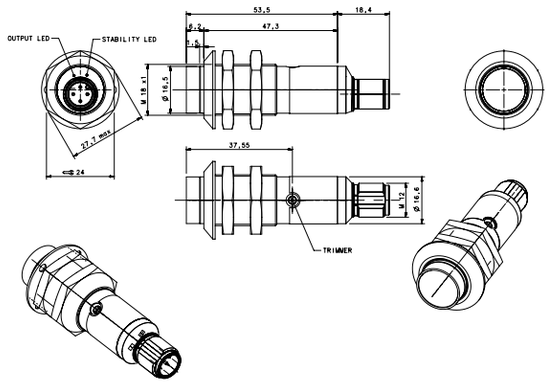
Cable version



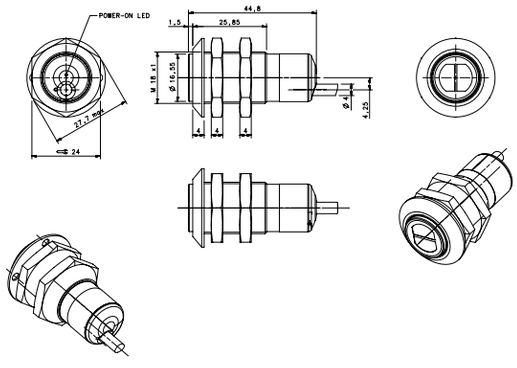
Through beam emitter - M12 connector version



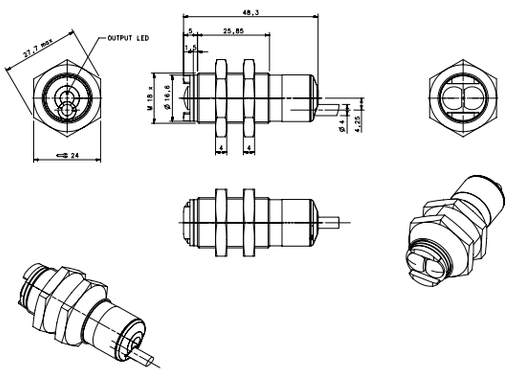
Background suppression - M12 connector version



Through beam emitter - cable version

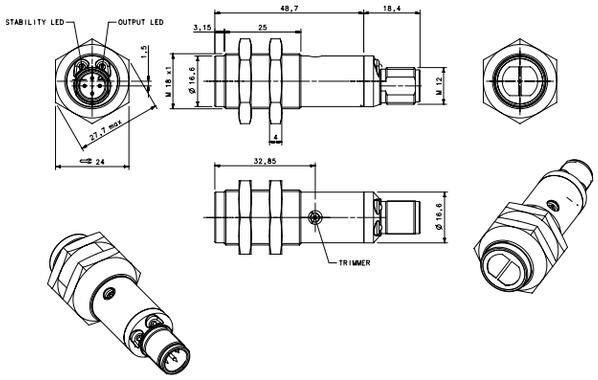


Diffuse proximity - cable version

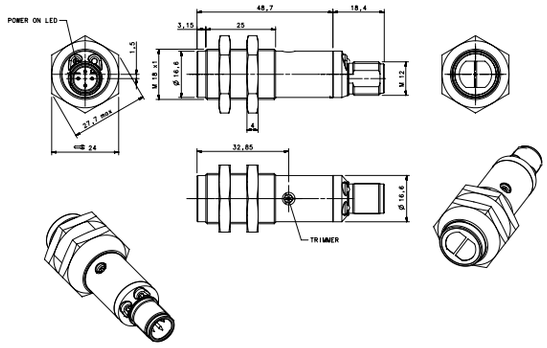


STAINLESS STEEL

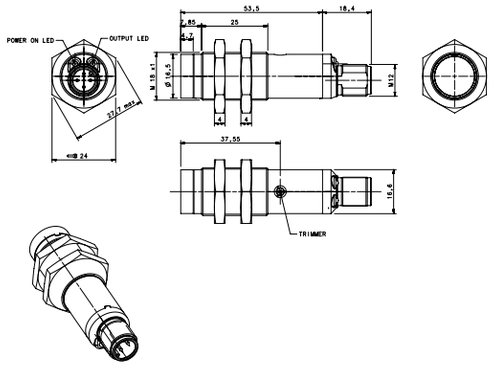
M12 connector version



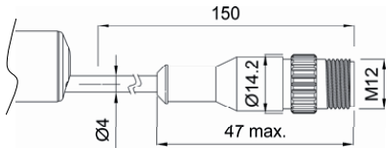
Through beam emitter - M12 connector version



Background suppression - M12 connector version

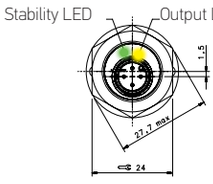


Pig-tail version

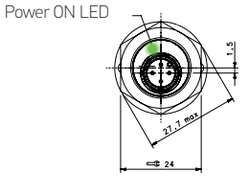


INDICATORS AND SETTINGS

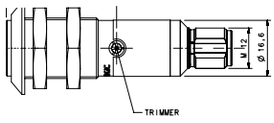
Plastic/metal case with trimmer, M12 connector



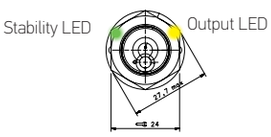
A01, B01, C11, C31, T01, F01, M01



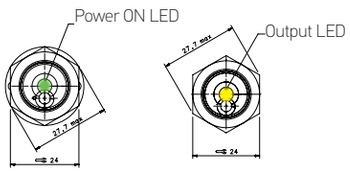
G01



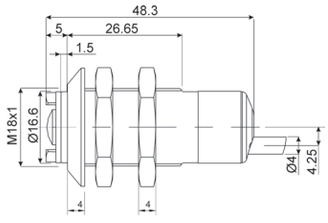
Plastic, no trimmer, Cable, Pig Tail

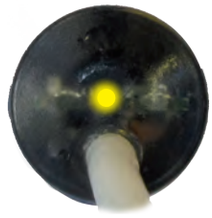


A00, B00, C10, C00, T01, D50

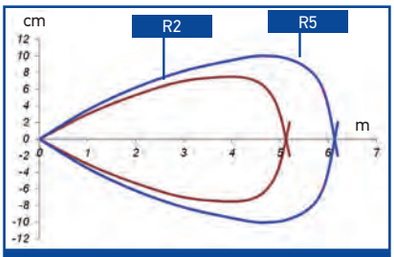


G00 F00

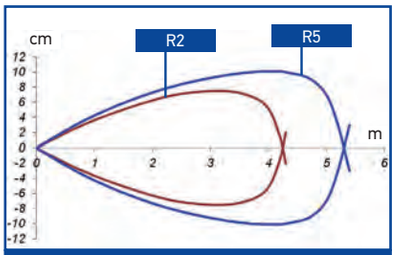




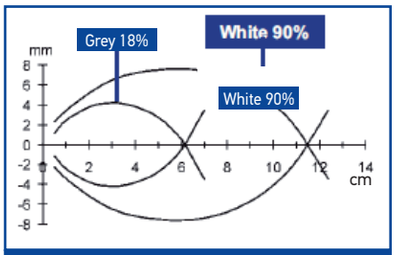
DETECTION DIAGRAMS



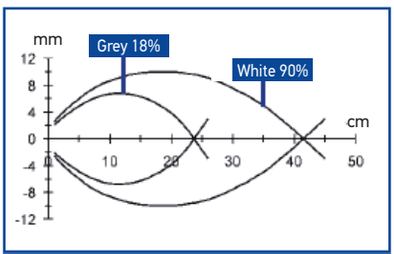
A00 - RETROREFLECTIVE



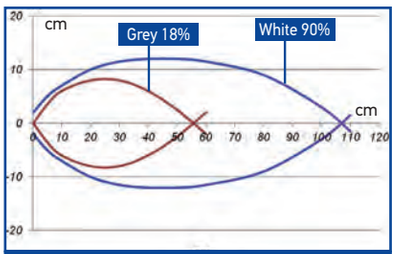
B00 - POLARIZED RETROREFLECTIVE



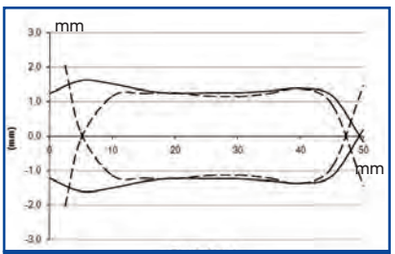
C00 - SHORT DIFFUSE PROXIMITY



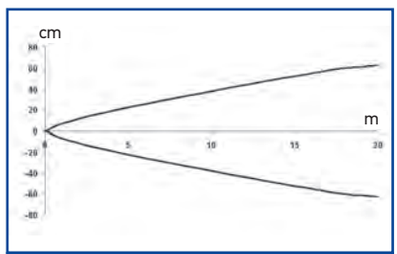
C10/C11 - MEDIUM DIFFUSE PROXIMITY



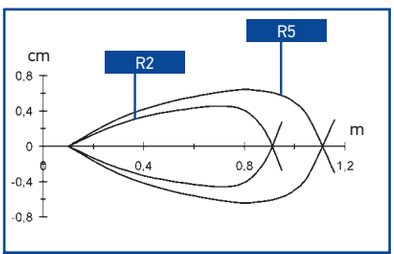
C31 - LONG DIFFUSE PROXIMITY



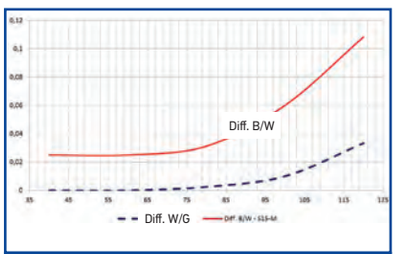
D50 - FIXED FOCUS PROXIMITY



F00/G01 - THROUGH BEAM



T01 - RETROREFLECTIVE BY TRASPARENT



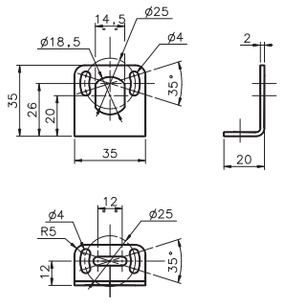
M01 - BACKGROUND SUPPRESSION
Difference White/Grey and Black/White

MODEL SELECTION AND ORDER INFORMATION

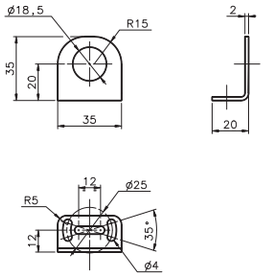
OPTIC FUNCTION	HOUSING	CONNECTION	OUTPUT	MODEL	ORDER No.
Retroreflective	Plastic	2 m cable	NPN	S15-PA-2-A00-NK	952301051
			PNP	S15-PA-2-A00-PK	952301001
		M12 connector	NPN	S15-PA-5-A01-NK	952301300
			PNP	S15-PA-5-A01-PK	952301220
		pig-tail	NPN	S15-PA-3-A00-NK	952301161
			PNP	S15-PA-3-A00-PK	952301111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

ACCESSORIES

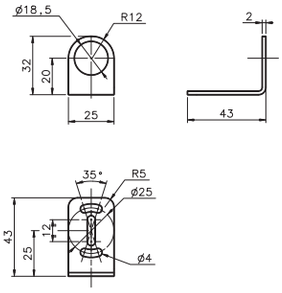
ST-5010



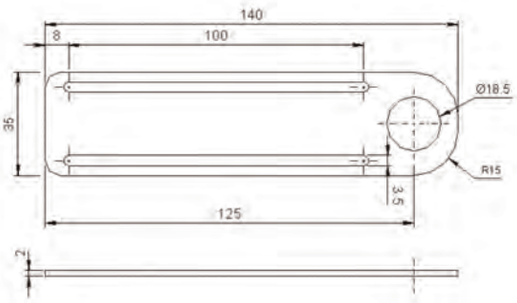
ST-5011



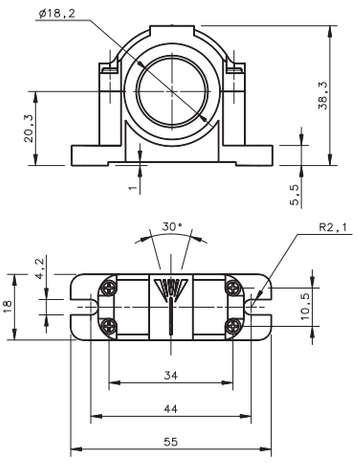
ST-5012



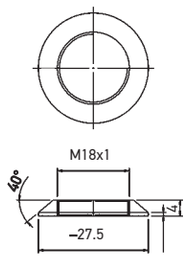
ST-5017



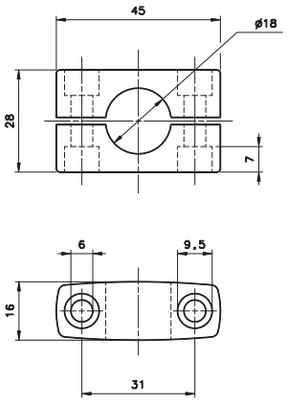
SWING-18



PLASTIC NUT



SP-40



mm

MODEL	DESCRIPTION	ORDER No.
ST-5010	M18/14 mounting bracket	95ACC5230
ST-5011	M18 mounting bracket short	95ACC5240
ST-5012	M18 mounting bracket long	95ACC5250
ST-5017	M18 mounting bracket	95ACC5270
ST1218	M12/M18 mounting brackets	95ACC3340
ST1830	M18/M30 mounting brackets	95ACC3350
SP-40	mounting bracket tubular	95ACC1370
SWING-18	Adjustable support for M18 tubular sensors	895000006
PLASTIC NUT	flared mounting nut	95ACC2630

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		7 m	CS-A1-02-G-07	95A251280
		10 m	CS-A1-02-G-10	95A251390
	4-pole, P.U.R.	2 m	CS-A1-02-R-02	95A251540
		5 m	CS-A1-02-R-05	95A251560
Radial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A2-02-G-03	95A251360
		5 m	CS-A2-02-G-05	95A251240
		7 m	CS-A2-02-G-07	95A251245
		10 m	CS-A2-02-G-10	95A251260
	4-pole, P.U.R.	2 m	CS-A2-02-R-02	95A251550
		5 m	CS-A2-02-R-05	95A251570
Axial M12 Connector	4-pole, shielded, black, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
		5 m	CV-A1-22-B-05	95ACC1490
		10 m	CV-A1-22-B-10	95ACC1500
		15 m	CV-A1-22-B-15	95ACC2070
		25 m	CV-A1-22-B-25	95ACC2090
Radial M12 Connector		3 m	CV-A2-22-B-03	95ACC1540
		5 m	CV-A2-22-B-05	95ACC1550
		10 m	CV-A2-22-B-10	95ACC1560
Axial M12 Connector	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	4-pole, black	Connector- not cabled	CS-A1-02-B-NC	G5085002
Radial M12 Connector		Connector- not cabled	CS-A2-02-B-NC	G5085003

Rev. 01, 07/2016

S5N

IO-Link

EXTENDED RANGE OF STANDARD “ONE FOR ALL” PHOTOELECTRIC TUBULAR M18 SENSORS

- All optic functions
- Improved EMI immunity
- Improved ambient light immunity
- Improved laser safety level
- M18 flat plastic with universal mounting
- Available in M18 metal housing
- Axial or radial optics, cable or connector
- Standard 4-wire NO-NC NPN or PNP output

APPLICATIONS

- Processing and Packaging machinery
- Conveyor lines, material handling
- Ceramics intralogistics
- Automated warehousing

S5N		
Through beam		0...20 m
		0...60 m (class 1 LASER)
Retroreflective (on R2 reflector)		0,1...4 m
Polarized retroreflective		0,1...4 m
		0,1...16 m (class 1 LASER)
Retroreflective for transparent (on R2 reflector)		0,1...1,3 m
Diffuse proximity		short distance 0...100 mm
		medium distance 0...400 mm
		long distance 0...700 mm
		long distance LASER 0...350 mm
Fixed focus		100 mm
Background suppression		50...150 mm
Through beam with fiber optic		0...100 mm
Diffuse proximity with fiber optic		0...30 mm
Contrast sensor		10 ±2 mm
Luminescence sensor		0...20 mm
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	IO-Link v 1.1
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		M18x 55/68
Housing material		PBT, nickel plated brass
Mechanical protection		IP67

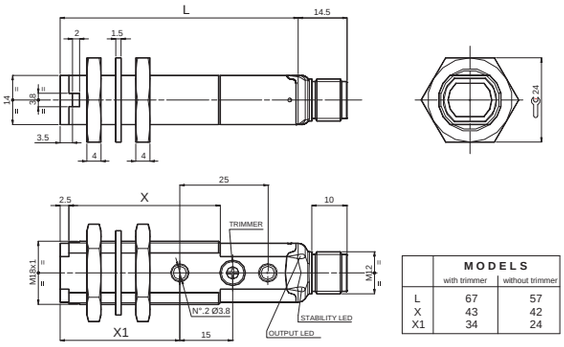
TECHNICAL DATA

Power supply	10 ... 30 Vdc (limit values)
Ripple	2 Vpp max.
Consumption (output current excluded)	35 mA max. (mod. S5N...A00/B01/C01/C10/C21/D00/E01/T01)
	30 mA max. (mod. S5N...F01/M03)
	25 mA max. (mod. S5N...W03/U03)
Light emission	red LED 630 nm (mod. S5N...D00/E01, S5N-PA/MA...M03)
	red LED 660 nm (mod. S5N...B01/T01)
	red LED 670 nm (mod. S5N-PS/MS...M03)
	IR LED 880 nm (mod. S5N...A00/C01/C10/C20/C21/G00)
	white LED 400-700 nm (mod. S5N...W03)
	UV LED 370 nm (mod. S5N...U03)
	red Laser 650 nm (mod. S5N...G00/F01/B01/C01)
Setting	sensivity trimmer (mod. B01/C01/C21/E01/F01/T01)
	teach-in push-button (mod. M03/W03/U03)
Operating mode	LIGHT mode on N.O. output / DARK mode on N.C. output (mod.S5N...C01/C10/C21/D00/M03/U03)
	DARK mode on N.O. output / LIGHT mode on N.C. output (mod.S5N...A00/B01/E01/F01/T01/W03)
Indicators	yellow OUTPUT LED (S5N, excl. mod. G00)
	green STABILITY LED (mod. S5N...B01/C01/C21/E01/F01), POWER LED (mod. S5N...G00)
	green/red READY/ERROR LED (mod. S5N...M03/W03/U03)
Output	PNP or NPN; NO; NC (mod. S5N) IO-Link v 1.1 (mod.S5N...OZ)
IO-Link interface	(mod.S5N...OZ) v 1.1, com 2, 38,4 kBaud, 32 bit process data, 5 ms cycle time LED emission model, 8 ms cycle time LASER emission model
Output current	100 mA max.
Saturation voltage	2 V max.
Response time	0,5 ms (mod. S5N...A00/B01/T01/C10/C21/C01/D00/E01/U03)
	2 ms (mod. S5N...F01/G00)
	1 ms (mod. S5N...M03)
	100 µs (mod. S5N...W03)
	333 µs (Laser mod. S5N)
Switching frequency	1 kHz (mod. S5N...A00/B01/T01/C10/C21/C01/D00/E01/U03)
	250 Hz (mod. S5N...F01/G00)
	500 Hz (mod. S5N...M03)
	5 kHz (mod. S5N...W03)
	1,5 kHz (Laser mod. S5N)
Connection	2 m cable Ø– 4 mm, M12 4-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Housing material	Plastic version PBT
	Metal version nickel plated brass
Lens material	PMMA
Operating temperature	-25 ... 55 °C
	(Laser mod.) -10 ... 50 °C
Storage temperature	-25 ... 70 °C
Weight	Plastic version 75 g max. cable vers. (90 g max. mod. M03), 25 g max. conn. vers. (40 g max. mod. M03)
	Metal version 110 g max. cable vers. (125 g max. mod. M03), 60 g max. conn. vers. (75 g max. mod. M03)

DIMENSION

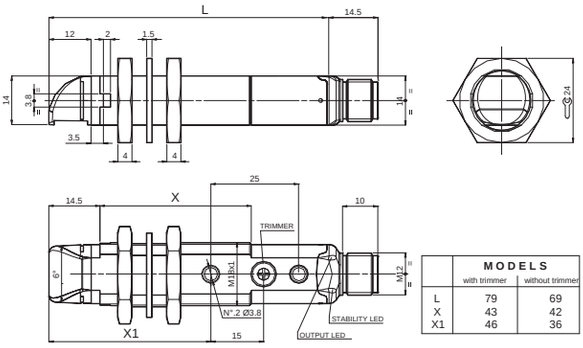
PLASTIC

AXIAL VERSION



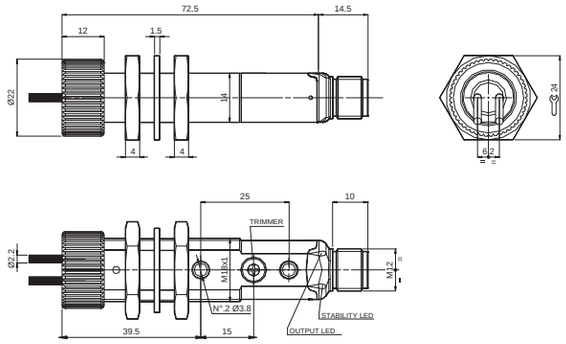
	MODELS	
	with trimmer	without trimmer
L	67	57
X	43	42
X1	34	24

RADIAL VERSION



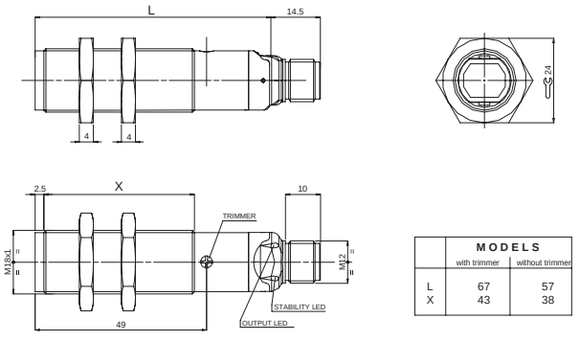
	MODELS	
	with trimmer	without trimmer
L	79	69
X	43	42
X1	46	36

FIBRE OPTIC VERSION



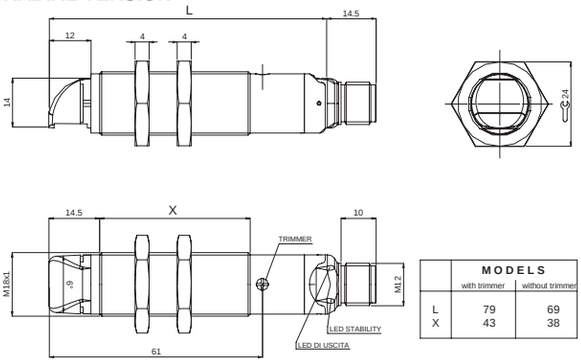
METAL

AXIAL VERSION



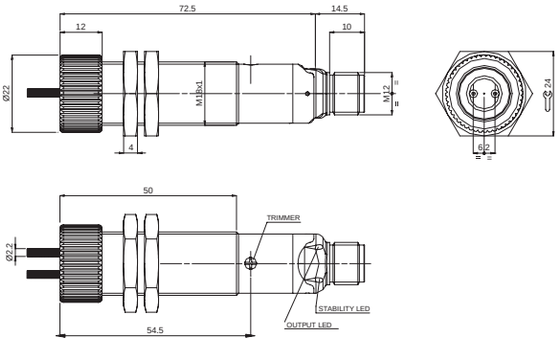
	MODELS	
	with trimmer	without trimmer
L	67	57
X	43	38

RADIAL VERSION



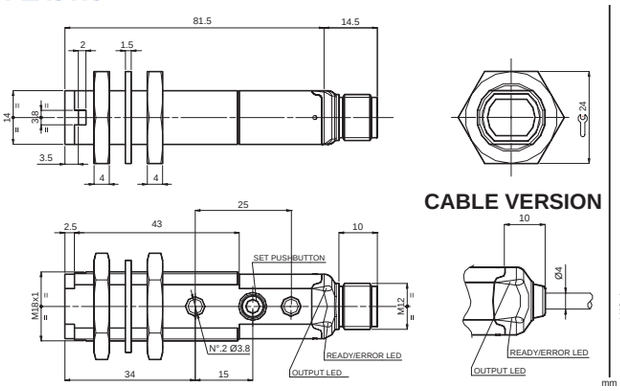
	MODELS	
	with trimmer	without trimmer
L	79	69
X	43	38

FIBRE OPTIC VERSION

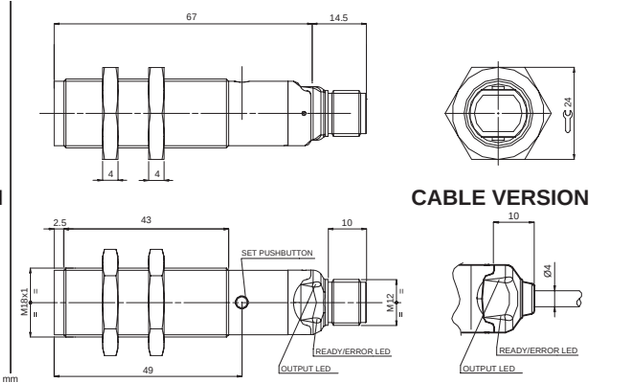


BACKGROUND SUPPRESSION AXIAL VERSION

PLASTIC



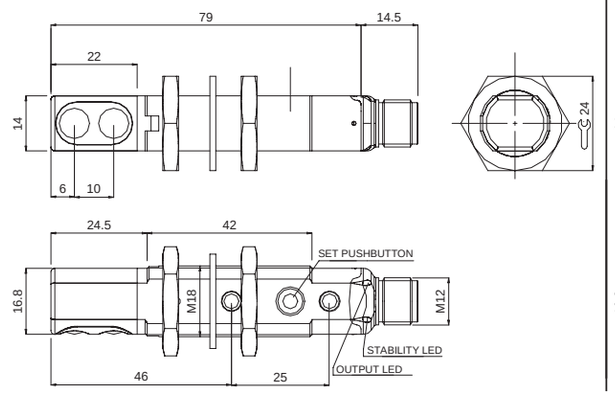
METAL



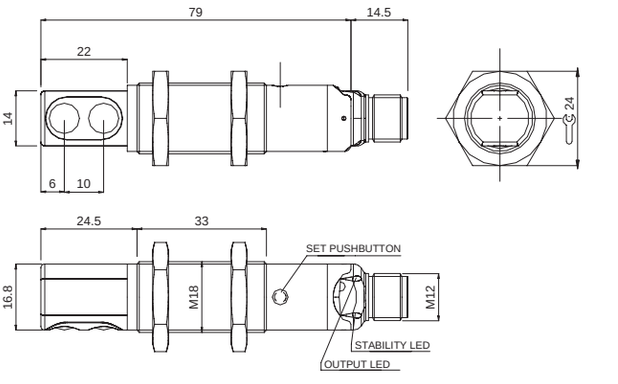
mm

BACKGROUND SUPPRESSION RADIAL VERSION

PLASTIC

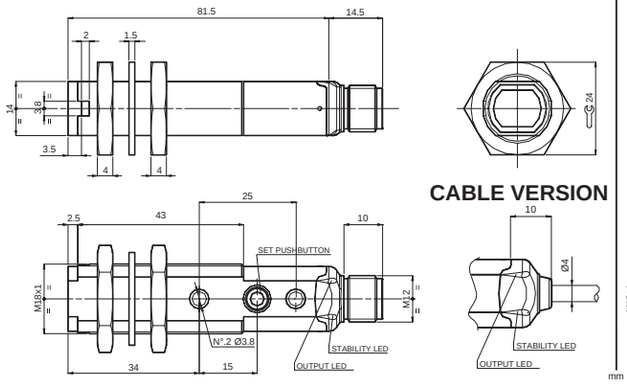


METAL

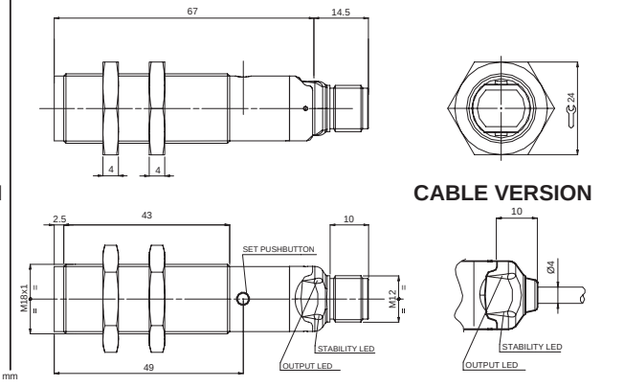


LUMINESCENCE AND CONTRAST

PLASTIC



METAL

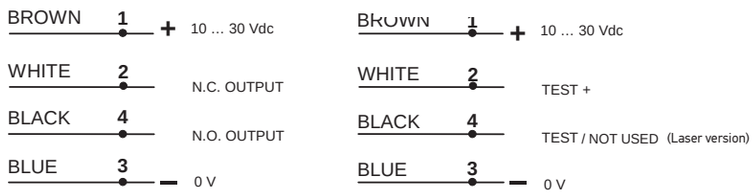


mm

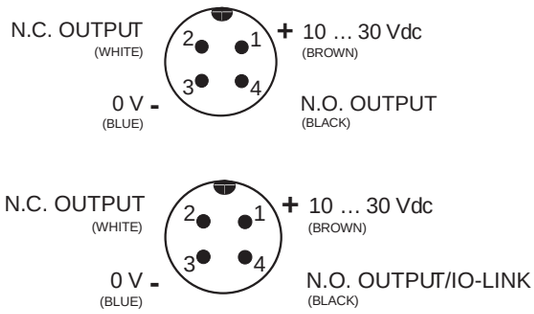
CONNECTIONS

CABLE

Through beam emitter

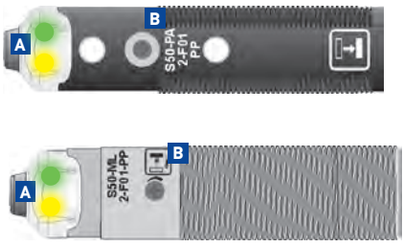


M12 CONNECTOR



INDICATORS AND SETTINGS

S5N-XX...A00/B01/C01/C21/E01/F01/T01

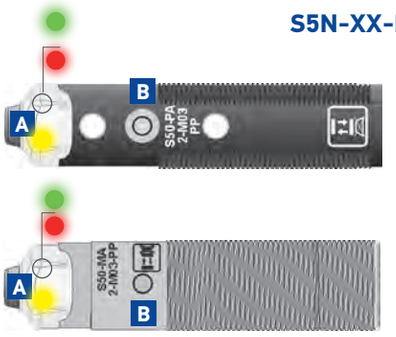


A OUTPUT status LED Yellow
STABILITY LED Green (Only Receiver)
POWER ON LED Green (Only Emitter)

B Adjustment trimmer (receiver)

Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

S5N-XX-M03/W03/U03

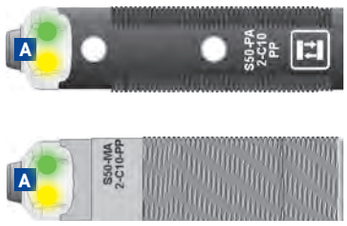


A OUTPUT status LED Yellow
READY LED Green

B Teach-in push-button

Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine, both obtained by pressing the push-button only once. Please refer to instructions manual for operating details.

S5N-XX-C10



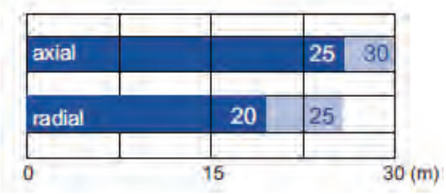
A00/C10/C20/F00

A OUTPUT status LED Yellow
Stability LED green

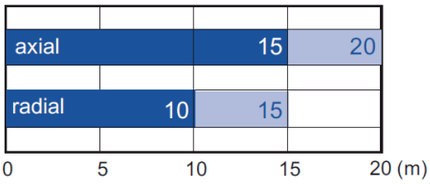
G00
OUTPUT status LED yellow (Only Emitter G00)

S5N DETECTION DIAGRAMS

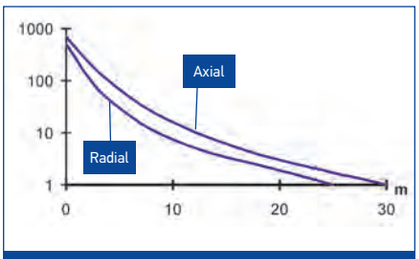
G/F INFRARED EMISSION



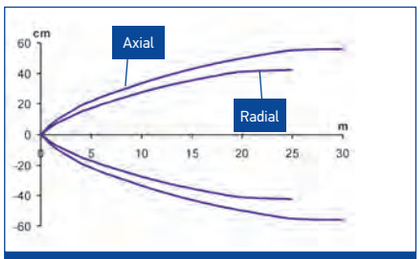
Recommended operating distance
Maximum operating distance



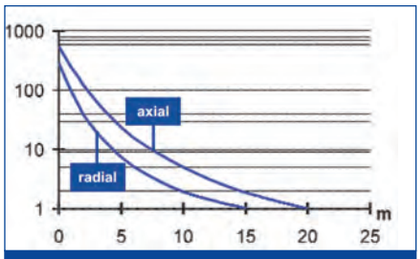
Recommended operating distance
Maximum operating distance



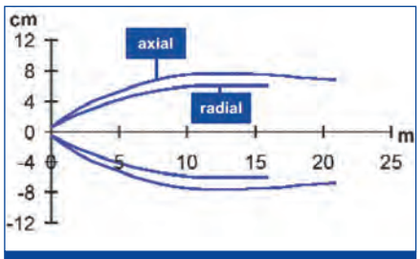
Excess gain



Detection area

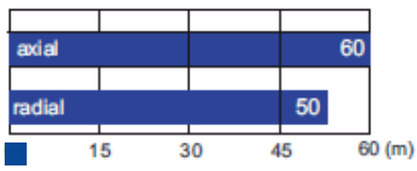


Excess gain

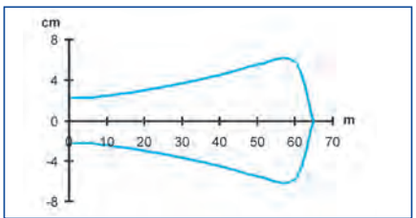


Detection area

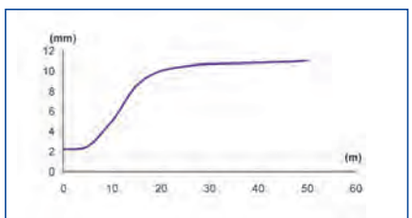
G/F LASER RED EMISSION



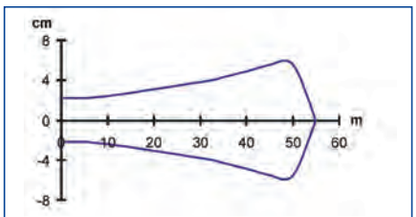
Operating distance



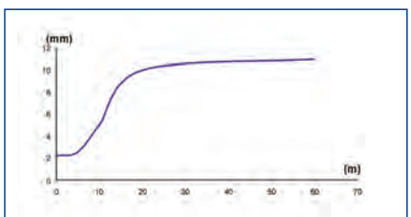
Detection area - axial



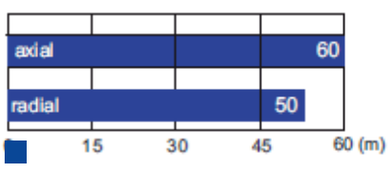
Resolution - axial



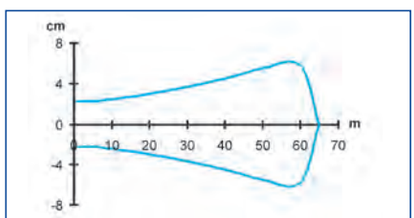
Detection area - radial



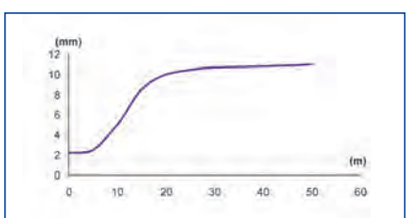
Resolution - radial



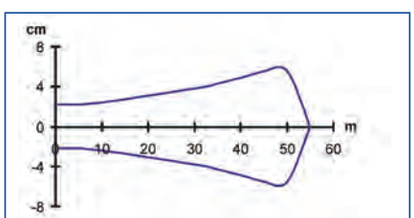
Operating distance



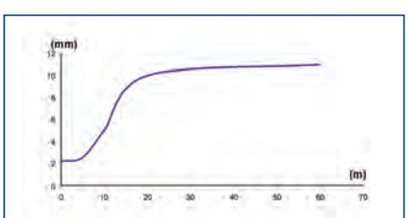
Detection area - axial



Resolution - axial

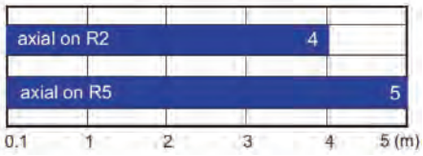


Detection area - radial

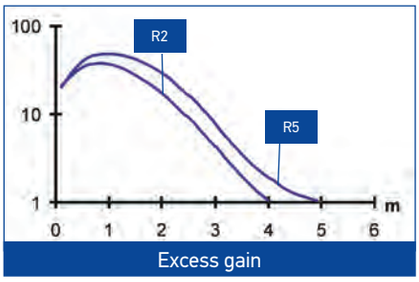


Resolution - radial

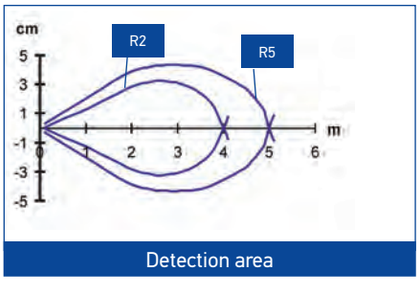
A INFRARED EMISSION



Operating distance

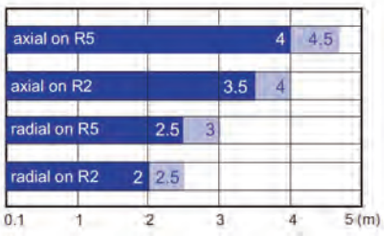


Excess gain



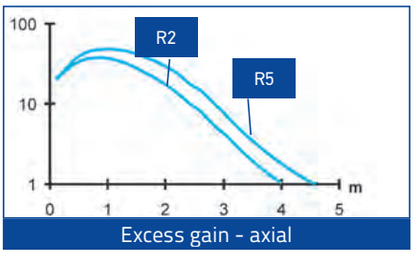
Detection area

B RED EMISSION

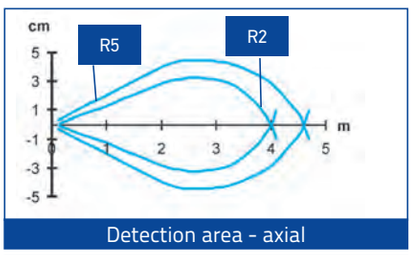


Recommended operating distance
Maximum operating distance

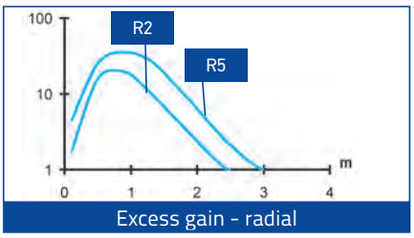
High efficiency reflectors can be used to obtain larger operating distances.
Refer to **Reflectors** (A.01).



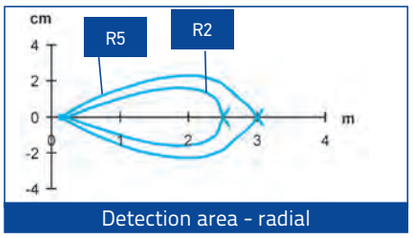
Excess gain - axial



Detection area - axial

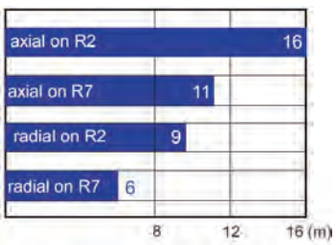


Excess gain - radial



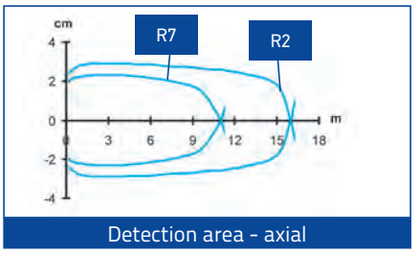
Detection area - radial

B LASER RED EMISSION

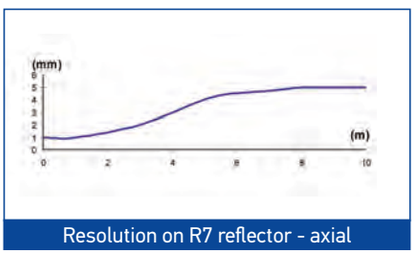


Operating distance

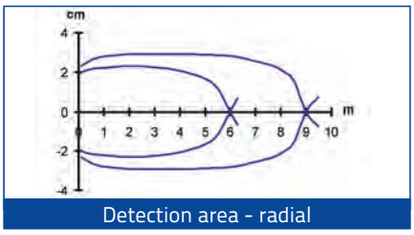
High efficiency reflectors can be used to obtain larger operating distances.
Refer to **Reflectors** (A.01).



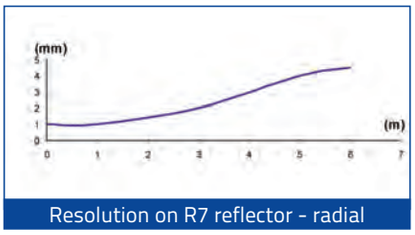
Detection area - axial



Resolution on R7 reflector - axial

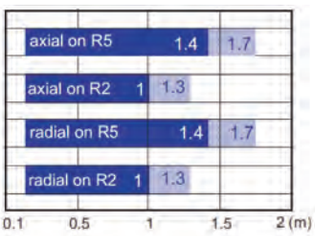


Detection area - radial

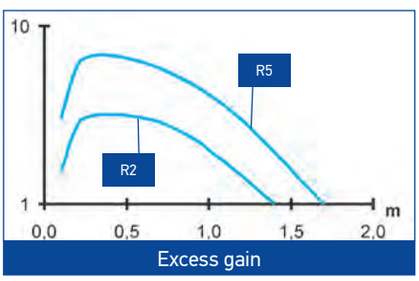


Resolution on R7 reflector - radial

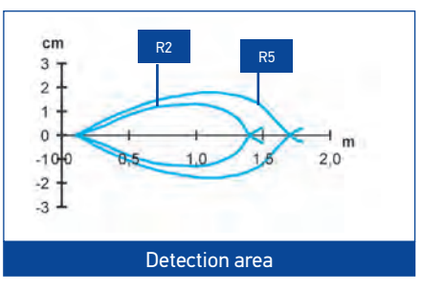
T RED EMISSION



Recommended operating distance
Maximum operating distance



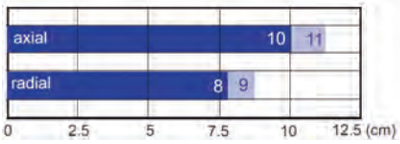
Excess gain



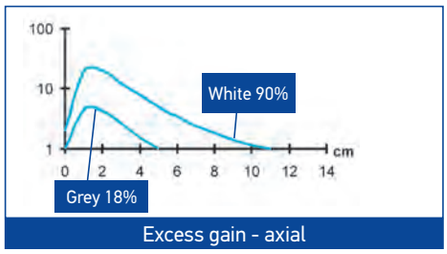
Detection area

High efficiency reflectors can be used to obtain larger operating distances.Refer to **Reflectors**.

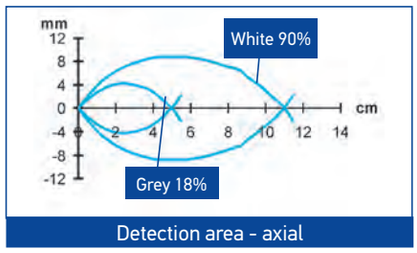
C SHORT INFRARED EMISSION



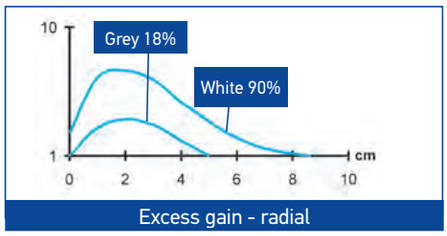
Recommended operating distance
Maximum operating distance



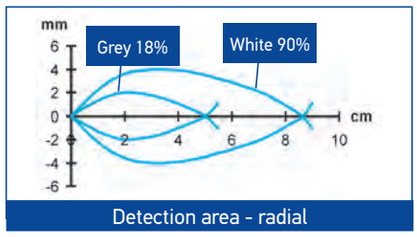
Excess gain - axial



Detection area - axial

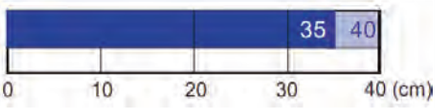


Excess gain - radial

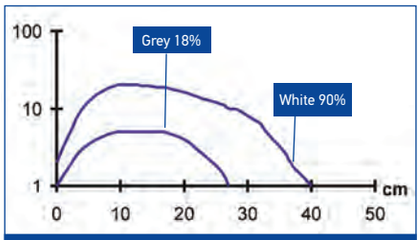


Detection area - radial

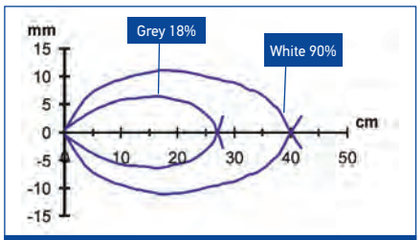
C MID INFRARED EMISSION



Recommended operating distance
Maximum operating distance

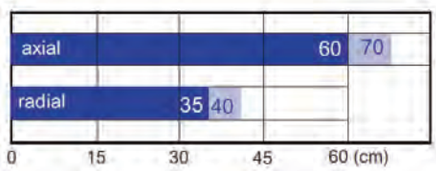


Excess gain

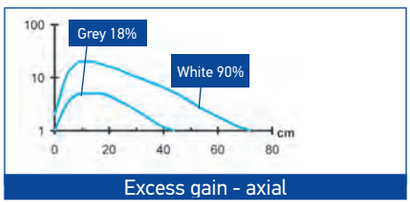


Detection area

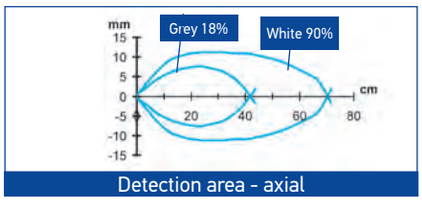
C LONG INFRARED EMISSION



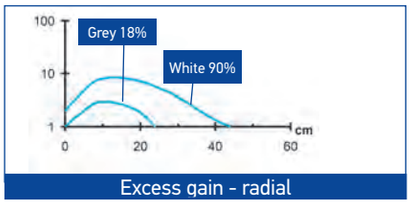
Recommended operating distance
Maximum operating distance



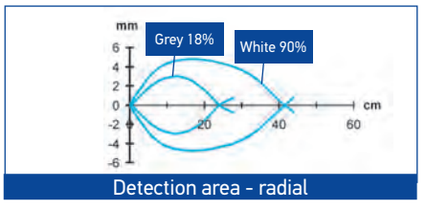
Excess gain - axial



Detection area - axial

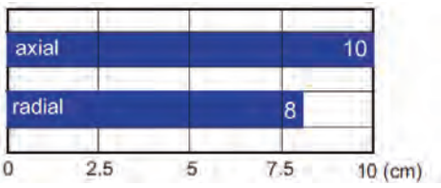


Excess gain - radial

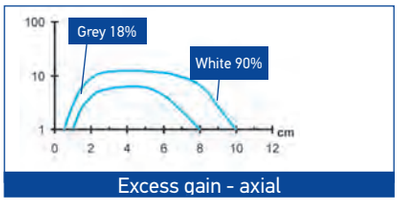


Detection area - radial

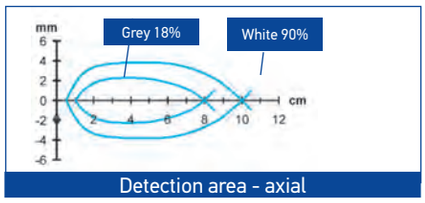
D RED EMISSION



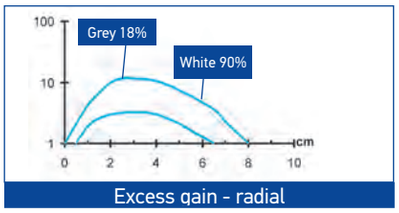
Operating distance



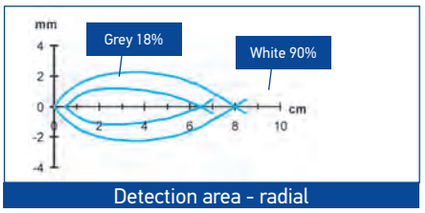
Excess gain - axial



Detection area - axial

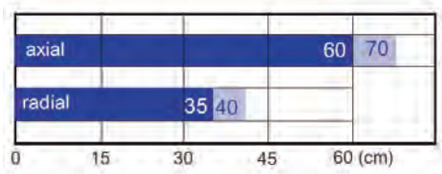


Excess gain - radial

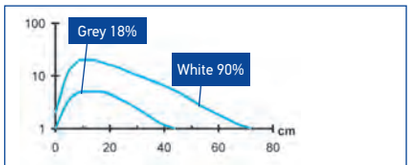


Detection area - radial

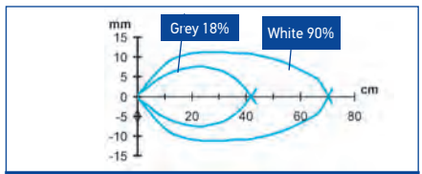
C LONG INFRARED EMISSION



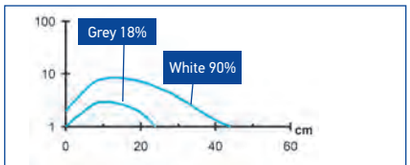
Recommended operating distance
Maximum operating distance



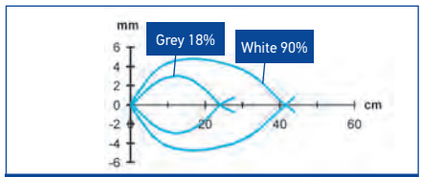
Excess gain - axial



Detection area - axial

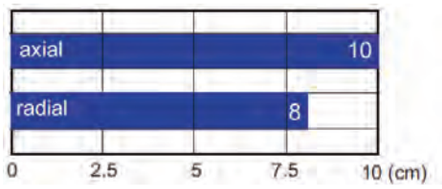


Excess gain - radial

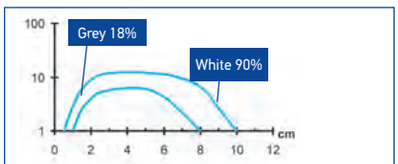


Detection area - radial

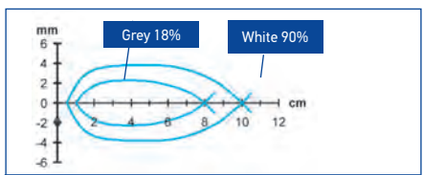
D RED EMISSION



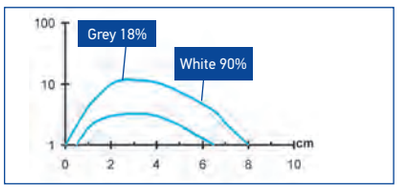
Operating distance

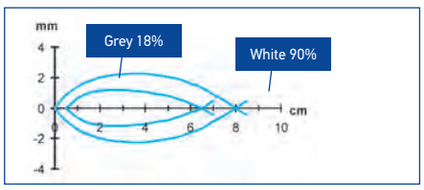


Excess gain - axial

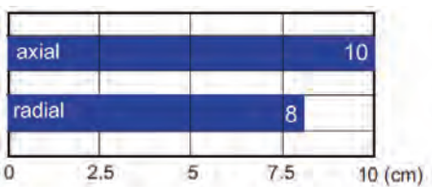


Detection area - axial

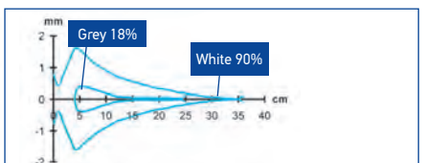




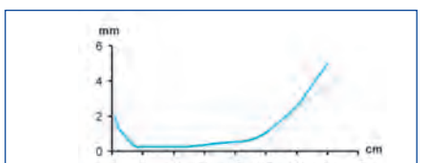
C LASER RED EMISSION



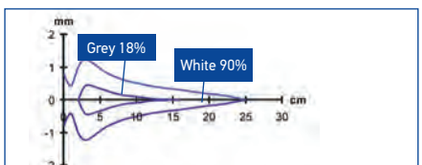
Operating distance



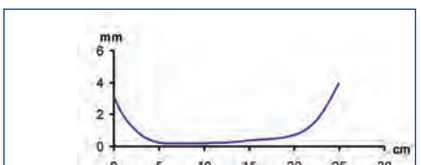
Detection area - axial



Resolution - axial

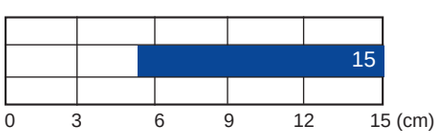


Detection area - radial

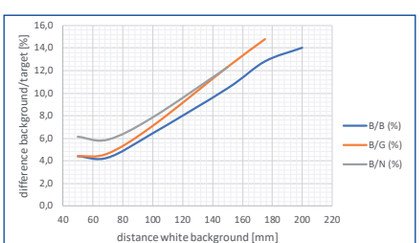


Resolution - radial

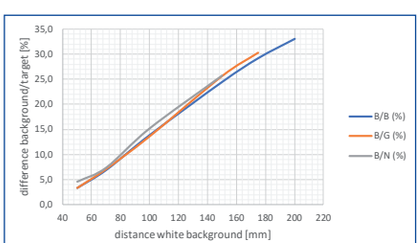
M AXIAL RED EMISSION



Operating distance

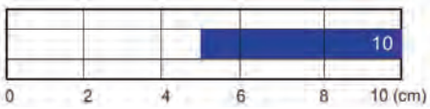


Detection difference with EASYtouch™ acquisition

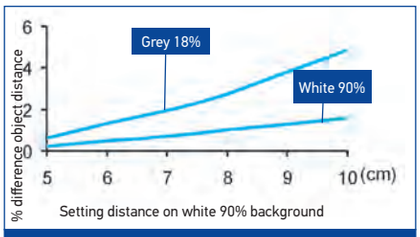


Detection difference with EASYtouch™ acquisition

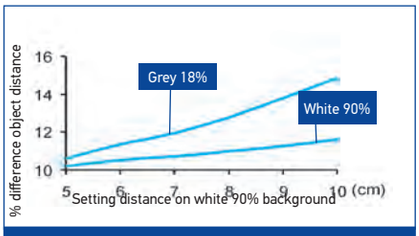
M RADIAL RED EMISSION



Operating distance

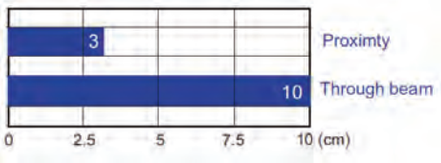


Detection difference with EASYtouch™ acquisition



Detection difference with fine acquisition

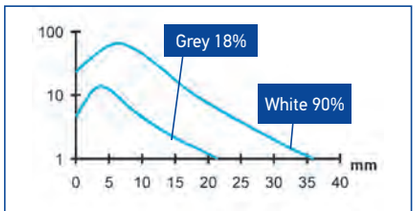
E RED EMISSION



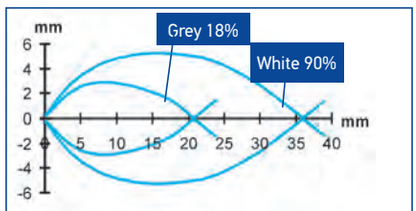
Operating distance with standard fibers

Standard Fiber-optics:
OF-42-ST-20 proximity
OF-43-ST-20 through beam

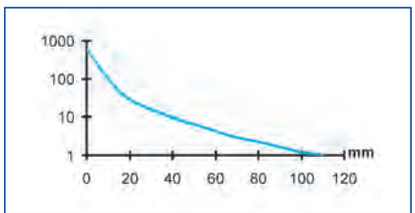
High efficiency fiber-optics or accessory lenses can be used to obtain larger operating distances.



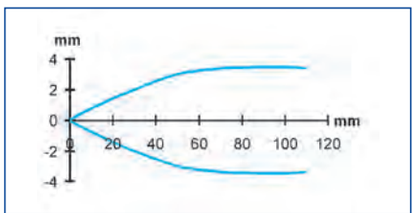
Excess gain - proximity *



Detection area - proximity *



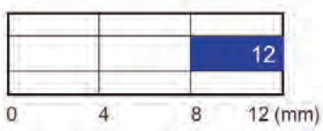
Excess gain - through beam *



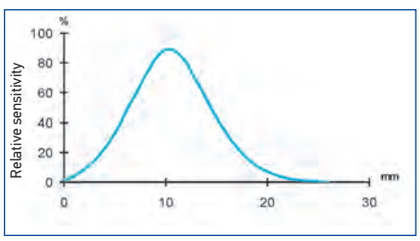
Detection area - through beam *

* standard Fiber-optics

W WHITE EMISSION

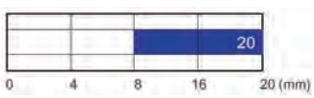


Operating distance

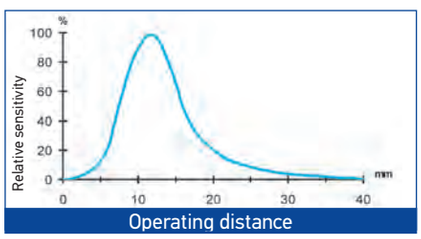


Operating distance

U UV EMISSION



Operating distance



Operating distance

MODEL SELECTION AND ORDER INFORMATION

S5N PLASTIC MODELS

OPTIC FUNCTION	EMISSION	CONNECTION	OUTPUT	MODEL	ORDER No.
Retroreflective	LED, Axial optic	2m Cable	NPN	S5N-PA-2-A00-NN	952002091
			PNP	S5N-PA-2-A00-PP	952002081
		M12 Connector	NPN	S5N-PA-5-A00-NN	952002111
			PNP	S5N-PA-5-A00-PP	952002101
Polarized retroreflective	LED, Axial optic	2m Cable	NPN	S5N-PA-2-B01-NN	952001611
			PNP	S5N-PA-2-B01-PP	952001011
		M12 Connector	NPN	S5N-PA-5-B01-NN	952001501
			PNP	S5N-PA-5-B01-PP	952001021
			IO-Link	S5N-PA-5-B01-OZ	952002200
	LED, Radial optic	2m Cable	NPN	S5N-PR-2-B01-NN	952001781
			PNP	S5N-PR-2-B01-PP	952001031
		M12 Connector	NPN	S5N-PR-5-B01-NN	952001721
			PNP	S5N-PR-5-B01-PP	952001041
	LASER, Axial optic	2m Cable	NPN	S5N-PL-2-B01-NN	952001871
			PNP	S5N-PL-2-B01-PP	952001361
		M12 Connector	NPN	S5N-PL-5-B01-NN	952001841
			PNP	S5N-PL-5-B01-PP	952001371
			IO-Link	S5N-PL-5-B01-OZ	952002250
	LASER, Radial optic	2m Cable	NPN	S5N-PH-2-B01-NN	952001951
			PNP	S5N-PH-2-B01-PP	952001941
		M12 Connector	NPN	S5N-PH-5-B01-NN	952001971
			PNP	S5N-PH-5-B01-PP	952001961
Long Diffuse proximity	LED, Axial optic	2m Cable	NPN	S5N-PA-2-C01-NN	952001621
			PNP	S5N-PA-2-C01-PP	952001051
		M12 Connector	NPN	S5N-PA-5-C01-NN	952001511
			PNP	S5N-PA-5-C01-PP	952001061
			IO-Link	S5N-PA-5-C01-OZ	952002210
	LED, Radial optic	2m Cable	NPN	S5N-PR-2-C01-NN	952001791
			PNP	S5N-PR-2-C01-PP	952001071
		M12 Connector	NPN	S5N-PR-5-C01-NN	952001731
			PNP	S5N-PR-5-C01-PP	952001081
	LASER, Axial optic	2m Cable	NPN	S5N-PL-2-C01-NN	952001881
			PNP	S5N-PL-2-C01-PP	952001381
		M12 Connector	NPN	S5N-PL-5-C01-NN	952001851
			PNP	S5N-PL-5-C01-PP	952001391
			IO-Link	S5N-PL-5-C01-OZ	952002260
	LASER, Radial optic	2m Cable	NPN	S5N-PH-2-C01-NN	952001991
			PNP	S5N-PH-2-C01-PP	952001981
		M12 Connector	NPN	S5N-PH-5-C01-NN	952002011
			PNP	S5N-PH-5-C01-PP	952002001
Short Diffuse proximity	LED, Axial optic	2m Cable	NPN	S5N-PA-2-C10-NN	952001631
			PNP	S5N-PA-2-C10-PP	952001241
		M12 Connector	NPN	S5N-PA-5-C10-NN	952001521
			PNP	S5N-PA-5-C10-PP	952001251
	LED, Radial optic	2m Cable	NPN	S5N-PR-2-C10-NN	952001801
			PNP	S5N-PR-2-C10-PP	952001491
		M12 Connector	NPN	S5N-PR-5-C10-NN	952001741
			PNP	S5N-PR-5-C10-PP	952001481
Medium Diffuse proximity	LED, Axial optic	2m Cable	NPN	S5N-PA-2-C21-NN	952002171
			PNP	S5N-PA-2-C21-PP	952002161
		M12 Connector	NPN	S5N-PA-5-C21-NN	952002191
			PNP	S5N-PA-5-C21-PP	952002181

Fixed focus	LED, Axial optic	2m Cable	NPN	S5N-PA-2-D00-NN	952001641
			PNP	S5N-PA-2-D00-PP	952001091
		M12 Connector	NPN	S5N-PA-5-D00-NN	952001531
			PNP	S5N-PA-5-D00-PP	952001101
	LED, Radial optic	2m Cable	NPN	S5N-PR-2-D00-NN	952001811
			PNP	S5N-PR-2-D00-PP	952001111
		M12 Connector	NPN	S5N-PR-5-D00-NN	952001751
			PNP	S5N-PR-5-D00-PP	952001121
Fiber optic	LED, Axial optic	2m Cable	NPN	S5N-PA-2-E01-NN	952001651
			PNP	S5N-PA-2-E01-PP	952001131
		M12 Connector	NPN	S5N-PA-5-E01-NN	952001541
			PNP	S5N-PA-5-E01-PP	952001141
Through beam receiver	LED, Axial optic	2m Cable	NPN	S5N-PA-2-F01-NN	952001661
			PNP	S5N-PA-2-F01-PP	952001151
		M12 Connector	NPN	S5N-PA-5-F01-NN	952001551
			PNP	S5N-PA-5-F01-PP	952001161
	LED, Radial optic	2m Cable	NPN	S5N-PR-2-F01-NN	952001821
			PNP	S5N-PR-2-F01-PP	952001171
		M12 Connector	NPN	S5N-PR-5-F01-NN	952001761
			PNP	S5N-PR-5-F01-PP	952001181
	LASER, Axial optic	2m Cable	NPN	S5N-PL-2-F01-NN	952001891
			PNP	S5N-PL-2-F01-PP	952001401
		M12 Connector	NPN	S5N-PL-5-F01-NN	952001861
			PNP	S5N-PL-5-F01-PP	952001411
	LASER, Radial optic	2m Cable	NPN	S5N-PH-2-F01-NN	952002031
			PNP	S5N-PH-2-F01-PP	952002021
		M12 Connector	NPN	S5N-PH-5-F01-NN	952002051
			PNP	S5N-PH-5-F01-PP	952002041
Through beam emitter	LED, Axial optic	2m Cable	-	S5N-PA-2-G00-XG	952001191
		M12 Connector	-	S5N-PA-5-G00-XG	952001201
	LED, Radial optic	2m Cable	-	S5N-PR-2-G00-XG	952001211
		M12 Connector	-	S5N-PR-5-G00-XG	952001221
	LASER, Axial optic	2m Cable	-	S5N-PL-2-G00-XG	952001421
		M12 Connector	-	S5N-PL-5-G00-XG	952001431
	LASER, Radial optic	2m Cable	-	S5N-PH-2-G00-XG	952002061
		M12 Connector	-	S5N-PH-5-G00-XG	952002071
Background suppression	LED, Axial optic	2m Cable	NPN	S5N-PA-2-M03-NN	952001671
			PNP	S5N-PA-2-M03-PP	952001231
		M12 Connector	NPN	S5N-PA-5-M03-NN	952001561
			PNP	S5N-PA-5-M03-PP	952001001
			IO-Link	S5N-PA-5-M03-OZ	952002230
	LED, Radial optic	2m Cable	NPN	S5N-PS-2-M03-NN	952001901
			PNP	S5N-PS-2-M03-PP	952001911
		M12 Connector	NPN	S5N-PS-5-M03-NN	952001921
			PNP	S5N-PS-5-M03-PP	952001931
Retroreflective for transparent	LED, Axial optic	2m Cable	NPN	S5N-PA-2-T01-NN	952001691
			PNP	S5N-PA-2-T01-PP	952001261
		M12 Connector	NPN	S5N-PA-5-T01-NN	952001581
			PNP	S5N-PA-5-T01-PP	952001271
			IO-Link	S5N-PA-5-T01-OZ	952002220
	LED, Radial optic	2m Cable	NPN	S5N-PR-2-T01-NN	952001831
			PNP	S5N-PR-2-T01-PP	952001281
		M12 Connector	NPN	S5N-PR-5-T01-NN	952001771
			PNP	S5N-PR-5-T01-PP	952001291
Luminescence	LED, Axial optic	2m Cable	NPN	S5N-PA-2-U03-NN	952001701
			PNP	S5N-PA-2-U03-PP	952001301
		M12 Connector	NPN	S5N-PA-5-U03-NN	952001591
			PNP	S5N-PA-5-U03-PP	952001311
Contrast	LED, Axial optic	2m Cable	NPN	S5N-PA-2-W03-NN	952001711
			PNP	S5N-PA-2-W03-PP	952001321
		M12 Connector	NPN	S5N-PA-5-W03-NN	952001601
			PNP	S5N-PA-5-W03-PP	952001331
			IO-Link	S5N-PA-5-W03-OZ	952002240

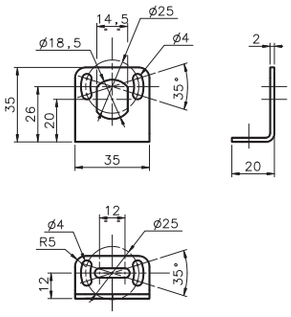
S5N METAL MODELS

OPTIC FUNCTION	EMISSION	CONNECTION	OUTPUT	MODEL	ORDER No.
Retroreflective	LED, Axial optic	2m Cable	NPN	S5N-MA-2-A00-NN	952022091
			PNP	S5N-MA-2-A00-PP	952022081
		M12 Connector	NPN	S5N-MA-5-A00-NN	952022111
			PNP	S5N-MA-5-A00-PP	952022101
Polarized retroreflective	LED, Axial optic	2m Cable	NPN	S5N-MA-2-B01-NN	952021501
			PNP	S5N-MA-2-B01-PP	952021001
		M12 Connector	NPN	S5N-MA-5-B01-NN	952021661
			PNP	S5N-MA-5-B01-PP	952021201
			IO-Link	S5N-MA-5-B01-OZ	952022160
	LED, Radial optic	2m Cable	NPN	S5N-MR-2-B01-NN	952021601
			PNP	S5N-MR-2-B01-PP	952021141
		M12 Connector	NPN	S5N-MR-5-B01-NN	952021761
			PNP	S5N-MR-5-B01-PP	952021341
	LASER, Axial optic	2m Cable	NPN	S5N-ML-2-B01-NN	952021821
			PNP	S5N-ML-2-B01-PP	952021401
		M12 Connector	NPN	S5N-ML-5-B01-NN	952021851
			PNP	S5N-ML-5-B01-PP	952021441
			IO-Link	S5N-ML-5-B01-OZ	952022180
	LASER, Radial optic	2m Cable	NPN	S5N-MH-2-B01-NN	952021951
			PNP	S5N-MH-2-B01-PP	952021941
		M12 Connector	NPN	S5N-MH-5-B01-NN	952021971
			PNP	S5N-MH-5-B01-PP	952021961
Long Diffuse proximity	LED, Axial optic	2m Cable	NPN	S5N-MA-2-C01-NN	952021511
			PNP	S5N-MA-2-C01-PP	952021011
		M12 Connector	NPN	S5N-MA-5-C01-NN	952021671
			PNP	S5N-MA-5-C01-PP	952021211
			IO-Link	S5N-MA-5-C01-OZ	952022200
	LED, Radial optic	2m Cable	NPN	S5N-MR-2-C01-NN	952021611
			PNP	S5N-MR-2-C01-PP	952021151
		M12 Connector	NPN	S5N-MR-5-C01-NN	952021771
			PNP	S5N-MR-5-C01-PP	952021351
	LASER, Axial optic	2m Cable	NPN	S5N-ML-2-C01-NN	952021831
			PNP	S5N-ML-2-C01-PP	952021411
		M12 Connector	NPN	S5N-ML-5-C01-NN	952021861
			PNP	S5N-ML-5-C01-PP	952021451
			IO-Link	S5N-ML-5-C01-OZ	952022190
	LASER, Radial optic	2m Cable	NPN	S5N-MH-2-C01-NN	952021991
			PNP	S5N-MH-2-C01-PP	952021981
		M12 Connector	NPN	S5N-MH-5-C01-NN	952022011
			PNP	S5N-MH-5-C01-PP	952022001
Short Diffuse proximity	LED, Axial optic	2m Cable	NPN	S5N-MA-2-C10-NN	952021521
			PNP	S5N-MA-2-C10-PP	952021021
		M12 Connector	NPN	S5N-MA-5-C10-NN	952021681
			PNP	S5N-MA-5-C10-PP	952021221
	LED, Radial optic	2m Cable	NPN	S5N-MR-2-C10-NN	952021621
			PNP	S5N-MR-2-C10-PP	952021491
		M12 Connector	NPN	S5N-MR-5-C10-NN	952021781
			PNP	S5N-MR-5-C10-PP	952021481
Medium Diffuse proximity	LED, Axial optic	2m Cable	NPN	S5N-MA-2-C21-NN	952022131
			PNP	S5N-MA-2-C21-PP	952022121
		M12 Connector	NPN	S5N-MA-5-C21-NN	952022151
			PNP	S5N-MA-5-C21-PP	952022141

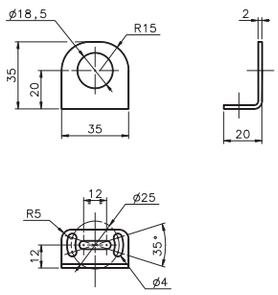
Fixed focus	LED, Axial optic	2m Cable	NPN	S5N-MA-2-D00-NN	952021531
			PNP	S5N-MA-2-D00-PP	952021031
		M12 Connector	NPN	S5N-MA-5-D00-NN	952021691
			PNP	S5N-MA-5-D00-PP	952021231
	LED, Radial optic	2m Cable	NPN	S5N-MR-2-D00-NN	952021631
			PNP	S5N-MR-2-D00-PP	952021161
		M12 Connector	NPN	S5N-MR-5-D00-NN	952021791
			PNP	S5N-MR-5-D00-PP	952021361
Fiber optic	LED, Axial optic	2m Cable	NPN	S5N-MA-2-E01-NN	952021881
			PNP	S5N-MA-2-E01-PP	952021041
		M12 Connector	NPN	S5N-MA-5-E01-NN	952021891
			PNP	S5N-MA-5-E01-PP	952021241
Through beam receiver	LED, Axial optic	2m Cable	NPN	S5N-MA-2-F01-NN	952021541
			PNP	S5N-MA-2-F01-PP	952021051
		M12 Connector	NPN	S5N-MA-5-F01-NN	952021701
			PNP	S5N-MA-5-F01-PP	952021251
	LED, Radial optic	2m Cable	NPN	S5N-MR-2-F01-NN	952021641
			PNP	S5N-MR-2-F01-PP	952021171
		M12 Connector	NPN	S5N-MR-5-F01-NN	952021801
			PNP	S5N-MR-5-F01-PP	952021371
	LASER, Axial optic	2m Cable	NPN	S5N-ML-2-F01-NN	952021841
			PNP	S5N-ML-2-F01-PP	952021421
		M12 Connector	NPN	S5N-ML-5-F01-NN	952021871
			PNP	S5N-ML-5-F01-PP	952021461
	LASER, Radial optic	2m Cable	NPN	S5N-MH-2-F01-NN	952022031
			PNP	S5N-MH-2-F01-PP	952022021
		M12 Connector	NPN	S5N-MH-5-F01-NN	952022051
			PNP	S5N-MH-5-F01-PP	952022041
Through beam emitter	LED, Axial optic	2m Cable	-	S5N-MA-2-G00-XG	952021061
		M12 Connector	-	S5N-MA-5-G00-XG	952021261
	LED, Radial optic	2m Cable	-	S5N-MR-2-G00-XG	952021181
		M12 Connector	-	S5N-MR-5-G00-XG	952021381
	LASER, Axial optic	2m Cable	-	S5N-ML-2-G00-XG	952021431
		M12 Connector	-	S5N-ML-5-G00-XG	952021471
	LASER, Radial optic	2m Cable	-	S5N-MH-2-G00-XG	952022061
		M12 Connector	-	S5N-MH-5-G00-XG	952022071
Background suppression	LED, Axial optic	2m Cable	NPN	S5N-MA-2-M03-NN	952021551
			PNP	S5N-MA-2-M03-PP	952021071
		M12 Connector	PNP	S5N-MA-5-M03-PP	952021271
			IO-Link	S5N-MA-5-M03-OZ	952022170
	LED, Radial optic	2m Cable	PNP	S5N-MS-2-M03-PP	952021911
		M12 Connector	PNP	S5N-MS-5-M03-PP	952021931
Retroreflective for transparent	LED, Axial optic	2m Cable	NPN	S5N-MA-2-T01-NN	952021571
			PNP	S5N-MA-2-T01-PP	952021091
		M12 Connector	NPN	S5N-MA-5-T01-NN	952021731
			PNP	S5N-MA-5-T01-PP	952021291
	LED, Radial optic	2m Cable	NPN	S5N-MR-2-T01-NN	952021651
			PNP	S5N-MR-2-T01-PP	952021191
		M12 Connector	NPN	S5N-MR-5-T01-NN	952021811
			PNP	S5N-MR-5-T01-PP	952021391
Luminescence	LED, Axial optic	M12 Connector	PNP	S5N-MA-5-U03-PP	952021301
Contrast	LED, Axial optic	2m Cable	PNP	S5N-MA-2-W03-PP	952021111
		M12 Connector	NPN	S5N-MA-5-W03-NN	952021751
			PNP	S5N-MA-5-W03-PP	952021311

ACCESSORIES

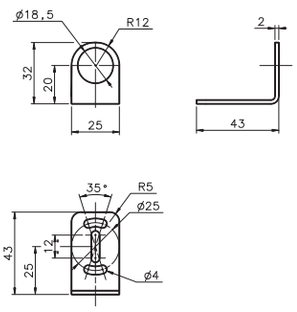
ST-5010



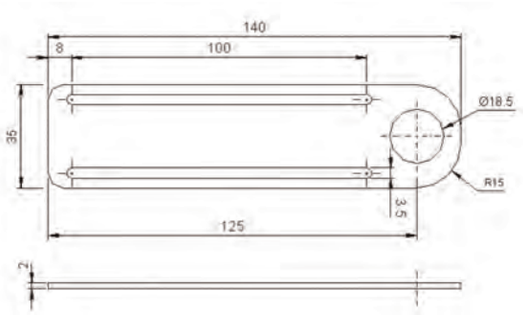
ST-5011



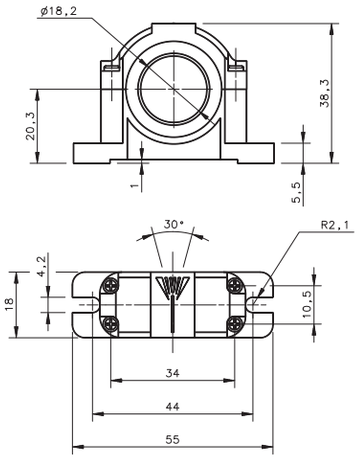
ST-5012



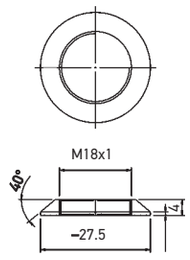
ST-5017



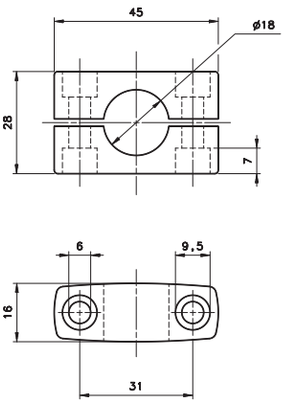
SWING-18



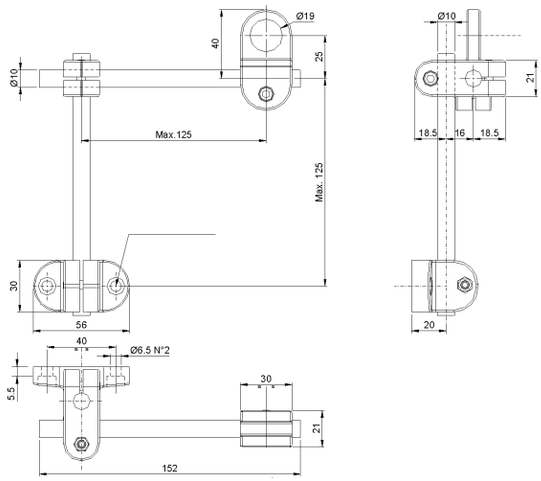
PLASTIC NUT



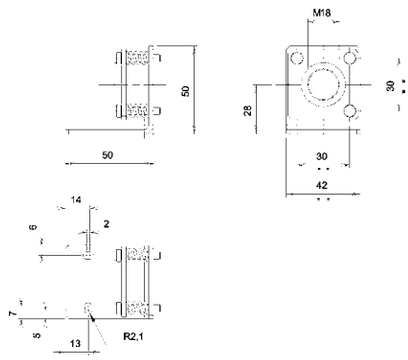
SP-40



JOINT 18



MICRO 18



mm

MODEL	DESCRIPTION	ORDER No.
ST-5010	M18/14 mounting bracket	95ACC5230
ST-5011	M18 mounting bracket short	95ACC5240
ST-5012	M18 mounting bracket long	95ACC5250
ST-5017	M18 mounting bracket	95ACC5270
S50 EASY -IN	M18/14 EASY in™ adjustable mounting support	95ACC 5300
JOINT -18	M18 jointed support	95ACC 5220
MICRO -18	support with micrometric regulation for tubular M18 sensors	95ACC 1380
ST1218	M12/M18 mounting brackets	95ACC3340
ST1830	M18/M30 mounting brackets	95ACC3350
SP-40	mounting bracket tubular	95ACC1370
SWING-18	adjustable support for M18 tubular sensors	895000006
PLASTIC NUT	flared mounting nut	95ACC2630
MEK -PROOF	front protection (only for metal models)	G5000001

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 M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		7 m	CS-A1-02-G-07	95A251280
		10 m	CS-A1-02-G-10	95A251390
	4-pole, P.U.R.	2 m	CS-A1-02-R-02	95A251540
		5 m	CS-A1-02-R-05	95A251560
Radial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A2-02-G-03	95A251360
		5 m	CS-A2-02-G-05	95A251240
		7 m	CS-A2-02-G-07	95A251245
		10 m	CS-A2-02-G-10	95A251260
	4-pole, P.U.R.	2 m	CS-A2-02-R-02	95A251550
		5 m	CS-A2-02-R-05	95A251570
Radial M12 Connector with LED (for PNP N.O. sensors)	4-pole, grey, P.V.C.	3 m	CS-A2-12-G-03	95A251400
		5 m	CS-A2-12-G-05	95A251350
		10 m	CS-A2-12-G-10	95A251370
Axial M12 Connector	4-pole, shielded, black, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
		5 m	CV-A1-22-B-05	95ACC1490
		10 m	CV-A1-22-B-10	95ACC1500
		15 m	CV-A1-22-B-15	95ACC2070
		25 m	CV-A1-22-B-25	95ACC2090
Radial M12 Connector	4-pole, shielded, black, P.V.C.	3 m	CV-A2-22-B-03	95ACC1540
		5 m	CV-A2-22-B-05	95ACC1550
		10 m	CV-A2-22-B-10	95ACC1560
Axial M12 Connector	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	4-pole, black	Connector- not cabled	CS-A1-02-B-NC	G5085002
Radial M12 Connector	4-pole, black	Connector- not cabled	CS-A2-02-B-NC	G5085003
Axial M12 Connector	5-pole, L coded power cable	3 m	CS-M1-02-B-03	95ACC0007
Axial M12 F/M8 M Connector	4-pole, double headed	3 m	CS-H1-02-B-03	95ACC0008
Axial M12 F/M12 M Connector	4-pole, double headed	3 m	CS-I1-02-B-03	95ACC0009

Rev. 01, 04/2019

SM-ALL

COMPLETE LINE OF AMPLIFIED SUBMINIATURE PHOTOELECTRIC SENSORS

- 15mm, 20mm, 30mm and 50mm fixed focus proximity
- 1,5m retroflective and 1m polarized retroflective
- 2m through beam models
- Amplified NPN or PNP output with NO-NC output

APPLICATIONS

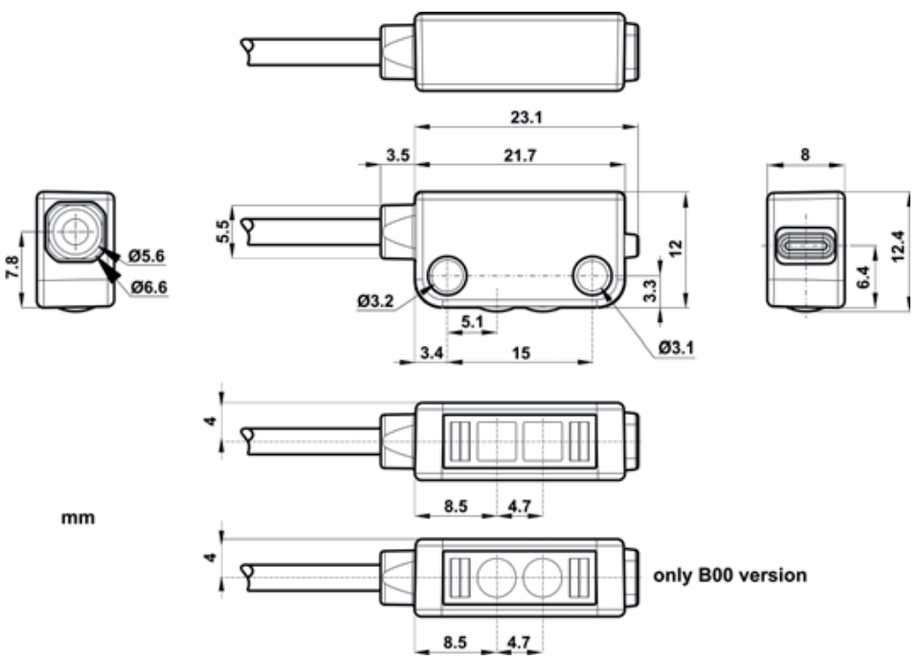
- Processing and Packaging machinery
- Automotive
- Beverage & Bottling
- Vending machines

SM-ALL		
Through beam		0...2 m
Retroreflective (on R2 reflector)		0,05...1,5 m
Polarized retroreflective		0,1...1 m
Fixed focus		3...15 mm
		3...20 mm
		3...30 mm
		3...50 mm
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	
	pig-tail	
Approximate dimensions (mm)		8x23x12
Housing material		Polycarbonate
Mechanical protection		IP67

TECHNICAL DATA

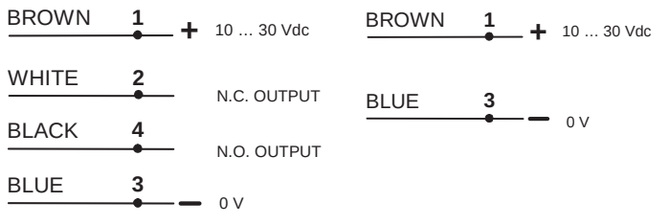
Power supply	10 ... 30 Vdc (limit values)
Ripple	10% max.
Consumption (output current excluded)	20 mA max.
Light emission	red LED 640 nm
Operating mode	LIGHT mode on N.O. output/DARK mode on N.C. output
Indicators	yellow OUTPUT LED excl. mod. G00
	green POWER LED
Output	PNP or NPN; NO; NC
Output current	50 mA max.
Saturation voltage	1,25 V max. (NPN), 1,45 V max. (PNP)
Response time	700 µs
	1,3 ms (mod. SM...F00/G00)
Switching frequency	700 Hz
	385 Hz (mod. SM...F00/G00)
Connection	2 m cable –2,5 mm
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Housing material	Polycarbonate
Lens material	PMMA, glass (mod. B00)
Operating temperature	-20 ... 55 °C
Storage temperature	-30 ... 75 °C
Weight	22 g

DIMENSIONS

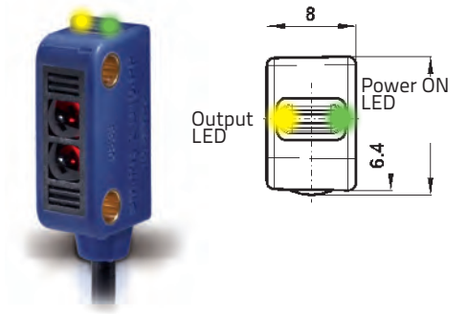


CONNECTIONS

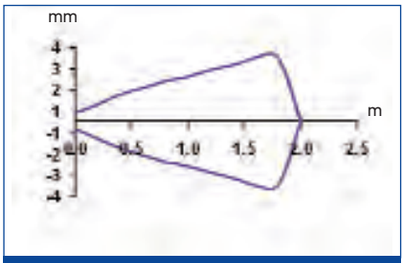
CABLE



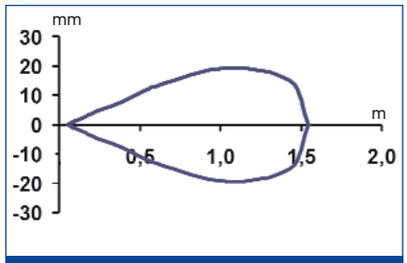
INDICATORS AND SETTINGS



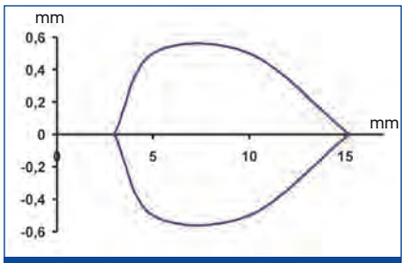
DETECTIONS DIAGRAMS



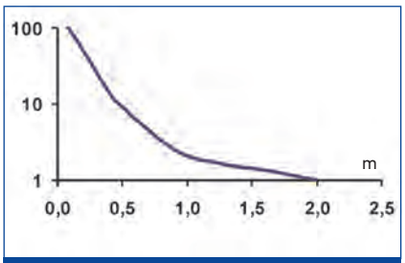
Through beam - Detection area



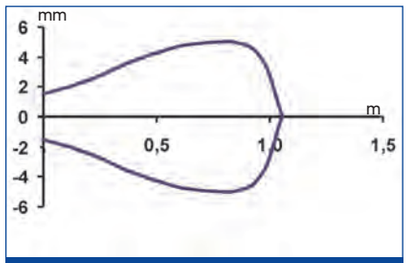
Retroreflective - Detection area



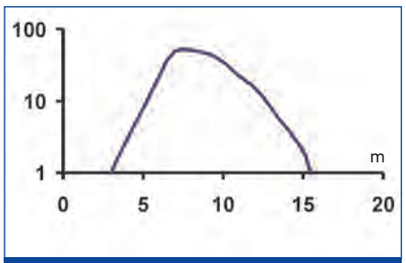
Fixed focus proximity - 15 mm - Detection area



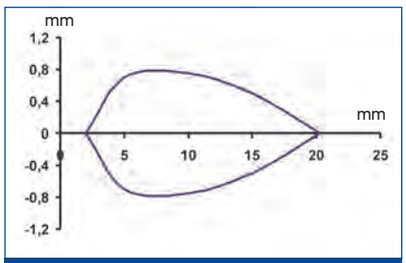
Through beam - Excess gain



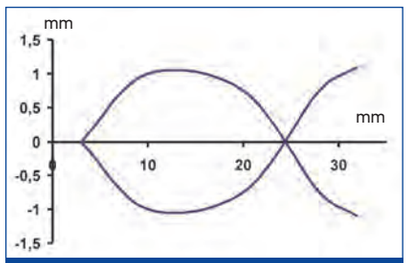
Polarized retroreflective - Detection area



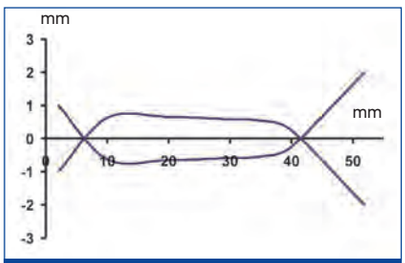
Fixed focus proximity - 15 mm - Excess gain



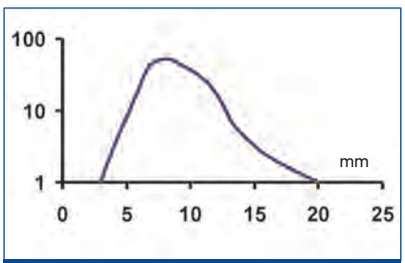
Fixed focus proximity - 20 mm - Detection area



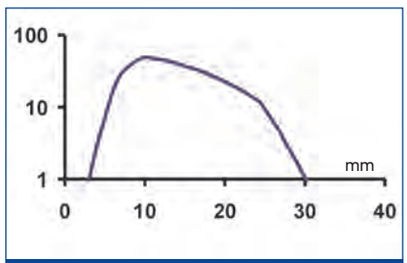
Fixed focus proximity - 30 mm - Detection area



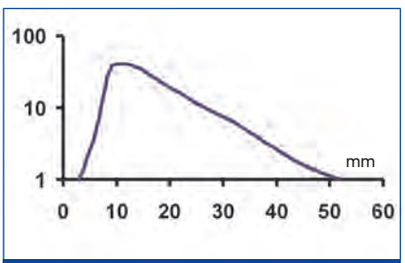
Fixed focus proximity - 50 mm - Detection area



Fixed focus proximity - 20 mm - Excess gain



Fixed focus proximity - 30 mm - Excess gain

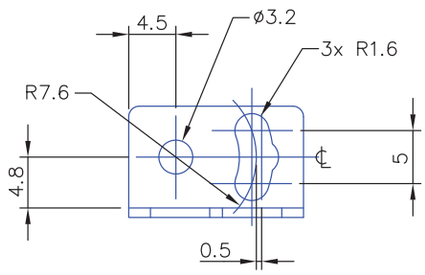


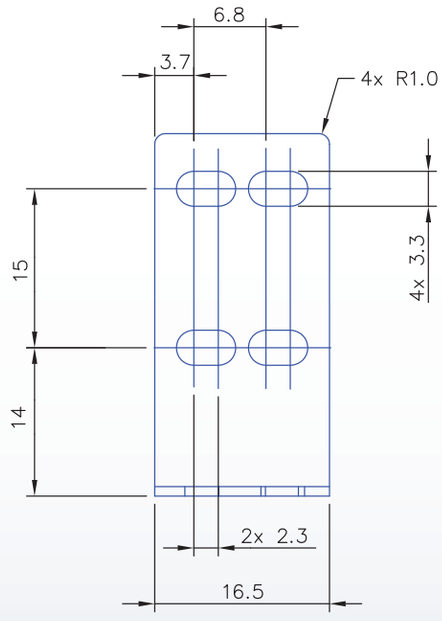
Fixed focus proximity - 50 mm - Excess gain

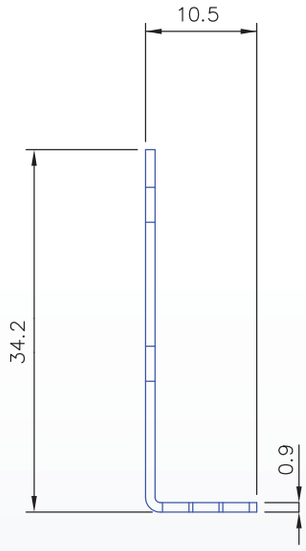
MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	OPERATING DISTANCE	CONNECTION	OUTPUT	MODEL	ORDER No.
Retroreflective	0,05...1,5 m	2m Cable	PNP	SM-PR-2-A00-PP	95B000060
			NPN	SM-PR-2-A00-NN	95B000070
Polarized retroreflective	0,1...1 m	2m Cable	PNP	SM-PR-2-B00-PP	95B000080
			NPN	SM-PR-2-B00-NN	95B000090
Fixed focus (short distance)	15 mm	2m Cable	PNP	SM-PR-2-D00-PP	95B000020
			NPN	SM-PR-2-D00-NN	95B000030
Fixed focus (normal distance)	20 mm		PNP	SM-PR-2-D10-PP	95B000140
			NPN	SM-PR-2-D10-NN	95B000150
Fixed focus (medium distance)	30 mm		PNP	SM-PR-2-D20-PP	95B000040
			NPN	SM-PR-2-D20-NN	95B000050
Fixed focus (long distance)	50 mm		PNP	SM-PR-2-D30-PP	95B000000
			NPN	SM-PR-2-D30-NN	95B000010
Through beam receiver	0...2 m	2m Cable	PNP	SM-PR-2-F00-PP	95B000120
			NPN	SM-PR-2-F00-NN	95B000130
			-	SM-PR-2-G00-XG	95B000160

ACCESSORIES



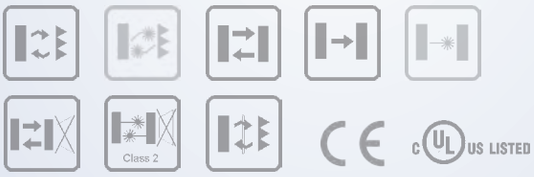




MODEL	DESCRIPTION	ORDER NO.
ST-5049	right angle bracket	95ACC6650

Rev. 01, 07/2016

S3Z



ADVANCED LINE OF MINIATURE GLOBAL STYLE OF PHOTOELECTRIC SENSORS

- 50-250 mm background suppression
- 0.7 m proximity, 150 mm with narrow beam
- 4 m polarized retroreflective
- 15 m through beam
- Light and dark trimmer models
- Standard 3-wire output configuration

APPLICATIONS

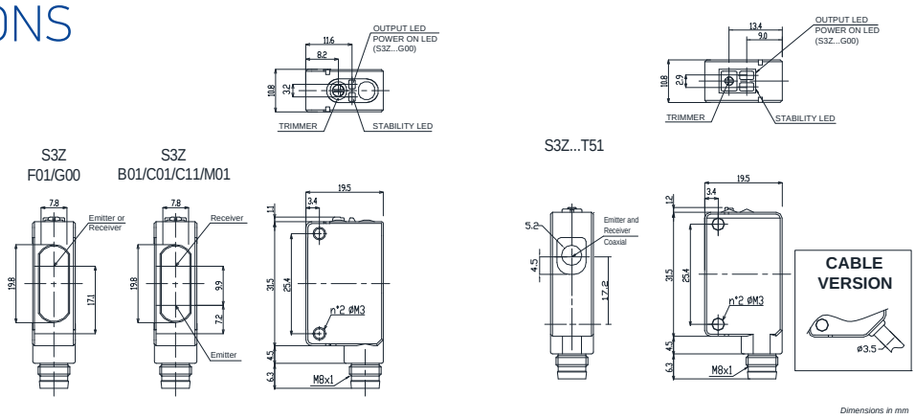
- Processing and Packaging machinery
- Electronics assembling
- Transportation lines, material handling
- Automatic warehouses
- Cosmetics and Pharmaceutical industry
- Small part detection with maximum accuracy

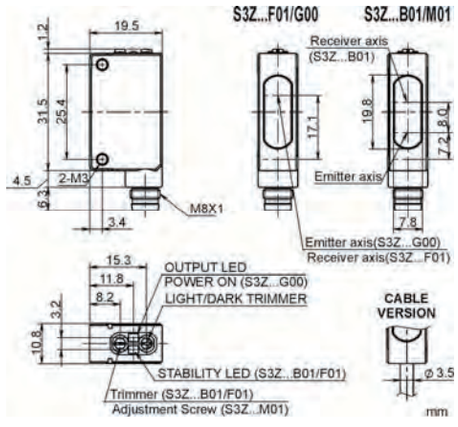
S3Z		
Through beam		0...15 m 0...30 m (class 1 LASER)
Polarized retroreflective		0.05...4 m 0,3...10 m (class 1 LASER)
Retroreflective for transparent (on R2 reflector)		0...2 m
Diffuse proximity		0...700 mm
		50...150 mm (narrow beam)
Background suppression		50...250 mm 40...300 mm (class 1 LASER)
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		11x31x19
Housing material		PC/PBT
Mechanical protection		IP67

TECHNICAL DATA

Consumption (output current excluded)	30 mA max. (LED mod.) 35 mA max. (Laser mod.)
Light emission	red LED 650 nm (mod. S3Z...T51) red LED 665 nm (mod. S3Z...B01/C01) red LED 670 nm (mod. S3Z...M01) IR LED 850 nm (mod. S3Z...C11) IR LED 870 nm (mod. S3Z...F01/G00) red Laser 650 nm (mod. S3Z...B01/F01/G00/M01)
Setting	sensitivity trimmer, 6 turns screw (mod. S3Z...M01), LIGHT/DARK trimmer model available (mod.S3Z...-PP, -NN)
Operating mode	LIGHT/DARK trimmer (Laser mod. S3Z...-PP, -NN), LIGHT (mod. S3Z...-PL, -NL), DARK (mod. S3Z...-PD, -ND)
Indicators	yellow OUTPUT LED, green STABILITY LED (mod. S3Z...B01/C01/C11/F01), POWER ON LED (mod. S3Z... G00)
Output	PNP or NPN (short circuit protection)
Output current	100 mA max.
Saturation voltage	2 V max. (LED mod.) 1,5 V max. (Laser mod.)
Response time	1 ms max. (LED mod.) 250 µs max. (Laser mod.)
Switching frequency	500 Hz max. (LED mod.) 2 kHz max. (Laser mod.)
Connection	2 m cable Ø 3,5 mm, M8 4-pole connector
Dielectric strength	500 Vac 1 min., between electronics and housing
Insulating resistance	>20 MΩ 500 Vdc, between electronics and housing
Mechanical protection	IP67
Ambient light rejection	according to EN 60947-5-2
Vibration	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	body PBT, indicators cover PC
Lens material	PMMA, PC (mod. S3Z...B01)
Operating temperature	-25 ... 55 °C (LED mod.), -10 ... 55 °C (Laser mod.)
Storage temperature	-40 ... 70 °C (LED mod.), -25 ... 70 °C (Laser mod.)
Weight	50 g max. cable vers. , 10 g max. conn. vers.

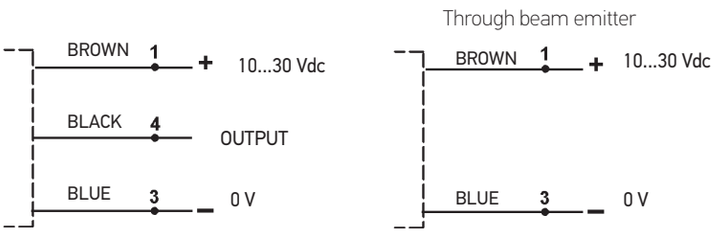
DIMENSIONS



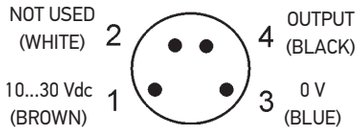


CONNECTIONS

CABLE

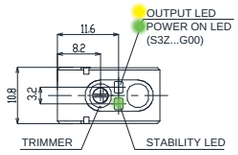


M8 CONNECTOR

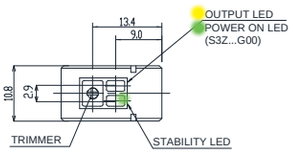


INDICATORS AND SETTINGS

S3Z...F01/G00/B01/C01/M01



S3Z...T51



S3Z...F01/G00/B01/M01/S3Z...-PP, -NN

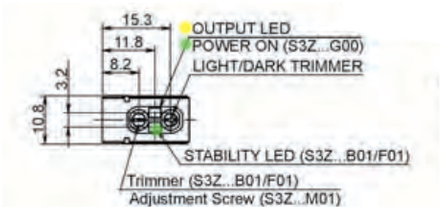
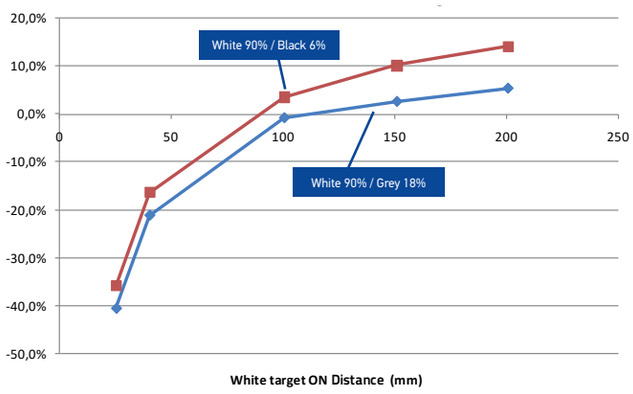
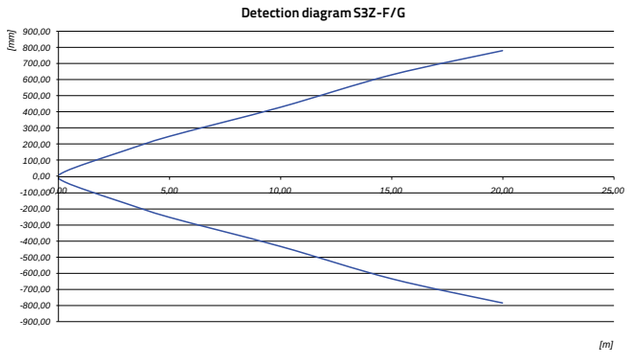


DIAGRAM LED MODELS

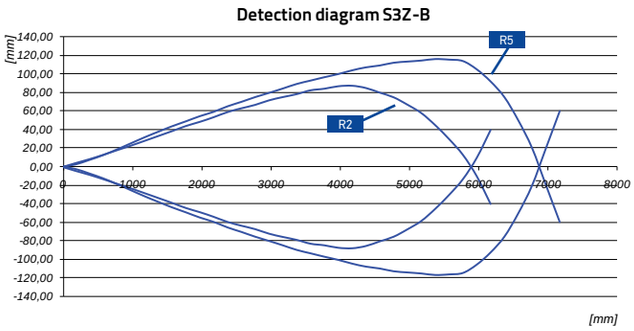
BACKGROUND SUPPRESSION - DISTANCE DIFFERENCE VS REFLECTANCE TARGET



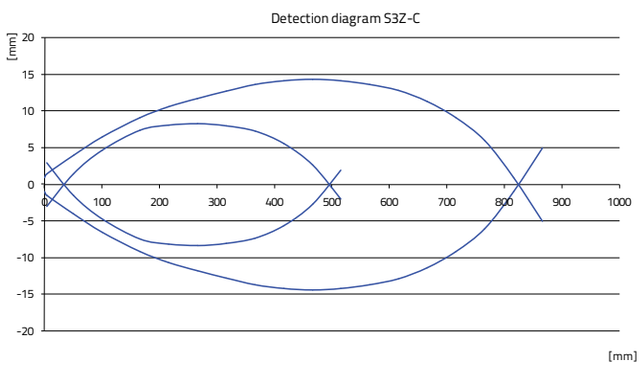
THROUGH BEAM - DETECTION AREA



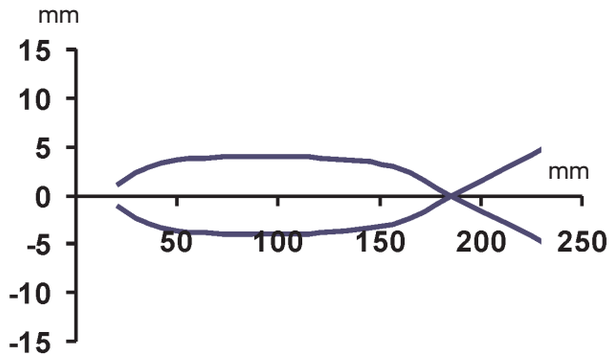
POLARIZED RETROREFLECTIVE - DETECTION AREA



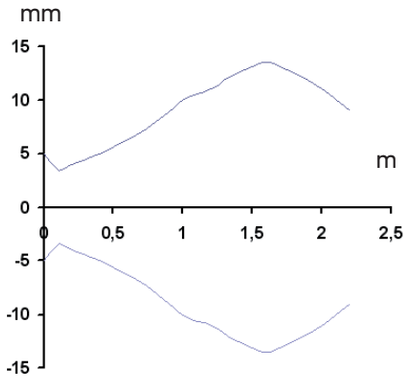
DIFFUSE PROXIMITY - DETECTION AREA



NARROW BEAM PROXIMITY - DETECTION AREA

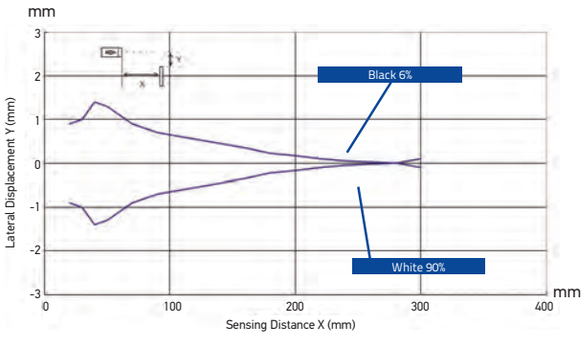


POLARIZED RETROREFLECTIVE FOR TRANSPARENT - DETECTION AREA

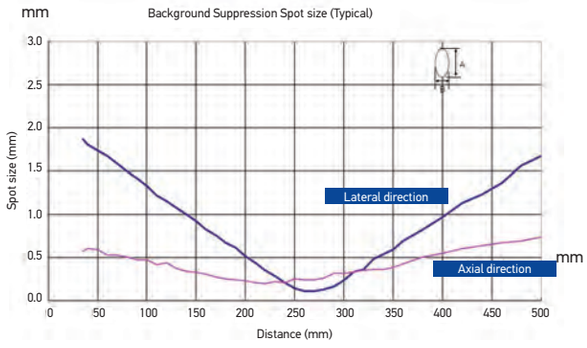


DIAGRAMS LASER MODELS

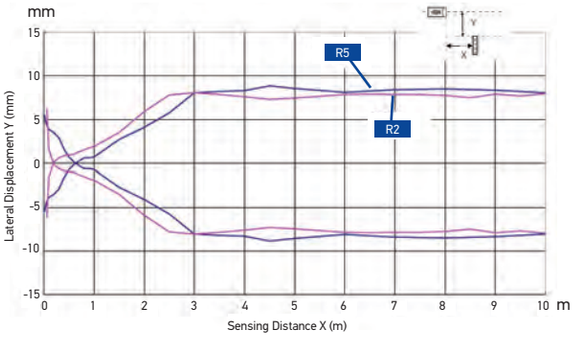
BACKGROUND SUPPRESSION - DETECTION AREA



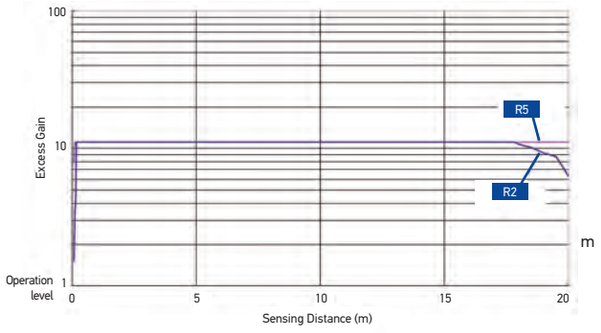
BACKGROUND SUPPRESSION - SPOT DIMENSION



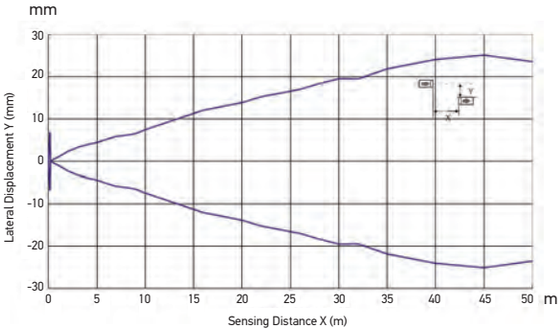
POLARIZED RETROREFLECTIVE - DETECTION AREA



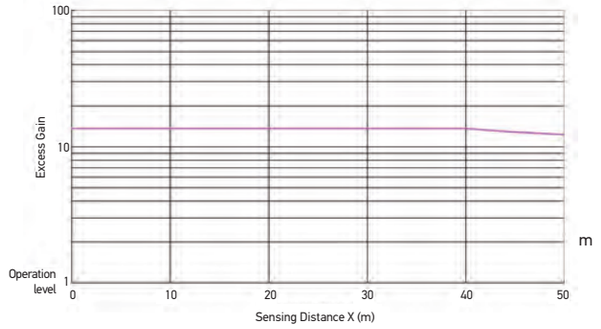
POLARIZED RETROREFLECTIVE - EXCESS GAIN



THROUGH BEAM - DETECTION AREA



THROUGH BEAM - EXCESS GAIN

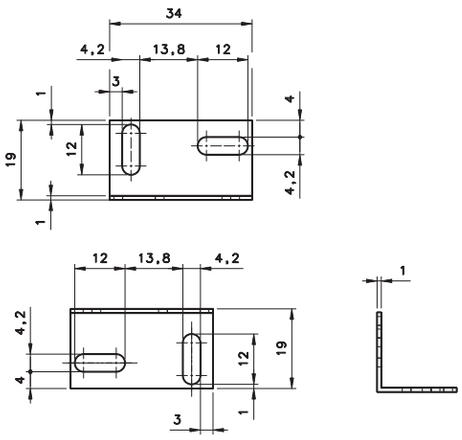


MODEL SELECTION AND ORDER INFORMATION

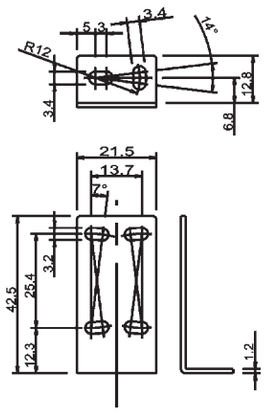
OPTIC FUNCTION	EMISSION	CONNECTION	OUTPUT	MODEL	ORDER No.
Narrow beam diffuse proximity	LED	2 m Cable	PNP - LIGHT	S3Z-PR-2-C01-PL	95B010040
		M8 Connector	PNP - LIGHT	S3Z-PR-5-C01-PL	95B010050
		2 m Cable	PNP - DARK	S3Z-PR-2-C01-PD	95B010060
		M8 Connector	PNP - DARK	S3Z-PR-5-C01-PD	95B010070
		2 m Cable	NPN - LIGHT	S3Z-PR-2-C01-NL	95B010200
		M8 Connector	NPN - LIGHT	S3Z-PR-5-C01-NL	95B010210
		2 m Cable	NPN - DARK	S3Z-PR-2-C01-ND	95B010220
		M8 Connector	NPN - DARK	S3Z-PR-5-C01-ND	95B010230
		2 m Cable	PNP - LIGHT/DARK	S3Z-PR-2-C01-PP	95B010670
		M8 Connector	PNP - LIGHT/DARK	S3Z-PR-5-C01-PP	95B010690
		2 m Cable	NPN - LIGHT/DARK	S3Z-PR-2-C01-NN	95B010660
		M8 Connector	NPN - LIGHT/DARK	S3Z-PR-5-C01-NN	95B010680
Long diffuse proximity	LED	2 m Cable	PNP - LIGHT	S3Z-PR-2-C11-PL	95B010001
		M8 Connector	PNP - LIGHT	S3Z-PR-5-C11-PL	95B010011
		2 m Cable	PNP - DARK	S3Z-PR-2-C11-PD	95B010021
		M8 Connector	PNP - DARK	S3Z-PR-5-C11-PD	95B010031
		2 m Cable	NPN - LIGHT	S3Z-PR-2-C11-NL	95B010161
		M8 Connector	NPN - LIGHT	S3Z-PR-5-C11-NL	95B010171
		2 m Cable	NPN - DARK	S3Z-PR-2-C11-ND	95B010181
		M8 Connector	NPN - DARK	S3Z-PR-5-C11-ND	95B010191
		2 m Cable	PNP - LIGHT/DARK	S3Z-PR-2-C11-PP	95B010630
		M8 Connector	PNP - LIGHT/DARK	S3Z-PR-5-C11-PP	95B010650
		2 m Cable	NPN - LIGHT/DARK	S3Z-PR-2-C11-NN	95B010620
		M8 Connector	NPN - LIGHT/DARK	S3Z-PR-5-C11-NN	95B010640
Polarized retroreflective	LED	2 m Cable	PNP - LIGHT	S3Z-PR-2-B01-PL	95B010081
		M8 Connector	PNP - LIGHT	S3Z-PR-5-B01-PL	95B010091
		2 m Cable	PNP - DARK	S3Z-PR-2-B01-PD	95B010101
		M8 Connector	PNP - DARK	S3Z-PR-5-B01-PD	95B010111
		2 m Cable	NPN - LIGHT	S3Z-PR-2-B01-NL	95B010241
		M8 Connector	NPN - LIGHT	S3Z-PR-5-B01-NL	95B010251
		2 m Cable	NPN - DARK	S3Z-PR-2-B01-ND	95B010261
		M8 Connector	NPN - DARK	S3Z-PR-5-B01-ND	95B010271
		2 m Cable	PNP - LIGHT/DARK	S3Z-PR-2-B01-PP	95B010590
		M8 Connector	PNP - LIGHT/DARK	S3Z-PR-5-B01-PP	95B010610
		2 m Cable	NPN - LIGHT/DARK	S3Z-PR-2-B01-NN	95B010580
		M8 Connector	NPN - LIGHT/DARK	S3Z-PR-5-B01-NN	95B010600
	LASER	2 m Cable	PNP - LIGHT/DARK	S3Z-PH-2-B01-P	95B010440
		M8 Connector	PNP - LIGHT/DARK	S3Z-PH-5-B01-P	95B010460
		2 m Cable	NPN - LIGHT/DARK	S3Z-PH-2-B01-N	95B010450
		M8 Connector	NPN - LIGHT/DARK	S3Z-PH-5-B01-N	95B010470
Through beam	LED	2 m Cable	PNP - LIGHT	S3Z-PR-2-FG01-PL	95B010121
		M8 Connector	PNP - LIGHT	S3Z-PR-5-FG01-PL	95B010131
		2 m Cable	PNP - DARK	S3Z-PR-2-FG01-PD	95B010141
		M8 Connector	PNP - DARK	S3Z-PR-5-FG01-PD	95B010151
		2 m Cable	NPN - LIGHT	S3Z-PR-2-FG01-NL	95B010281
		M8 Connector	NPN - LIGHT	S3Z-PR-5-FG01-NL	95B010291
		2 m Cable	NPN - DARK	S3Z-PR-2-FG01-ND	95B010301
		M8 Connector	NPN - DARK	S3Z-PR-5-FG01-ND	95B010311
		2 m Cable	PNP - LIGHT/DARK	S3Z-PR-2-FG01-PP	95B010710
		M8 Connector	PNP - LIGHT/DARK	S3Z-PR-5-FG01-PP	95B010730
		2 m Cable	NPN - LIGHT/DARK	S3Z-PR-2-FG01-NN	95B010700
		M8 Connector	NPN - LIGHT/DARK	S3Z-PR-5-FG01-NN	95B010720
	LASER	2 m Cable	PNP - LIGHT/DARK	S3Z-PH-2-FG01-P	95B010520
		M8 Connector	PNP - LIGHT/DARK	S3Z-PH-5-FG01-P	95B010540
		2 m Cable	NPN - LIGHT/DARK	S3Z-PH-2-FG01-N	95B010530
		M8 Connector	NPN - LIGHT/DARK	S3Z-PH-5-FG01-N	95B010550
Background suPression	LED	2 m Cable	PNP - LIGHT	S3Z-PR-2-M01-PL	95B010331
		M8 Connector	PNP - LIGHT	S3Z-PR-5-M01-PL	95B010351
		2 m Cable	NPN - LIGHT	S3Z-PR-2-M01-NL	95B010321
		M8 Connector	NPN - LIGHT	S3Z-PR-5-M01-NL	95B010341
		2 m Cable	PNP - LIGHT/DARK	S3Z-PR-2-M01-PP	95B010750
		M8 Connector	PNP - LIGHT/DARK	S3Z-PR-5-M01-PP	95B010770
		2 m Cable	NPN - LIGHT/DARK	S3Z-PR-2-M01-NN	95B010740
		M8 Connector	NPN - LIGHT/DARK	S3Z-PR-5-M01-NN	95B010760
	LASER	2 m Cable	PNP - LIGHT/DARK	S3Z-PH-2-M01-P	95B010480
		M8 Connector	PNP - LIGHT/DARK	S3Z-PH-5-M01-P	95B010500
		2 m Cable	NPN - LIGHT/DARK	S3Z-PH-2-M01-N	95B010490
		M8 Connector	NPN - LIGHT/DARK	S3Z-PH-5-M01-N	95B010510
Polarized retroreflective for transparent	LED	2 m Cable	NPN - DARK	S3Z-PR-2-T51-ND	95B010390
		2 m Cable	PNP - DARK	S3Z-PR-2-T51-PD	95B010380
		M8 Connector	NPN - DARK	S3Z-PR-5-T51-ND	95B010370
		M8 Connector	PNP - DARK	S3Z-PR-5-T51-PD	95B010360

ACCESSORIES

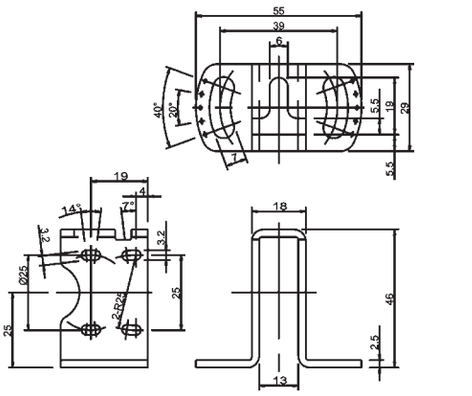
ST-505



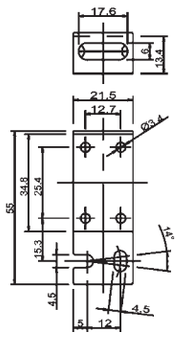
ST-5039



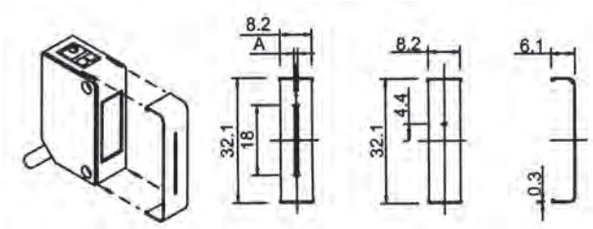
ST-5046



ST-5040



SLIT



M18 ADAPTER NOSE

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER NO.
ST-505	lateral mounting	95ACC2800
ST-5039	L-shaped fixing bracket	95ACC2270
ST-5040	protection bracket with vertical fixing (only for cable versions)	95ACC2280
ST-5046	protection bracket with horizontal fixing	95ACC2370
S3Z-SLIT1	Ø 0,5 mm slit for through beam	95ACC2470
S3Z-SLIT2	Ø 1 mm slit for through beam	95ACC2480
S3Z-SLIT3	Ø 2 mm slit for through beam	95ACC2490
S3Z-SLIT4	0,5x18 mm slit for through beam	95ACC2500
S3Z-SLIT5	1x18 mm slit for through beam	95ACC2510
S3Z-SLIT6	2x18 mm slit for through beam	95ACC2520
ST-S3Z-M18	S3Z FIX BRK M18 THREADED NOSE	95ACC7850

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

Rev. 03, 03/2019

S45

HIGH PERFORMANCE EUROPEAN STYLE MINIATURE SENSOR ALL-IN-ONE FAMILY

- Red LED and Laser emissions
- Precise risk free laser class 1 emission
- Diffused LED proximity 800mm
- Background Suppression 400mm
- Retroreflective Class 1 Laser 15m/Red LED 7m
- Through beam Class 1 Laser 20m/Red LED 15m
- IP69K housing
- 2m Cable or metal M8 4 pole version
- PNP or NPN output with remote teach in input
- High speed RGB and white emission contrast sensor
- High precision distance sensor up to 200 mm

APPLICATIONS

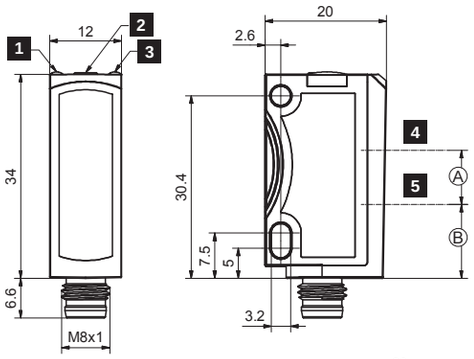
- Processing and Packaging machinery
- Cosmetic and Pharmaceutical industry
- Electronics assembling
- Conveyor lines, material handling
- Automotive industry
- Print and paper industry
- Small part detection with maximum accuracy

S45		
Through beam		20m. (Laser Class1) 15m. (Red Led)
Polarized Retroreflective		15m. (Laser Class1) 7m. (Red Led)
Autocollimated Retroreflective for Transparent objects		2m. (Red Led)
Autocollimated Retroreflective		2m. (Red Led)
Diffused proximty		250mm. (Laser Class1) 800mm. (Red Led)
Background suppressor		120mm. (Laser Class 1) 200mm. (Red Led) 400mm. (Red Led)
Distance sensor		80mm. (Red Led) 200mm. (Red Led)
Contrast Sensor		12mm. (White) 12mm. (RGB)
Power Supply	Vdc	10...30Vdc (13...30Vdc Y models)
	Vac	
	Vac/Vdc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	Push Pull (Wxx, Yxx), Analog 0...10 V (Yxx)
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		34mm. x 20mm. X 12mm.
Housing material		ABS(Housing), PMMA (Optics)
Mechanical protection		IP67 & IP69K

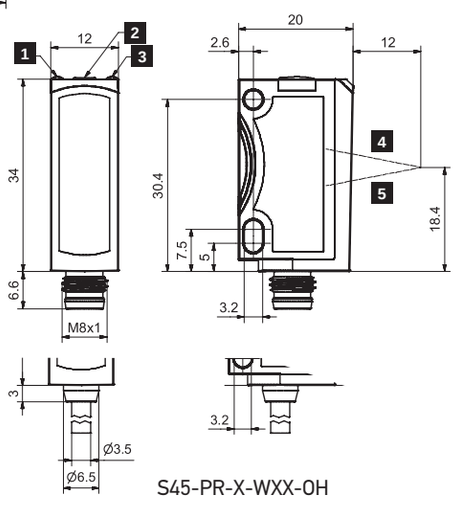
TECHNICAL DATA

Power supply	10...30Vdc (13...30Vdc Y models)
Ripple	10% max.
Consumption (Load current excluded)	≤ 30 mA
Light emission	Red LED 632 nm, Red Laser 650 nm
Setting	Push Button TEACH-IN
Indicators	LED Green Operating Volatage LED Yellow Ouput Status
Output	NPN, PNP, Push Pull
Output current	100 mA
Saturation voltage	2 V max
Response time	500 µs 333 µs (C03 Laser) 250 µs (F/G Laser) 50 µs (W03, W33) 20 µs (W13, W43)
Switching frequency	≤ 1000Hz ≤ 1500Hz (C03 Laser) ≤ 2000 Hz (F/G Laser) ≤ 10 kHz (W03, W33) ≤ 25 kHz (W13, W43)
Connection	Plastic M8 4-pole connector, Metal M8 4-pole connector 2 m cable
Dielectric strength	500 Vac, 1min between electronic and housing
Insulating resistance	>20M OHM, 500 Vdc between electronic and housing
Electrical protection	class 2
Mechanical protection	IP67 & IP69K
Ambient light rejection	according to EN 60947-5-2
Vibrations	0,5mm amplitude, 10...55Hz frequency , for every axis (EN60068-2-6)
Shock resistance	11 ms (30G) 6 shock for every axis (EN60068-2-27)
Housing material	ABS
Lens material	PMMA
Operating temperature	-20...+60 °C
Storage temperature	-20...+80 °C
Weight	10g. with connector, 40g. with cable

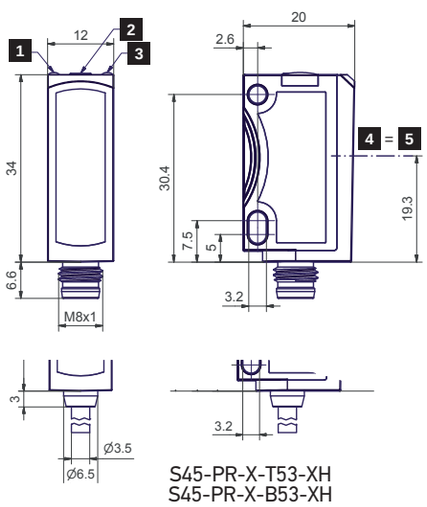
DIMENSIONS



	S45-PR-2(5)-M03 S45-PR-5-Y03	S45-PR-2(5)-M13 S45-PR-5-Y13	S45-PR-2(5)-C03 S45-PR-B03	S45-PH-5-M03	S45-PH-5-C03 S45-PH-B03	S45-PR-G00	S45-PH-G00	S45-PR(PH)-F03
A	9	11.75	10.8	8.8	8.8	11.5	13.5	
B	12.3	11	11.5	12.5	13.5			22.3



S45-PR-X-WXX-0H



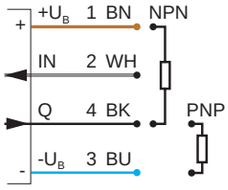
S45-PR-X-T53-XH
S45-PR-X-B53-XH

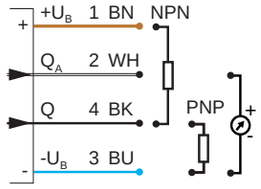
1	Yellow LED 1)
2	Button
3	Green LED 2)
4	Receiver axis
5	Emitter axis

1) switching output indicator
2) operating voltage indicator

CONNECTIONS

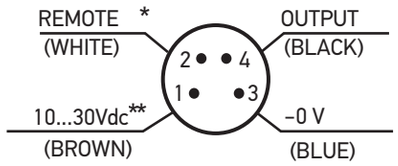
CABLE





WXX, YXX

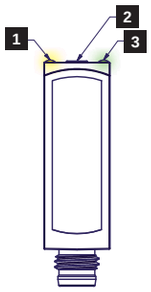
M8 CONNECTOR

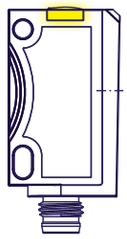


* Analog out YXX

**13...30Vdc Y models

INDICATORS AND SETTINGS





1	Yellow LED 1)
2	Button
3	Green LED 2)

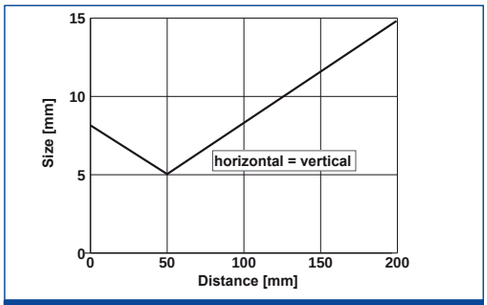
1) switching output indicator

2) operating voltage indicator

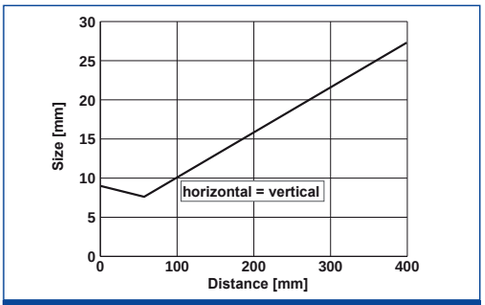
DETECTION DIAGRAMS

BACKGROUND SUPPRESSOR

DETECTION SPOT SIZE

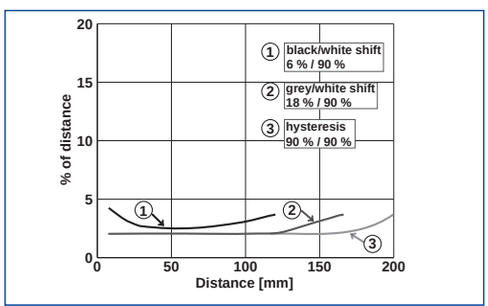


S45-PR-2(5)-M03-..

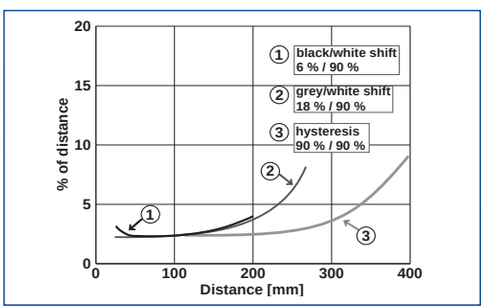


S45-PR-2(5)-M13-..

B/W SHIFT



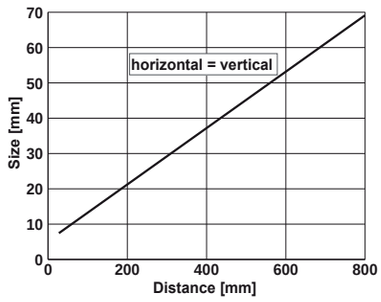
S45-PR-2(5)-M03-..



S45-PR-2(5)-M13-..

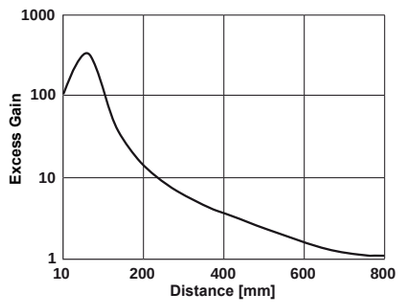
ENERGETIC DIFFUSED

DETECTION SPOT SIZE



S45-PR-2(5)-C03-..

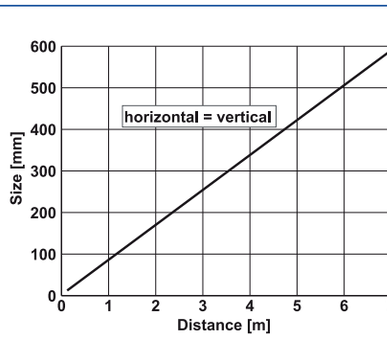
EXCESS GAIN



S45-PR-2(5)-C03-..

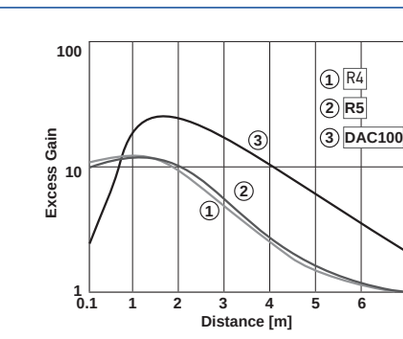
RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE



S45-PR-2(5)-B03-..

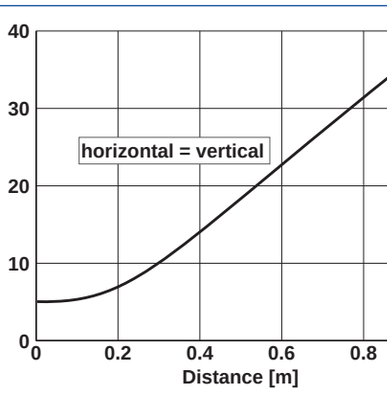
EXCESS GAIN



S45-PR-2(5)-B03-..

COAXIAL RETROREFLECTIVE POLARIZED

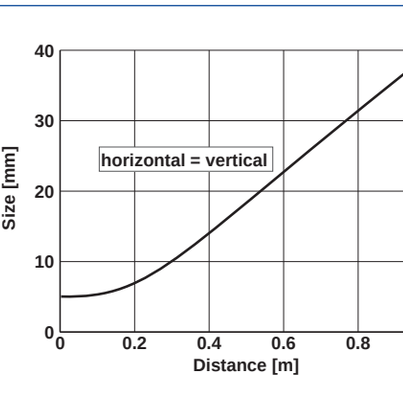
DETECTION SPOT SIZE



S45-PR-5-B53-..

RETROREFLECTIVE FOR TRANSPARENT

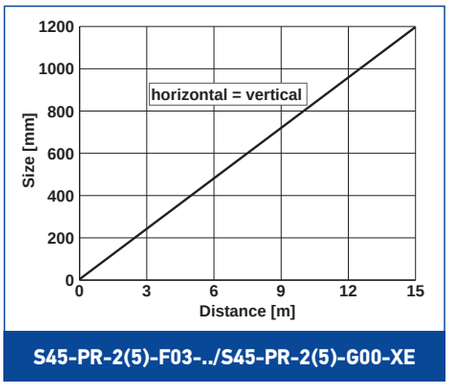
DETECTION SPOT SIZE



S45-PR-2(5)-T53-..

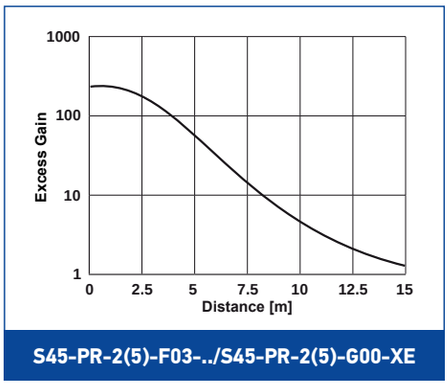
THROUGH BEAM

DETECTION SPOT SIZE



S45-PR-2(5)-F03-../S45-PR-2(5)-G00-XE

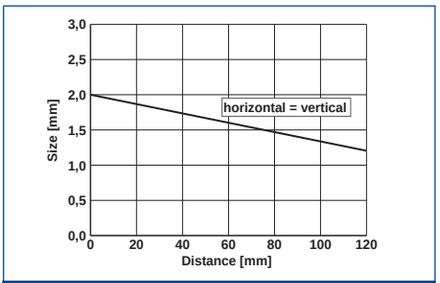
EXCESS GAIN



S45-PR-2(5)-F03-../S45-PR-2(5)-G00-XE

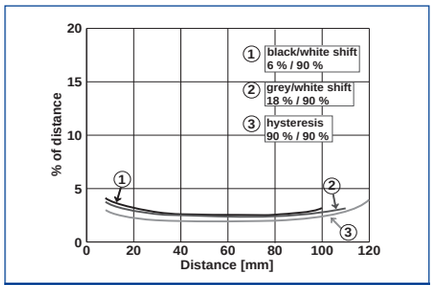
LASER BACKGROUND SUPPRESSOR

DETECTION SPOT SIZE



S45-PH-5-M03-..

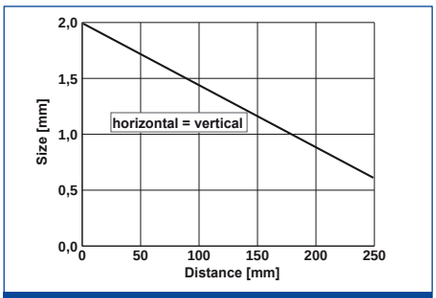
B/W SHIFT



S45-PH-5-M03-..

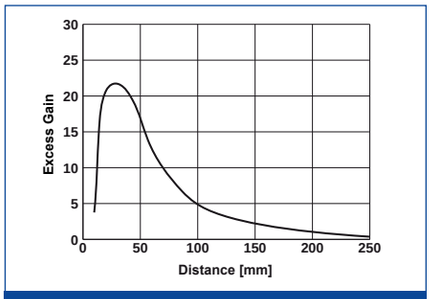
LASER ENERGETIC DIFFUSED

DETECTION SPOT SIZE



S45-PH-5-C03-..

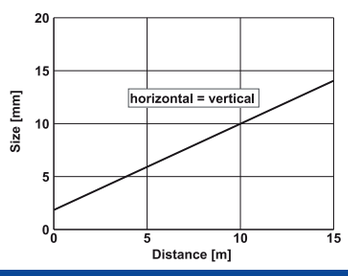
EXCESS GAIN



S45-PH-5-C03-..

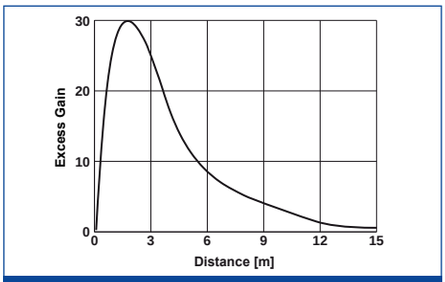
LASER RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE



S45-PH-5-B03-..

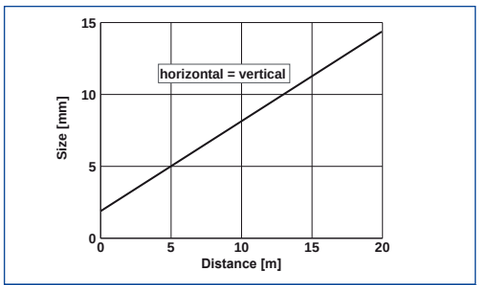
EXCESS GAIN



S45-PH-5-B03-..

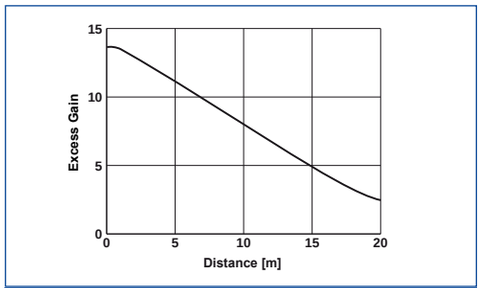
LASER THROUGH BEAM

DETECTION SPOT SIZE



S45-PH-5-F03-../S45-PH-5-G00-XE

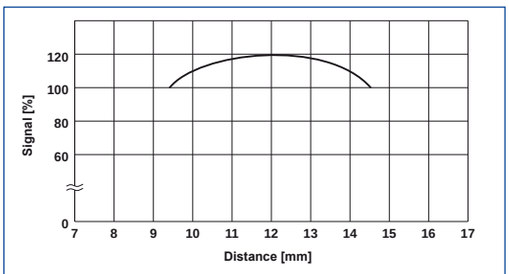
EXCESS GAIN



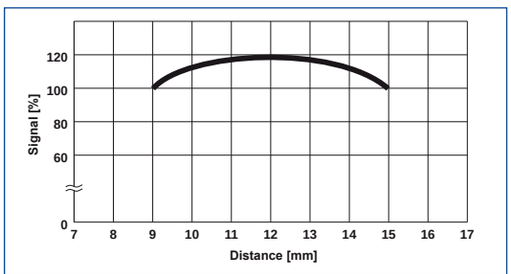
S45-PH-5-F03-../S45-PH-5-G00-XE

CONTRAST SENSOR

READING DIAGRAM



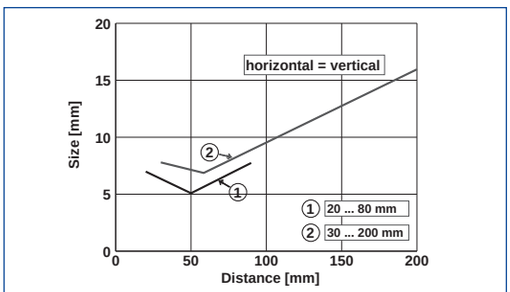
S45-PR-5-W13/-W03-..



S45-PR-5-W43/-W33-..

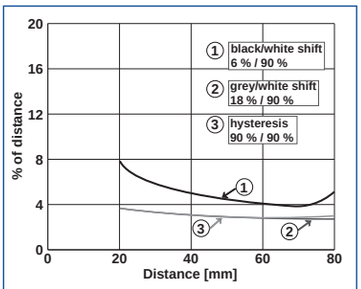
DISTANCE SENSOR

DETECTION SPOT SIZE

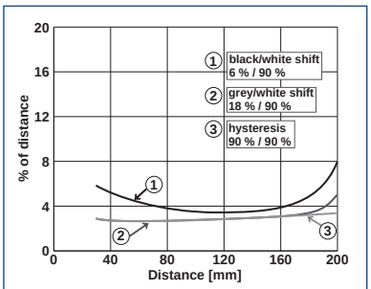


S45-PR-5-Y03/-Y13-..

SCANNING PROPERTIES



S45-PR-5-Y03-.. (characteristic Q)

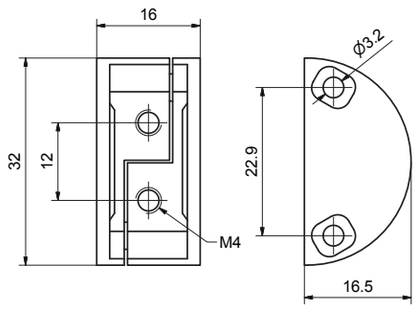


S45-PR-5-Y13-.. (characteristic Q)

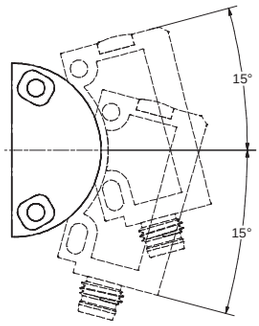
MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
Diffused proximty	LED	2m Cable	PNP	S45-PR-2-C03-PH	950411220
			NPN	S45-PR-2-C03-NH	950411210
		M8	PNP	S45-PR-5-C03-PH	950411240
			NPN	S45-PR-5-C03-NH	950411230
	LASER	M8	PNP	S45-PH-5-C03-PH	950411260
			NPN	S45-PH-5-C03-NH	950411250
Polarized Retroreflective	LED	2m Cable	PNP	S45-PR-2-B03-PH	950411100
			NPN	S45-PR-2-B03-NH	950411090
		M8	PNP	S45-PR-5-B03-PH	950411120
			NPN	S45-PR-5-B03-NH	950411110
	LASER	M8	PNP	S45-PH-5-B03-PH	950411140
			NPN	S45-PH-5-B03-NH	950411130
Polarized retroreflective autocollimated for transparent	LED	2m Cable	PNP	S45-PR-2-T53-PH	950411160
			NPN	S45-PR-2-T53-NH	950411150
		M8	PNP	S45-PR-5-T53-PH	950411180
			NPN	S45-PR-5-T53-NH	950411170
Polarized retroreflective autocollimated	LED	M8	PNP	S45-PR-5-B53-PH	950411200
			NPN	S45-PR-5-B53-NH	950411190
Through beam	LED	2m Cable	-	S45-PR-2-G00-XE	950411000
			PNP	S45-PR-2-F03-PH	950411020
			NPN	S45-PR-2-F03-NH	950411010
		M8	-	S45-PR-5-G00-XE	950411030
			PNP	S45-PR-5-F03-PH	950411050
			NPN	S45-PR-5-F03-NH	950411040
	LASER	M8	-	S45-PH-5-G00-XE	950411060
			PNP	S45-PH-5-F03-PH	950411080
			NPN	S45-PH-5-F03-NH	950411070
Background suppressor 200mm	LED	2m Cable	PNP	S45-PR-2-M03-PH	950411280
			NPN	S45-PR-2-M03-NH	950411270
		M8	PNP	S45-PR-5-M03-PH	950411300
			NPN	S45-PR-5-M03-NH	950411290
Background suppressor 400mm	LED	2m Cable	PNP	S45-PR-2-M13-PH	950411320
			NPN	S45-PR-2-M13-NH	950411310
		M8	PNP	S45-PR-5-M13-PH	950411340
			NPN	S45-PR-5-M13-NH	950411330
Background suppressor laser	LASER	M8	PNP	S45-PH-5-M03-PH	950411360
			NPN	S45-PH-5-M03-NH	950411350
Distance sensor	LED	M8	PNP	S45-PR-5-Y03-PV	950411380
			NPN	S45-PR-5-Y03-NV	950411370
Distance sensor	LED	M8	PNP	S45-PR-5-Y13-PV	950411400
			NPN	S45-PR-5-Y13-NV	950411390
Contrast Sensor 10kHz	WHITE	M8	PUSH-PULL	S45-PR-5-W03-OH	950411420
	RGB		PUSH-PULL	S45-PR-5-W13-OH	950411410
Contrast Sensor 25kHz	WHITE	M8	PUSH-PULL	S45-PR-5-W33-OH	950411440
	RGB		PUSH-PULL	S45-PR-5-W43-OH	950411430

ACCESSORIES



ST-S45-DVT



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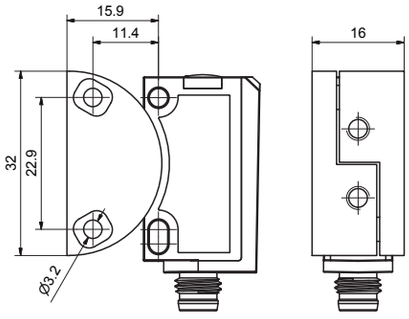
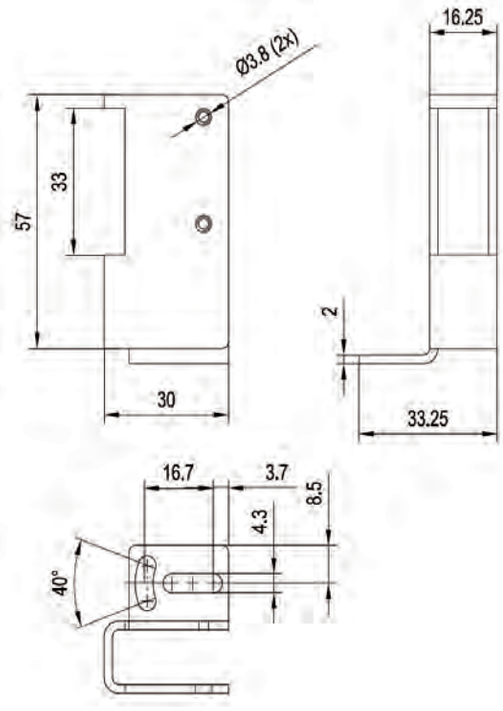


ST-S45-DVT



ST-MINI-PRO

MODEL	DESCRIPTION	ORDER NO.
ST-S45-DVT	S45 DOVE TAIL BRACKET	95ACC7970
ST-MINI-PRO	MINI PROTECTIVE BRACKET	95ACC7980

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

Rev. 01, 07/2016

S100

THE UNIVERSAL MINIATURE PHOTOELECTRIC SENSOR

- Two threaded front mounting holes
- Two slotted rear mounting holes
- Anti-tampering sensor (no adjustment)
- Standard optic functions
- Transparent object detection
- M8 connector and cable models
- PNP or NPN models with Light/Dark selection by wire
- Plastic housing, IP67 mechanical protection

APPLICATIONS

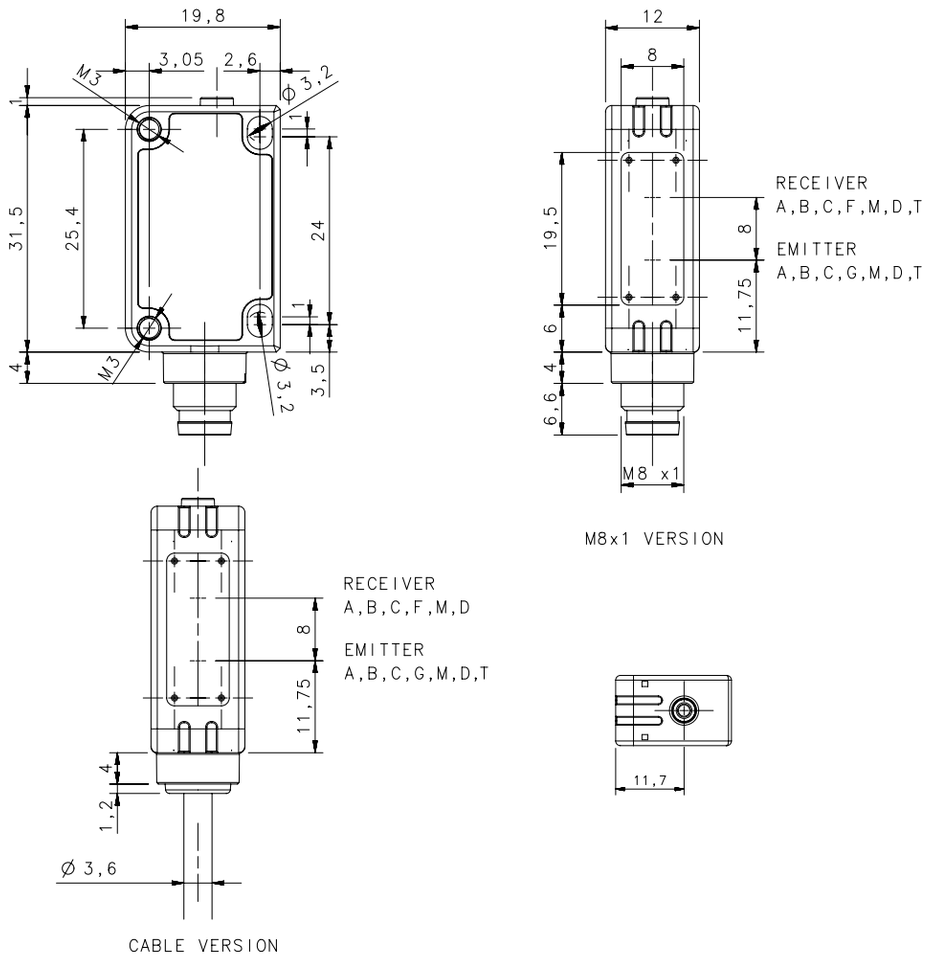
- Processing and packaging machines
- Conveyors
- Automatic warehousing
- Intralogistic lines
- Bottling
- Cosmetic and Pharma machinery

S100		
Through beam		12 m
Retroreflective		7 m
Polarized Retroreflective (long range)		5,5 m
Polarized Retroreflective (short range)		3 m
Transparent Retroreflective (short range)		500 mm
Transparent Retroreflective (long range)		2 m
Diffused proximity (short range)		300 mm
Diffused proximity (long range)		500 mm
Fixed focus		70 mm
Background Suppression (short range)		100 mm
Background Suppression (long range)		200 mm
Power supply	Vdc	10...30 Vdc
Output	PNP	•
	NPN	•
Connection	cable	2 m cable, 4 wires
	connector	M8 conn., 4-pole
Approximate dimensions (mm)		32x20x12
Housing material		Plastic
Mechanical protection		IP67

TECHNICAL DATA

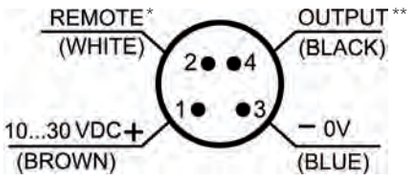
Power supply	10 ... 30 Vdc
Ripple	10% max.
Consumption (output current excluded)	20 mA max.
Light emission	red LED 632 nm (mod. S100...B/C/D/M01) IR LED 860 nm (mod. S100...A/G/Txx/M10)
Setting	remote teach-in (mod. S100...Mxx/Txx)
Operating mode	LIGHT/DARK selectable by wire (mod. S100...A/B/C/D/F)
Indicators	yellow OUTPUT LED (excl. mod. G) green POWER LED (mod. S100...G)
Output	PNP or NPN
Output current	100 mA
Saturation voltage	2 V max.
Response time	2 ms (mod. S100...FG) 1 ms (mod. S100...A/Bxx/C/D/Mxx/Txx)
Switching frequency	250 Hz (mod. S100...FG) 500 Hz (mod. S100...A/Bxx/C/D/Mxx/Txx)
Connection	2 m cable 3,5 mm, M8 4-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Housing material	ABS body, PMMA indicators cover
Lens material	PC lens, PMMA window
Operating temperature	-25... 55 °C
Storage temperature	-40 ... 70 °C
Weight	50 g max. cable vers., 10 g max. connector vers.

DIMENSIONS

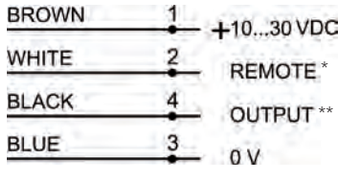


CONNECTIONS

M8 CONNECTOR

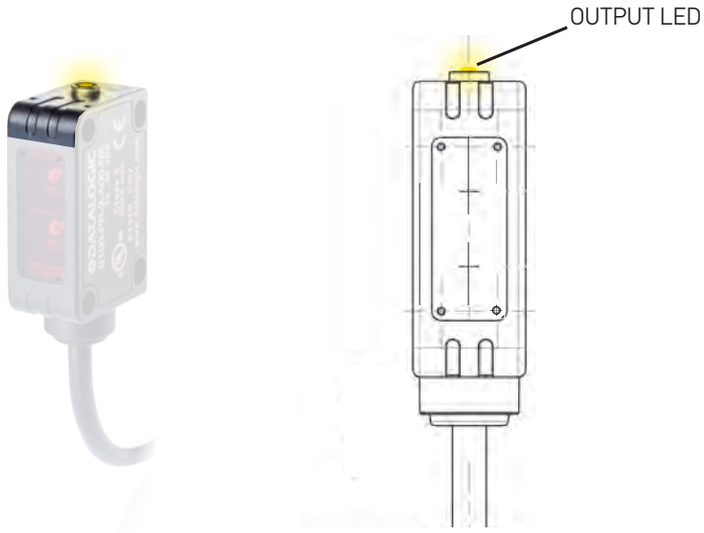


CABLE



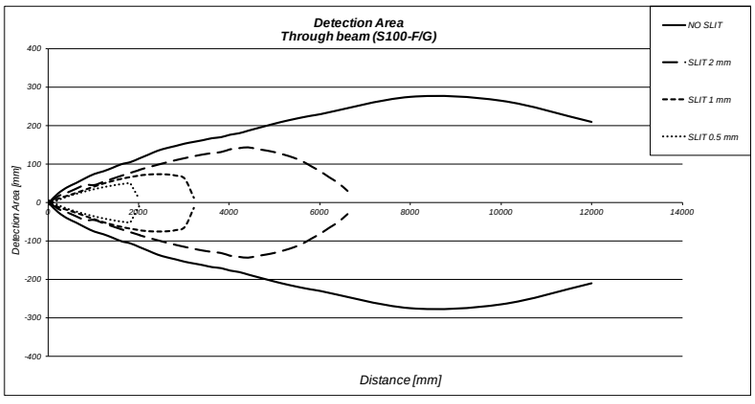
*REMOTE: Light/Dark selection (S100-...-A-B-C-D-F), Exernal Teach-in (S100-...-Mxx/Txx)
**OUTPUT: PNP or NPN depends on the model

INDICATORS AND SETTINGS



DETECTION DIAGRAMS

THROUGH BEAM

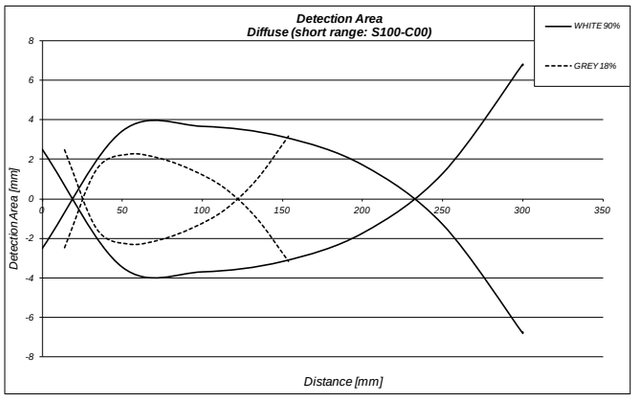


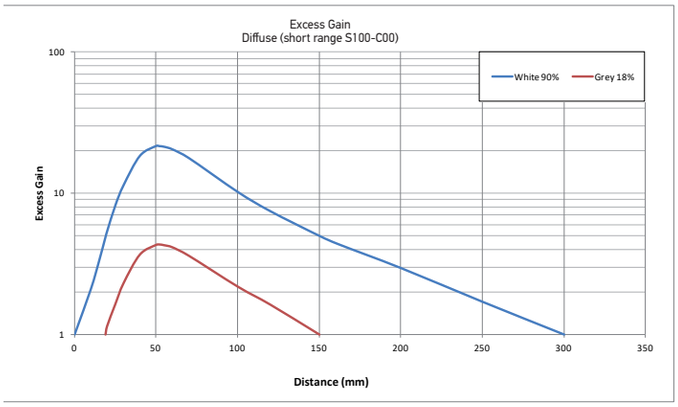
	max. operating distance
NO SLIT	12 m
2 mm SLIT	6,7 m
1 mm SLIT	3,2 m
0,5 mm SLIT	2 m

DIFFUSE PROXIMITY

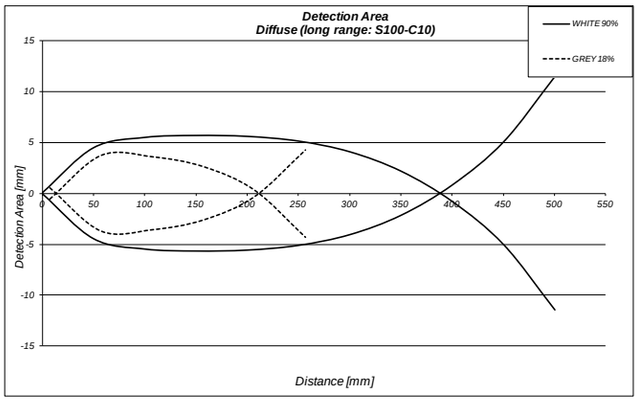
	SHORT RANGE (S100-...-C0)	LONG RANGE (S100-...-C1)
Recommended operating distance (on White 90% target)	10...240 mm	2...400 mm
Maximum operating distance (White 90% target)	1...300 mm	0...500 mm
Maximum operating distance (Grey 18% target)	20...150 mm	10...280 mm
Maximum operating distance (Black 6% target)	30...80 mm	20...160 mm
Difference White-Grey	50%	50%
Difference White-Black	75%	75%
Hysteresis	20%	20%

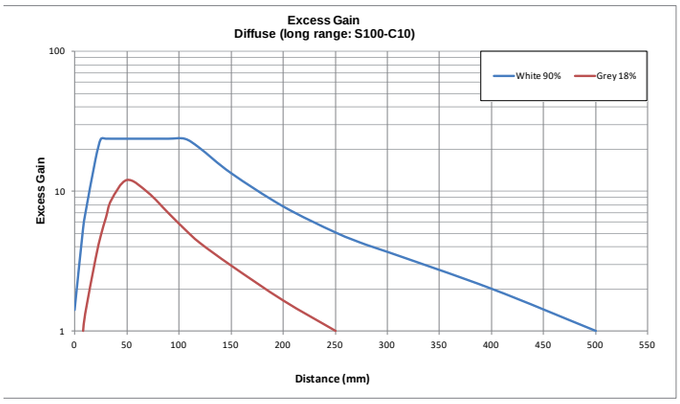
DIFFUSE (SHORT RANGE: S100-C00)





DIFFUSE (LONG RANGE: S100-C10)



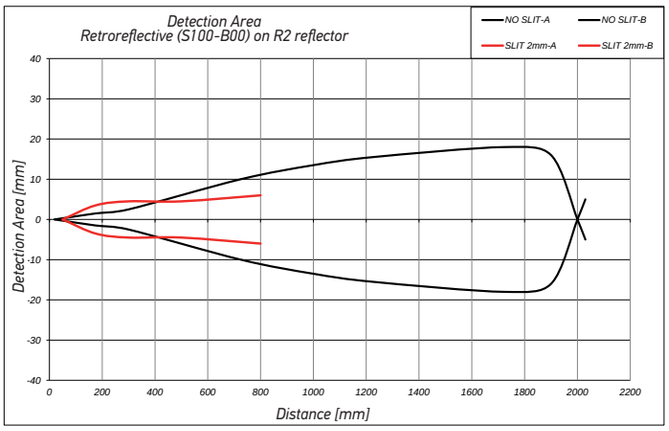


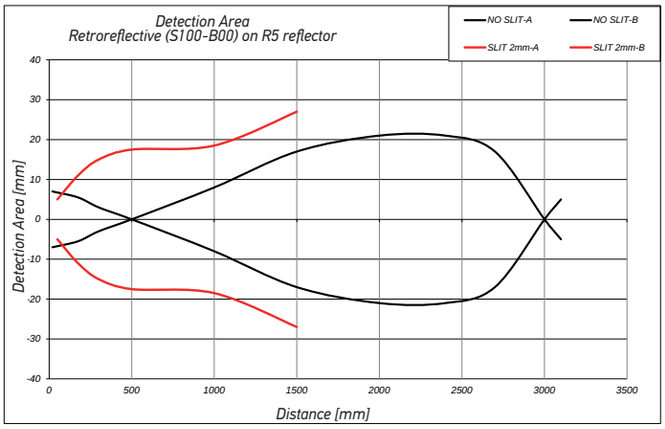
POLARIZED RETROREFLECTIVE

REFLECTOR	TYPE	SHORT RANGE (S100-...-B00)	LONG RANGE (S100-...-B10)
R1	circular (23 mm)	0,2..0,8 m	0,02..2 m
R2	circular (48 mm)	0,03..2 m	0,01..4,5 m
R3	rectangular (18x54 mm)	0,03..1,5 m	0,01..3 m
R4	rectangular (47x47 mm)	0,03..2,5 m	0,01..4,5 m
R5	circular (75 mm)	0,01..3 m	0,01..5,5 m
R6	rectangular (36x55 mm)	0,03..1,8 m	0,01..4 m
RT3970	self-adhesive tape (60x40 mm)	0,2..0,8 m	0,05..1,8 m

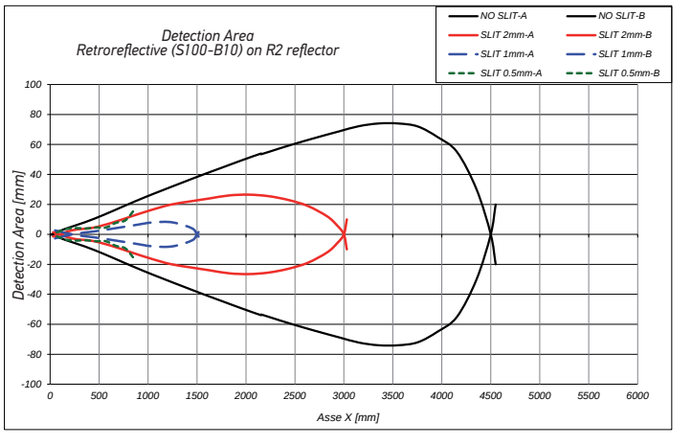
	max. operating distance			
	SHORT RANGE (S100-...-B00)		LONG RANGE (S100-...-B10)	
	with R5 reflector	with R2 reflector	with R5 reflector	with R2 reflector
NO SLIT	0,02 ... 3 m	0,02 ... 2 m	0,1...5,5 m	0,01...4,5 m
2 mm SLIT	0,05 ... 1,5 m	0,05 ... 0,8 m	0,2...4 m	0,03...3 m
1 mm SLIT	-	-	0,3...2,5 m	0,05...1,5 m
0,5 mm SLIT	-	-	0,5...1,2 m	0,07...0,7 m

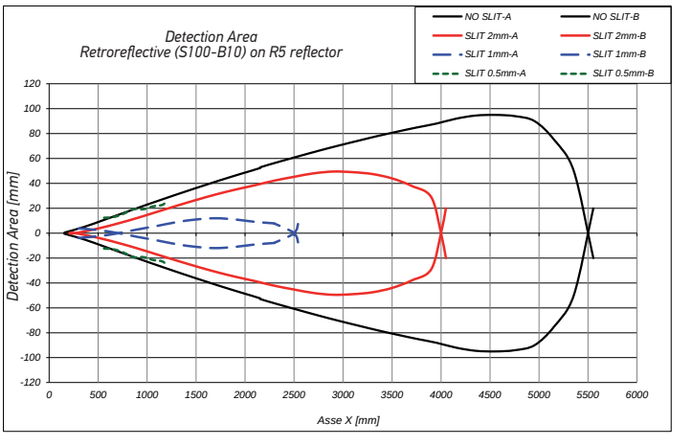
POLARIZED RETROREFLECTIVE (SHORT RANGE: S100-B00)





POLARIZED RETROREFLECTIVE (LONG RANGE: S100-B10)

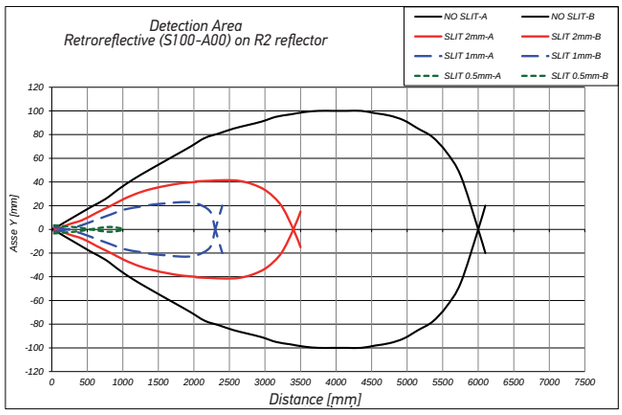


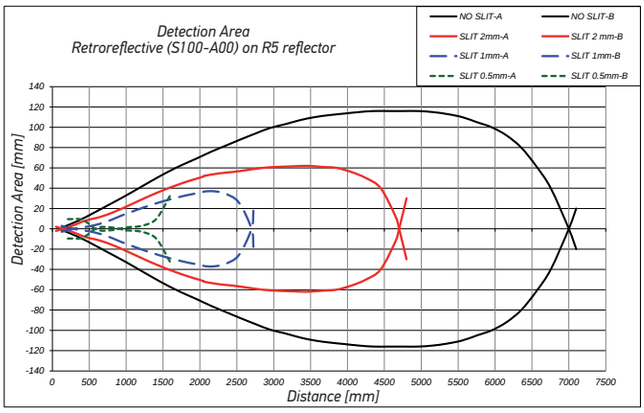


RETROREFLECTIVE (INFRARED)

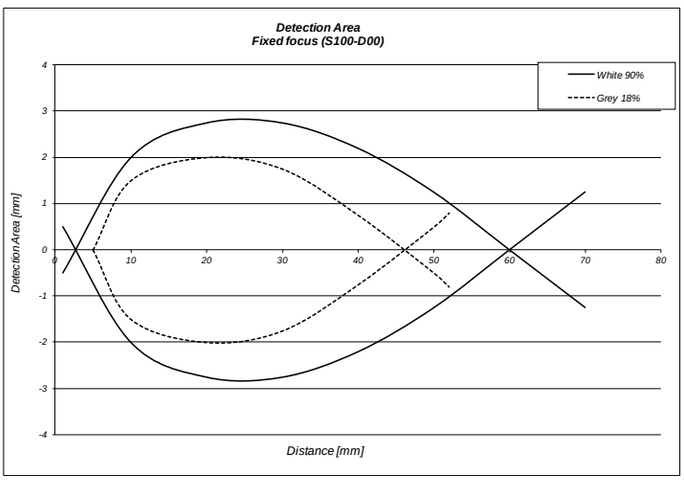
REFLECTOR	TYPE	(S100-...-A00)
R1	circular (23 mm)	0.03..3 m
R2	circular (48 mm)	0.01..6 m
R3	rectangular (18x54 mm)	0.01..3.5 m
R4	rectangular (47x47 mm)	0.01..5 m
R5	circular (75 mm)	0.01..7 m
R6	rectangular (36x55 mm)	0.01..6 m
RT3970	self-adhesive tape (60x40 mm)	0,05..2 m

	max. operating distance	
	with R5 reflector	with R2 reflector
NO SLIT	7 m	6 m
2 mm SLIT	4,7 m	3,4 m
1 mm SLIT	2,7 m	2,3 m
0,5 mm SLIT	1,5 m	1 m





FIXED FOCUS



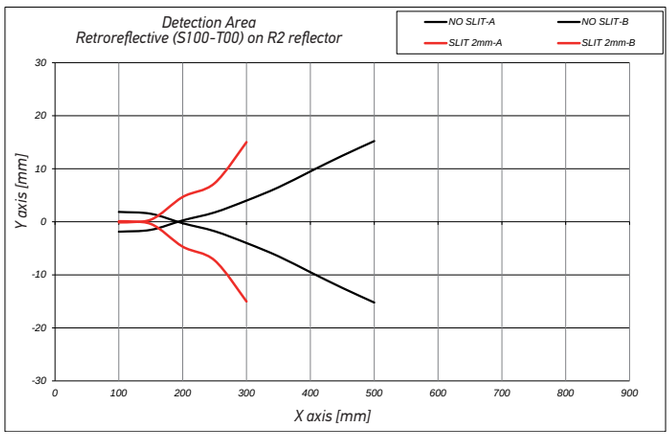
Focus point	70 mm
Maximum operating distance (White 90%)	70 mm
Maximum operating distance (Grey 18%)	55 mm
Difference White/Black	25%

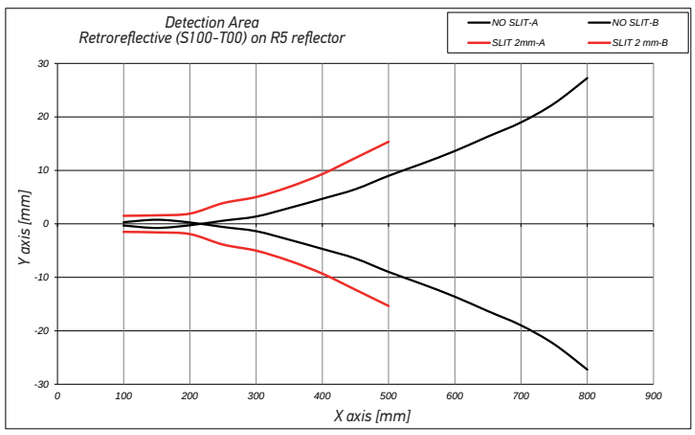
RETROREFLECTIVE FOR TRANSPARENT (INFRARED)

REFLECTOR	TYPE	SHORT RANGE (S100-...-T00)	LONG RANGE (S100-...-T10)
R1	circular (23 mm)	0.1...0.3 m	0.4...1 m
R2	circular (48 mm)	0.1...0.5 m	0.8...2 m
R3	rectangular (18x54 mm)	0.1...0.3 m	0.4...1 m
R4	rectangular (47x47 mm)	0.1...0.5 m	0.8...2 m
R5	circular (75 mm)	0.1...0.8 m	0.8...2.5 m
R6	rectangular (36x55 mm)	0.1...0.5 m	0.8...2m
RT3970	self-adhesive tape (60x40 mm)	0.15...0.3 m	0.1...0.8 m

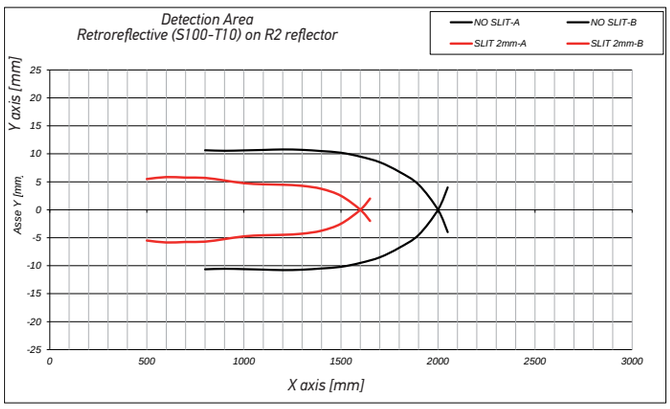
	max. operating distance			
	SHORT RANGE (S100-...-T00)		LONG RANGE (S100-...-T10)	
	with R5 reflector	with R2 reflector	with R5 reflector	with R2 reflector
NO SLIT	0.1...0.8 m	0.1...0.5 m	0.8...2.5 m	0.8...2 m
2 mm SLIT	0.1...0.5 m	0.1...0.3 m	0.5...1.8 m	0.5...1.6 m
1 mm SLIT	-	-	-	-
0,5 mm SLIT	-	-	-	-

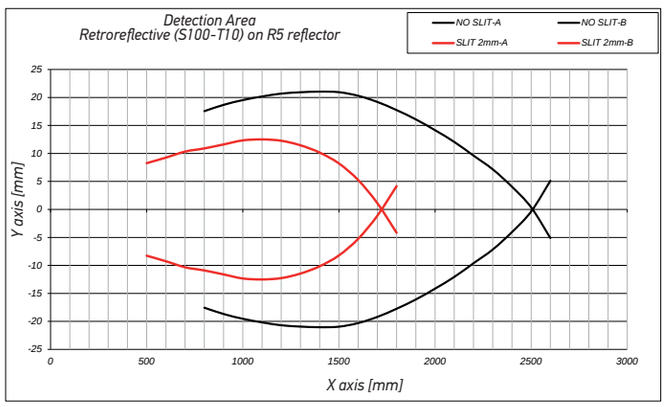
TRANSPARENT RETROREFLECTIVE (SHORT RANGE: S100-T00)





TRANSPARENT RETROREFLECTIVE (LONG RANGE: S100-T10)

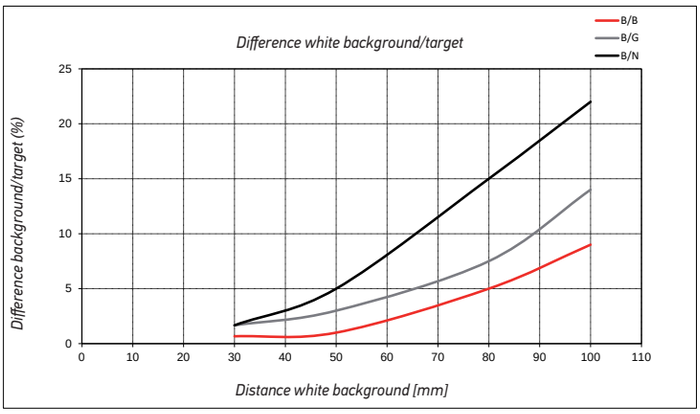


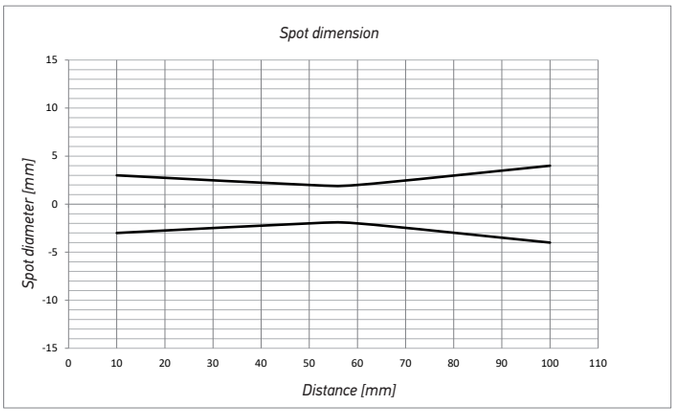


BACKGROUND SUPPRESSION

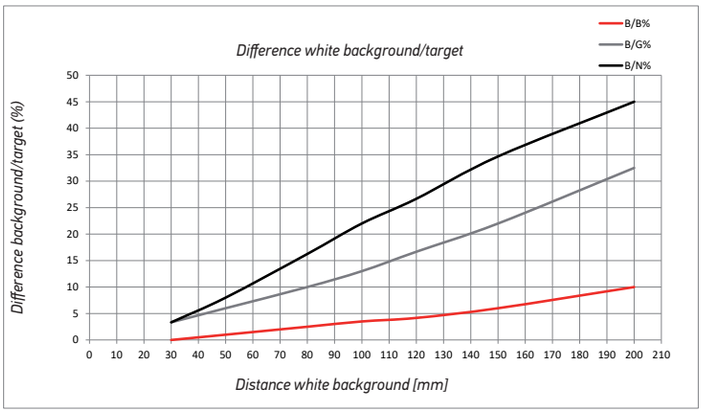
Operating distances (background suppression)	30...100 mm	30...200 mm
	S100...M00	S100...M10
Maximum operating distance (White 90%)	0...150 mm	10...250 mm
Maximum operating distance (Grey 18%)	10...110 mm	10...135 mm
Maximum operating distance (Black 6%)	10...80 mm	10...110 mm
Difference White 90%/White 90%	< 5%	< 10%
Difference White 90%/Grey 18%	< 15%	< 32%
Difference White 90%/Black 6%	< 25 %	< 45 %

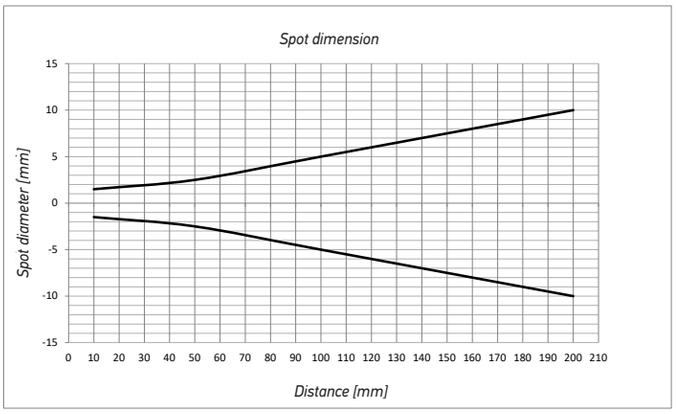
BACKGROUND SUPPRESSION (SHORT RANGE: S100-M00)





BACKGROUND SUPPRESSION (LONG RANGE: S100-M10)



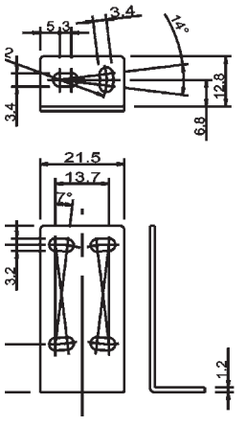


MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	EMISSION	OPERATING DISTANCE	CONNECTION	OUTPUT	MODEL	ORDER No.
Through beam	IR	12 m	2 m cable	NPN	S100-PR-2-FG00-NK	950811100
				PNP	S100-PR-2-FG00-PK	950811110
			M8 connector	NPN	S100-PR-5-FG00-NK	950811240
				PNP	S100-PR-5-FG00-PK	950811250
Retroreflective	IR	7 m	2 m cable	NPN	S100-PR-2-A00-NK	950811000
				PNP	S100-PR-2-A00-PK	950811010
			M8 connector	NPN	S100-PR-5-A00-NK	950811140
				PNP	S100-PR-5-A00-PK	950811150
Polarized Retroreflective (short)	RED	2 m	2 m cable	NPN	S100-PR-2-B00-NK	950811020
				PNP	S100-PR-2-B00-PK	950811030
			M8 connector	NPN	S100-PR-5-B00-NK	950811160
				PNP	S100-PR-5-B00-PK	950811170
Polarized Retroreflective (long)	RED	5 m	2 m cable	NPN	S100-PR-2-B10-NK	950811280
				PNP	S100-PR-2-B10-PK	950811290
			M8 connector	NPN	S100-PR-5-B10-NK	950811300
				PNP	S100-PR-5-B10-PK	950811310
Transparent Retroreflective (short)	IR	500 mm	2 m cable	NPN	S100-PR-2-T00-NH	950811330
			2 m cable	PNP	S100-PR-2-T00-PH	950811320
			M8 connector	NPN	S100-PR-5-T00-NH	950811350
			M8 connector	PNP	S100-PR-5-T00-PH	950811340
Transparent Retroreflective (long)	IR	2 m	2 m cable	NPN	S100-PR-2-T10-NH	950811370
			2 m cable	PNP	S100-PR-2-T10-PH	950811360
			M8 connector	NPN	S100-PR-5-T10-NH	950811390
			M8 connector	PNP	S100-PR-5-T10-PH	950811380
Diffuse proximity (short)	RED	300 mm	2 m cable	NPN	S100-PR-2-C00-NK	950811040
				PNP	S100-PR-2-C00-PK	950811050
			M8 connector	NPN	S100-PR-5-C00-NK	950811180
				PNP	S100-PR-5-C00-PK	950811190
Diffuse proximity (long)	RED	500 mm	2 m cable	NPN	S100-PR-2-C10-NK	950811060
				PNP	S100-PR-2-C10-PK	950811070
			M8 connector	NPN	S100-PR-5-C10-NK	950811200
				PNP	S100-PR-5-C10-PK	950811210
Fixed focus	RED	70 mm	2 m cable	NPN	S100-PR-2-D00-NK	950811080
				PNP	S100-PR-2-D00-PK	950811090
			M8 connector	NPN	S100-PR-5-D00-NK	950811220
				PNP	S100-PR-5-D00-PK	950811230
Background suppression (short range)	RED	30...100 mm	2 m cable	NPN	S100-PR-2-M00-NH	950811120
				PNP	S100-PR-2-M00-PH	950811130
			M8 connector	NPN	S100-PR-5-M00-NH	950811260
				PNP	S100-PR-5-M00-PH	950811270
Background suppression (long range)	IR	30...200 mm	2 m cable	NPN	S100-PR-2-M10-NH	950811420
				PNP	S100-PR-2-M10-PH	950811430
			M8 connector	NPN	S100-PR-5-M10-NH	950811400
				PNP	S100-PR-5-M10-PH	950811410

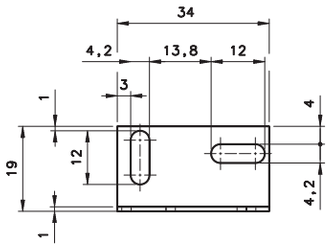
ACCESSORIES

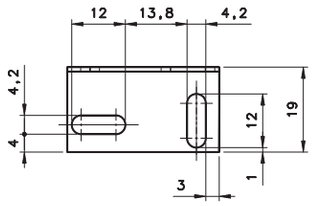
ST-5039



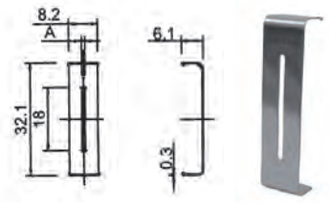
M18 ADAPTER NOSE

ST-505





SLIT



TYPE	MODEL	DESCRIPTION	Order No.
Mounting bracket	ST-505	lateral mounting	95ACC2800
	ST-5039	L-shaped bracket	95ACC2270
Slit	S100-SLIT-05	0,5x19 mm SLIT	95ACC3450
	S100-SLIT-1	1x19 mm SLIT	95ACC3460
	S100-SLIT-2	2x19 mm SLIT	95ACC3470
M18 adapter	ST-S3Z-M18	M18 THREADED ADAPTER NOSE	95ACC7850

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

Rev. 02, 01/2017

S8

COMPACT SIZE AND HIGH PERFORMANCE FOR THE MOST CHALLENGING DETECTION APPLICATIONS

- Compact dimensions (14x42x25 mm)
- Background suppression for transparent and shiny objects
- Contrast sensors up to 10 kHz switching frequency
- Extremely focused spot, under 1 mm (LASER model)
- Very high resolution LASER models
- INOX AISI 316L model

APPLICATIONS

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

IP69K (*) Diversey ECOLAB (*)

(*) Stainless steel models.
ATEX II 3DG

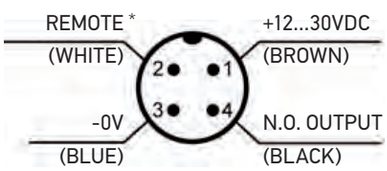
S8		
Through beam		0...25 m
Polarized retroreflective		0,1...5 m
		0...10 m (class 2 LASER)
Retroreflective for transparent (coaxial)		0...0,8 m (T51), 0...2 m (T53, T50)
Diffuse proximity		0...500 mm
Background suppression		50...300 mm
		20...200 mm (class 2 LASER)
Background suppression for clear detection		100...300 mm (LED)
		50...150 mm (class 2 LASER)
Contrast sensor		10 mm
Luminescence sensor		10...30 mm
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	•
	pig-tail	•
Approximate dimensions (mm)		14x42x25
Housing material		ABS, Stainless Steel AISI 316L
Mechanical protection		IP69K (Stainless Steel vers.), IP67

TECHNICAL DATA

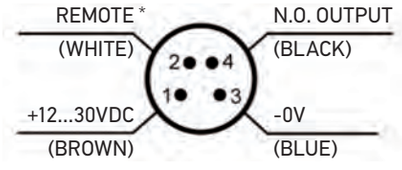
Power supply	12 ... 30 Vdc (short-circuit protection)
Ripple	2 Vpp max.
Consumption (output current excluded)	30 mA; 35 mA (mod. S8...M01); 20 mA (mod. S8...F), 15 mA (mod. S8...G) max.
Light emission	red LED 660 nm (mod. S8...B/C/M/G/T)
	RGB LEDs: blue 465 nm, green 520 nm, red 630nm with automatic selection (mod. S8...W)
	UV LED 375 nm (mod. S8...U)
	red Laser 645..665 nm (mod. S8...B/M)
Setting	8-turn distance adjustment trimmer (mod. S8...M53/M)
	LIGHT / DARK mono-turn trimmer (mod. S8...B/C/F/T51)
	teach-in push button (mod. S8...M53/W03/W13/T53/U)
	remote input (mod. S8...W/U/T50/T53)
Operating mode	mono-turn trimmer (mod. S8...B/C/F/M/T/U/W13)
	automatic (mod. S8...W/T50)
	remote input (mod. S8...M53)
Indicators	yellow OUTPUT LED (excl. mod. S8...G), OUTPUT/ALARM LED (mod. S8...M53/M/C)
	green POWER LED
Output	PNP or NPN N.O.
Output current	100 mA (overload protection)
Saturation voltage	2 V max.
Response time	1 ms (mod. S8...M53/M)
	500 µs (mod. S8...B/F/C)
	250 µs (mod. S8...T)
	100 µs (Laser vers. mod. S8...M)
	50 µs (mod. S8...W00/W03 e Laser mod. S8...B)
	20 µs (mod. S8...W13)
	250 µs...1 ms (mod. S8...U)
Switching frequency	500 Hz (mod. S8...M53/M)
	1 kHz (mod. S8...B/F/C)
	2 kHz (mod. S8...T)
	5 kHz (Laser vers. mod. S8...M)
	10 kHz (mod. S8...W00/W03 e Laser mod. S8...B)
	25 kHz (mod. S8...W13)
	500 Hz...2 kHz (mod. S8...U)
Connection	M8 4-pole connector, 150 mm length Ø 4 mm cable with M12 4-pole connector (pig-tail vers.)
Dielectric strength	1500 VAC 1 min between electronic parts and housing
Insulating resistance	>20 MΩ 500 VDC between electronic parts and housing
Mechanical protection	IP67, IP69K (mod. S8-M)
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, Stainless Steel AISI346L
Lens material	window in PMMA; lens in PC
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Weight	12 g max. conn. vers., 50 g pig-tail vers., 70 g max. (mod. S8-M)

CONNECTIONS

M12 PIGTAIL



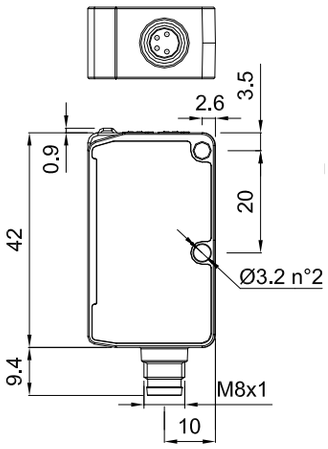
M8 CONNECTOR



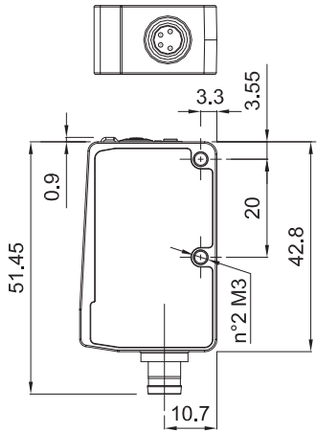
* REMOTE INPUT (mod. S8...W, U, T50, T53), LIGHT / DARK INPUT (mod. S8...M53), DELAY (mod. S8...M Laser), TEST INPUT (mod. S8...G), ALARM OUTPUT (mod. S8...B, T51), NOT USED (mod. S8...C, M, F)

DIMENSIONS

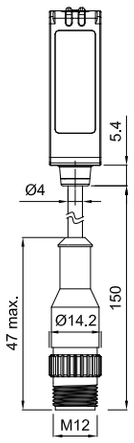
PLASTIC

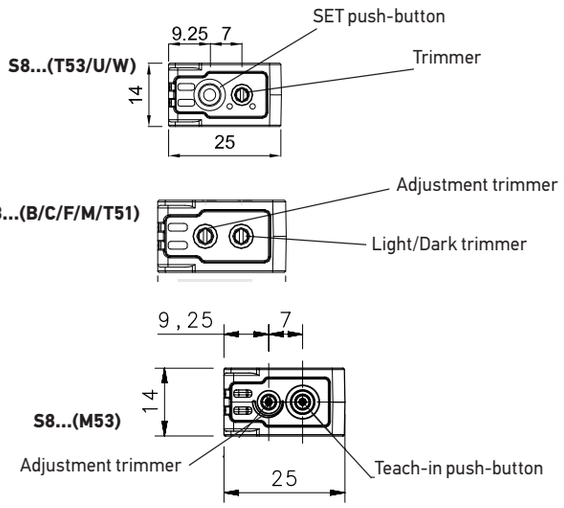


METAL

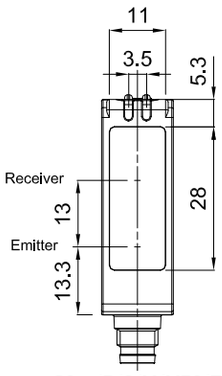


PIG-TAIL



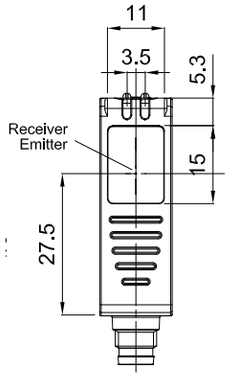


BIAXIAL



S8...(B/C/M/53/F)

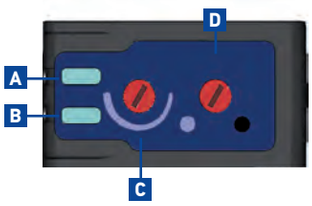
COAXIAL



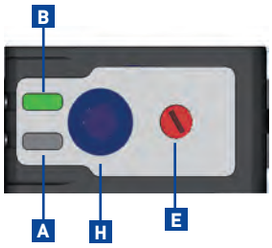
S8...(T/U/W)

INDICATOR AND SETTING

S8...M / B / C / T01

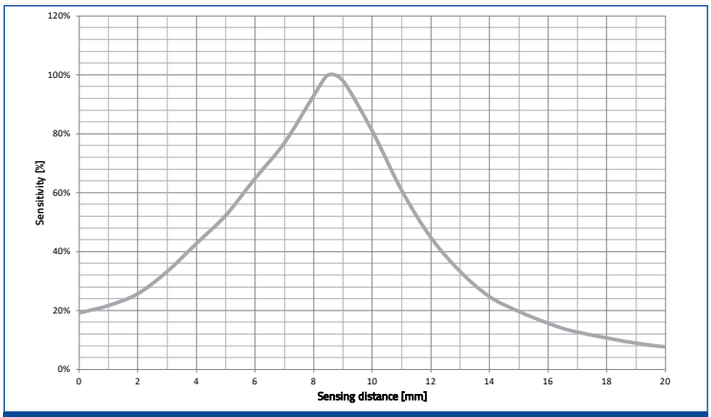


S8...W / T53

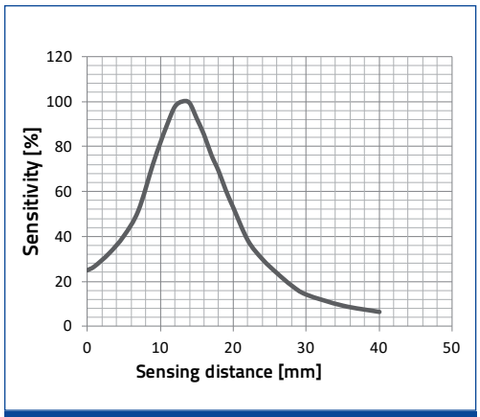


- A Output status LED
- B Ready LED or Power ON LED
- C Sensitivity adjustment trimmer
- D Dark/light trimmer
- E Delay trimmer
- F M8 connector
- G M12 pig-tail connector
- H SET push-button

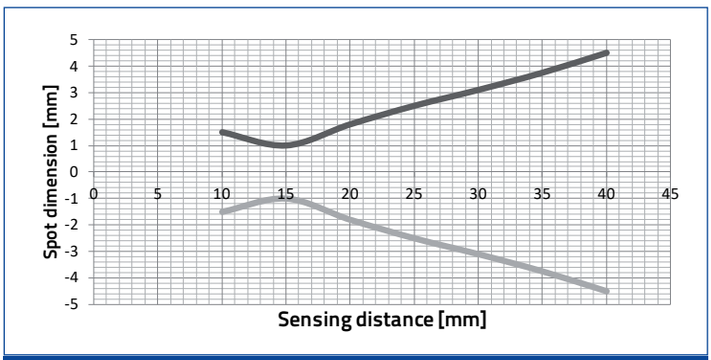
READING DIAGRAMS



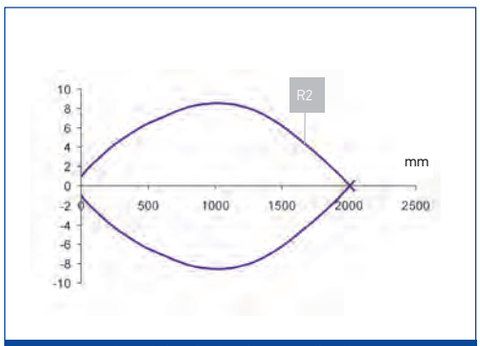
Contrast sensor



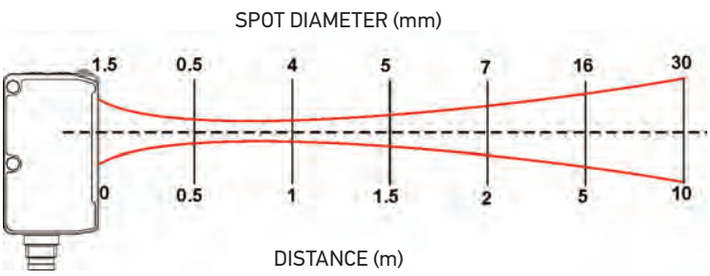
Luminescence sensor

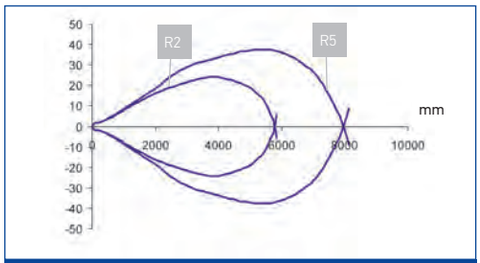


Luminescence sensor

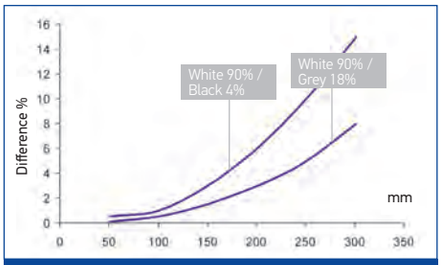


Coaxial polarized retroreflective
for transparents (S8...T50/T53)

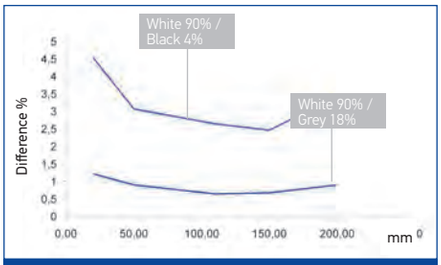




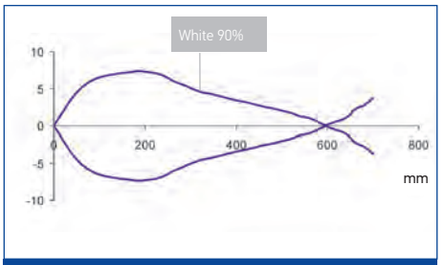
Polarized retroreflective



Background suppression (LED)



Background suppression (LASER)



Diffuse proximity

MODEL SELECTION AND ORDER INFORMATION

CLEAR DETECTION					
HOUSING	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI346L)	LASER	M8 connector	PNP	S8-MH-5-M53-PP	950801451
	LED			S8-MR-5-M53-PP	950801600
PLASTIC ABS	LASER			S8-PH-5-M53-PP	950801381
	LED			S8-PR-5-M53-PP	950801590

RETROREFLECTIVE FOR TRASPARENT					
HOUSING	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI346L)	LED	M8 connector	NPN	S8-MR-5-T50-NH	950801330
			PNP	S8-MR-5-T50-PH	950801320
		M8 connector with auto-adjustment function	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	NPN	S8-PR-5-T51-NN	950801050
			PNP	S8-PR-5-T51-PP	950801040
		M8 connector with auto-adjustment function	NPN	S8-PR-5-T53-NN	950801290
			PNP	S8-PR-5-T53-PP	950801280

POLARIZED RETROREFLECTIVE					
HOUSING	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI346L)	LASER	M8 connector	NPN	S8-MH-5-B51-NN	950801490
			PNP	S8-MH-5-B51-PP	950801480
	LED		NPN	S8-MR-5-B01-NN	950801420
			PNP	S8-MR-5-B01-PP	950801410
PLASTIC ABS	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
	LED	pig-tail	NPN	S8-PR-3-B01-NN	950801190
			PNP	S8-PR-3-B01-PP	950801180
		M8 connector	NPN	S8-PR-5-B01-NN	950801170
			PNP	S8-PR-5-B01-PP	950801160

BACKGROUND SUPPRESSION					
HOUSING	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI346L)	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

THROUGH BEAM

HOUSING	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI346L)	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	LIGHT EMISSION	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel (INOX AISI346L)	LED	M8 connector	NPN	S8-MR-5-C01-NN	950801440
			PNP	S8-MR-5-C01-PP	950801430
PLASTIC ABS		pig-tail	NPN	S8-PR-3-C01-NN	950801270
			PNP	S8-PR-3-C01-PP	950801250
		M8 connector	NPN	S8-PR-5-C01-NN	950801260
			PNP	S8-PR-5-C01-PP	950801240

CONTRAST

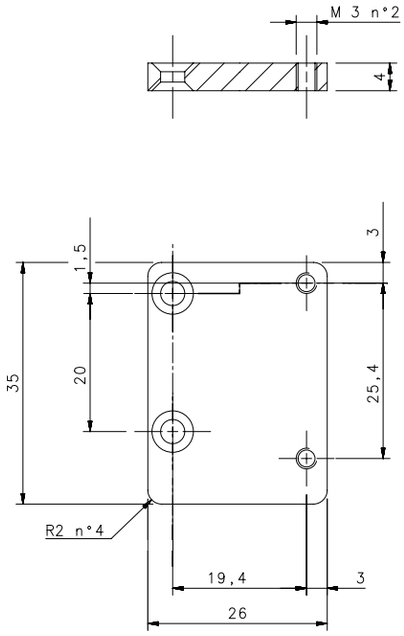
SWITCHING FREQUENCY	HOUSING	CONNECTION	OUTPUT	MODEL	ORDER NO.
10 kHz	METAL Stainless Steel	M8 connector without trimmer	PNP	S8-MR-5-W00-PH	950801360
			NPN	S8-MR-5-W00-NH	950801370
		M8 connector	PNP	S8-MR-5-W03-PP	950801340
			NPN	S8-MR-5-W03-NN	950801350
	PLASTIC ABS	M12 pig-tail (150 mm)	PNP	S8-PR-3-W03-PP	950801140
			NPN	S8-PR-3-W03-NN	950801150
		M8 connector	PNP	S8-PR-5-W03-PP	950801060
			NPN	S8-PR-5-W03-NN	950801070
25 kHz	METAL Stainless Steel	M8 connector	PNP	S8-MR-5-W13-PP	950801670
			NPN	S8-MR-5-W13-NN	950801680
	PLASTIC ABS		PNP	S8-PR-5-W13-PP	950801650
			NPN	S8-PR-5-W13-NN	950801660
		M12 pig-tail (150 mm)	PNP	S8-PR-3-W13-PP	950801690
			NPN	S8-PR-3-W13-NN	950801700

LUMINESCENCE

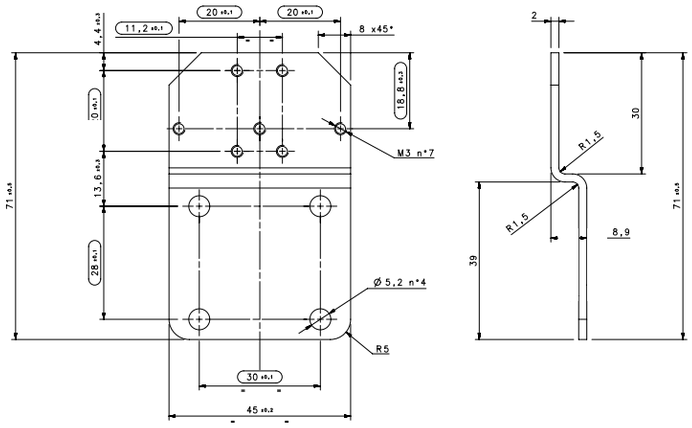
HOUSING	SETTINGS	CONNECTION	OUTPUT	MODEL	ORDER NO.
METAL Stainless Steel	Teach-in push-button; L/D trimmer selector; Remote input	M8 connector	PNP	S8-MR-5-U03-PP	950801630
			NPN	S8-MR-5-U03-NN	950801640
PLASTIC ABS			PNP	S8-PR-5-U03-PP	950801610
			NPN	S8-PR-5-U03-NN	950801620
		pig-tail	PNP	S8-PR-3-U03-PP	950801710
			NPN	S8-PR-3-U03-NN	950801720

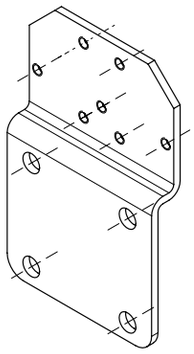
ACCESSORIES

ST-S8-S3Z

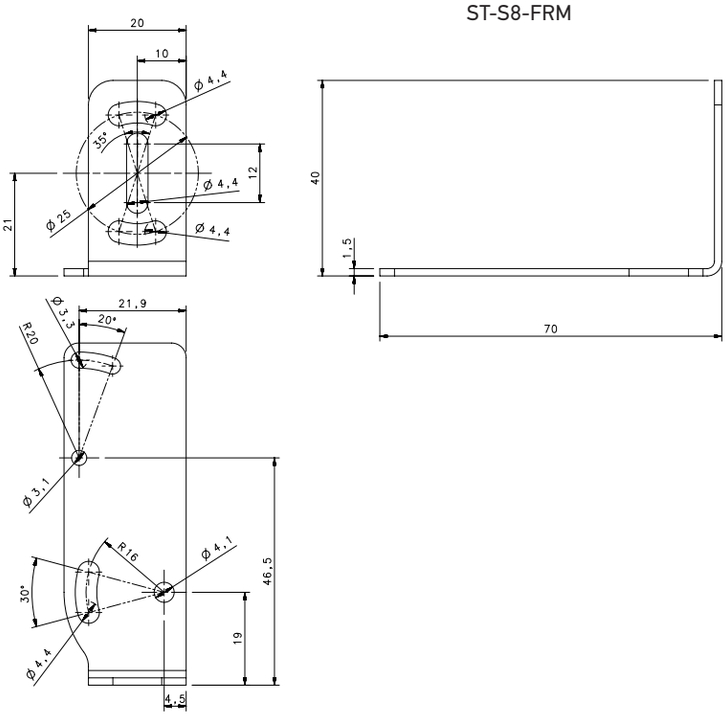


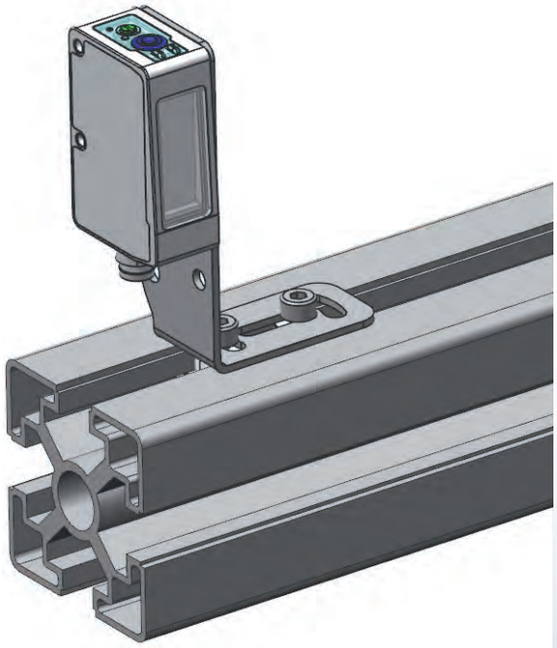
ST-S8-TL-LD46



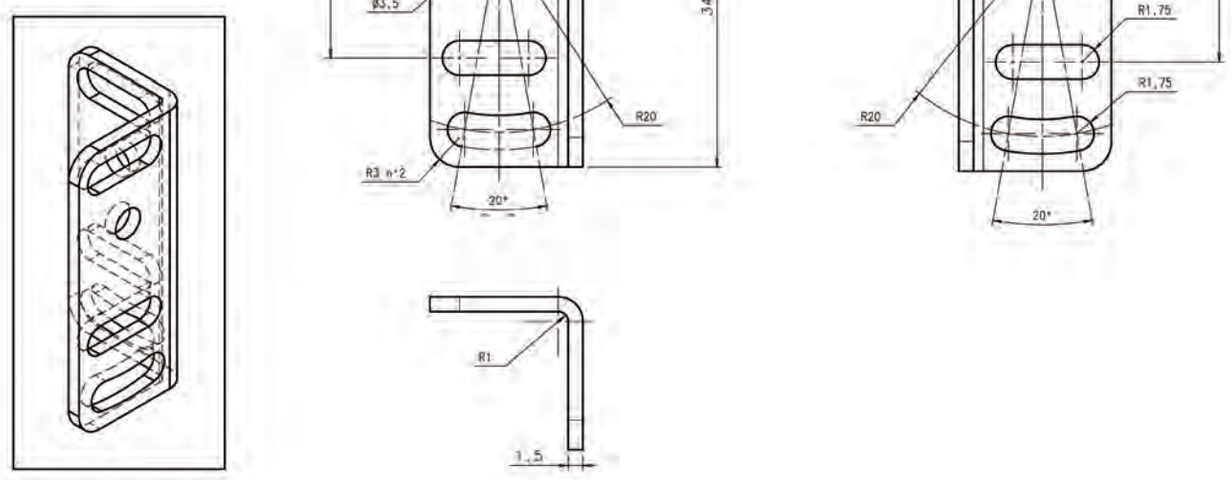


ST-S8-FRM





ST-5072



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

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

Rev. 02, 03/2019

S6

MULTIVOLTAGE 50X50 MM COMPACT SENSORS SERIES

- 50x50 mm compact dimensions
- Free voltage Vac/Vdc models with relay output
- 10-30 Vdc model with transistor output
- Standard cable or M12 4-pole connection

APPLICATIONS

- Automatic machines
- Packaging lines
- Transportation lines
- Automatic warehouses

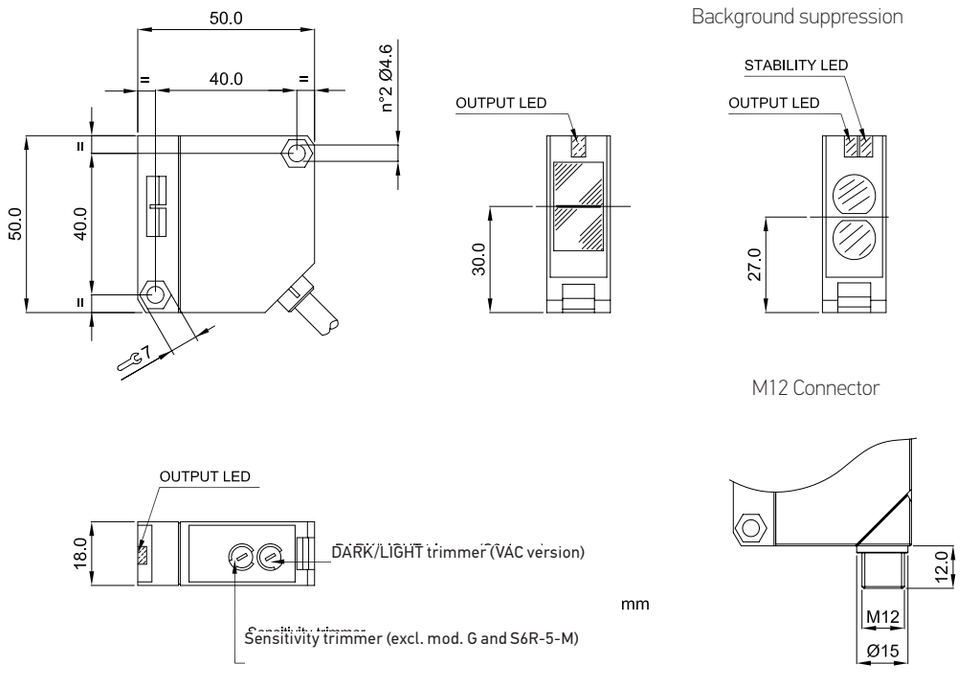
c UL US LISTED only Vcc models

S6		
Through beam		0...20 m
Retroreflective (on R2 reflector)		0,1...6 m
Polarized retroreflective (on R2 reflector)		0,1...5 m
Diffuse proximity		10...900 mm
		10...2000 mm
Background suppression		30...100 mm
		30...250 mm
		100...500 mm
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	15...264 Vac/Vdc
Output	PNP	•
	NPN	•
	NPN/PNP	•
	relay	•
	other	
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		18x50x50
Housing material		ABS
Mechanical protection		IP65

TECHNICAL DATA

Power supply	10 ... 30 Vdc limit values (mod. S6/S6T/S6R-5) 15 ... 264 Vac/Vdc (48 ... 60 Hz) limit values (mod. S6-1)
Ripple	2 Vpp max.
Consumption (output current excluded)	30 mA max. (mod. S6/S6T/S6R-5) 40 mA max. (mod. S6-1)
Light emission	IR LED 880 nm red LED 660 nm (mod. S6/S6R/S6T...B/M10)
Setting	sensivity trimmer (excl. mod. S6...G, S6R-5-M) adjustment screw (mod. S6/S6T/S6R-5-M)
Operating mode	LIGHT/DARK selection by cable or connector (mod. S6/S6T/S6R-5) LIGHT/DARK selection by N.O./N.C. output (mod. S6R-5-M) LIGHT/DARK selection by trimmer (mod. S6-1)
Indicators	red OUTPUT LED (excl. mod. S6...G), POWER LED (mod. S6...G) green STABILITY LED (mod. S6-5-M25)
Output	NPN/PNP (mod. S6) PNP (mod. S6T) NPN or PNP; NC; NO (mod. S6R) Relay 1 NO and NC contact 250 Vac, 30 Vdc min. applicable load 5 Vdc, 10 mA (mod. S6-1)
Output current	100 mA max., 3 A max. (mod. S6-1)
Saturation voltage	1,5 V max. (NPN/PNP output)
Response time	1 ms max. 2 ms max. (mod. S6/S6R/S6T...F/G) 30 ms max. (mod. S6-1)
Switching frequency	500 Hz 250 Hz max. (mod. S6/S6R/S6T...F/G) 16 Hz (mod. S6-1)
Connection	2 m cable – 6 mm (mod. S6-1), 2 m cable – 5 mm (mod. S6-5), M12 4-pole connector (mod. S6T-S6R)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2, class 1 (mod. S6-1)
Mechanical protection	IP65
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 shock for every axis (EN60068-2-27)
Housing material	ABS UL 94V-0
Lens material	PMMA plastic
Operating temperature	-25 ... 55 °C
Storage temperature	-25 ... 70 °C
Weight	160 g max. cable vers., 40 g max. conn. vers.

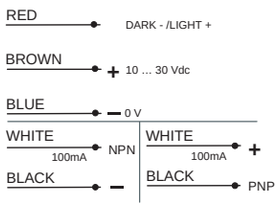
DIMENSIONS



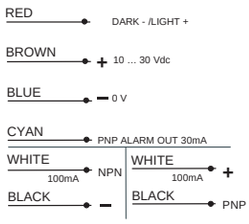
CONNECTIONS

VDC MODELS

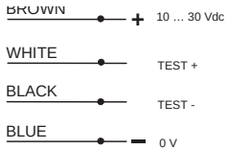
NPN/PNP version



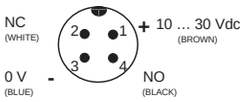
Through beam receiver - NPN/PNP version



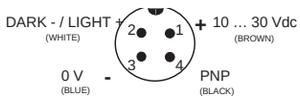
Through beam emitter - NPN/PNP version



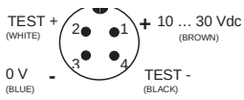
NPN or PNP and NC/NO version



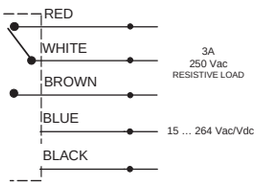
PNP version



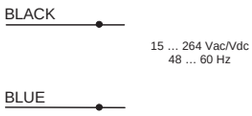
Through beam emitter - PNP version



VAC MODELS

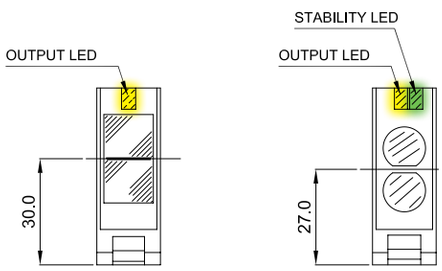


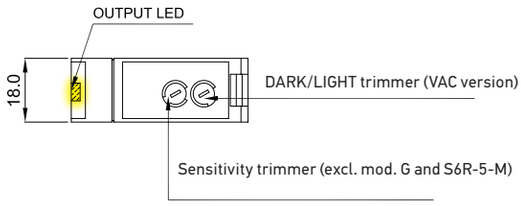
Through beam emitter



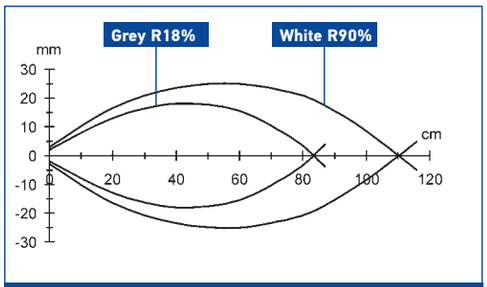
INDICATORS AND SETTINGS

Background suppression

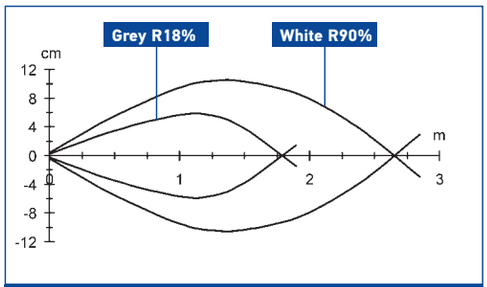




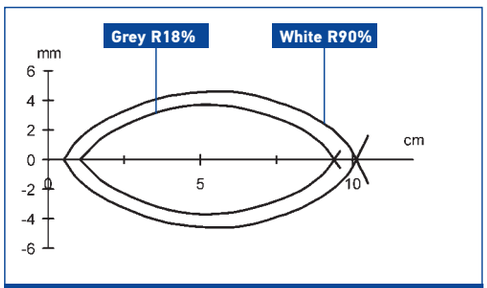
DETECTION DIAGRAMS



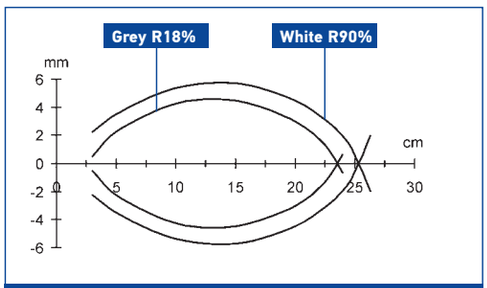
S6-x-C90-x



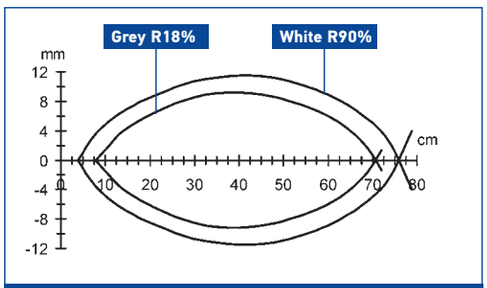
S6-x-C200-x[1]



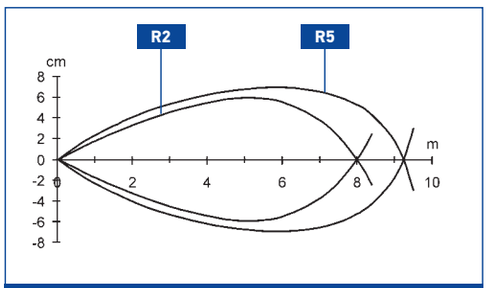
S6-x-M10-x



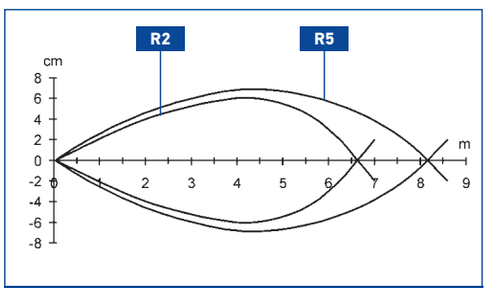
S6-x-M25-x



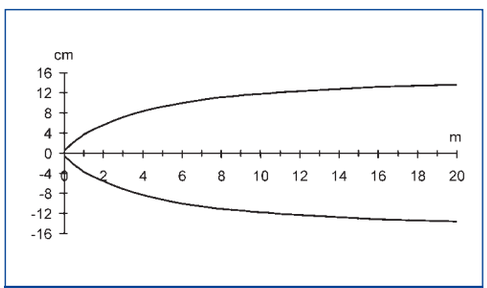
S6-x-M50-x



S6-x-A6-x



S6-x-B5-x



S6-x-F/G-x

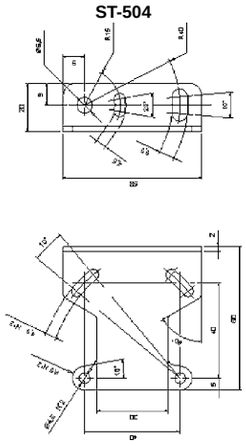
The detection diagrams indicate the typical operating distance with excess gain 1.

MODEL SELECTION AND ORDER INFORMATION

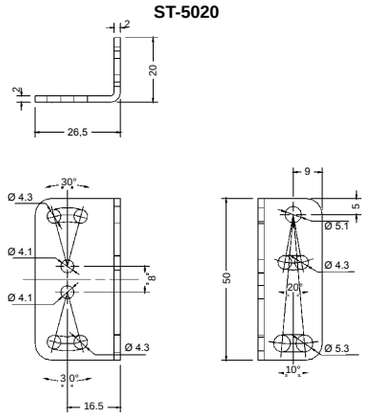
OPTIC FUNCTION	OPERATING	POWER SUPPLY	OUTPUT	MODEL	ORDER No.
Short diffuse proximity	10...900 mm	15...264 V A.C.	relay SPDT 250V/3A	S6-1-C90	S937530090
		10...30 V D.C.	NPN/PNP	S6-5-C90	S937530000
			PNP N.O./N.C.	S6R-5-C90-P	950201190
			PNP	S6T-5-C90-P	961031020
Long diffuse proximity	10...2000 mm	15...264 V A.C.	relay SPDT 250V/3A	S6-1-C200	950151140
		10...30 V D.C.	NPN/PNP	S6-5-C200	950201150
			PNP N.O./N.C.	S6R-5-C200-P	950201200
			NPN N.O./N.C.	S6R-5-C200-N	956101050
Retroreflective	0,1...6 m (on R2 reflector)	15...264 V A.C.	relay SPDT 250V/3A	S6-1-A6	S937330090
		10...30 V D.C.	NPN/PNP	S6-5-A6	S937330000
			PNP	S6T-5-A6-P	961031000
			PNP N.O./N.C.	S6R-5-A6-P	950201170
Polarized retroreflective	0,1...5 m (on R2 reflector)	15...264 V A.C.	relay SPDT 250V/3A	S6-1-B5	S937420090
		10...30 V D.C.	NPN/PNP	S6-5-B5	S937420000
			PNP N.O./N.C.	S6R-5-B5-P	950201180
			PNP	S6T-5-B5-P	961031010
Background suppression	30...100 mm	10...30 V D.C.	PNP N.O./N.C.	S6R-5-M10-P	950201230
	30...250 mm		NPN/PNP	S6-5-M25	S937830000
			PNP N.O./N.C.	S6R-5-M25-P	950201220
			NPN N.O./N.C.	S6R-5-M25-N	956101080
			PNP	S6T-5-M25-P	961041000
	100...500 mm		PNP N.O./N.C.	S6R-5-M50-P	950201250
Through beam (Receiver)	0...20 m	15...264 V A.C.	relay SPDT 250V/3A	S6-1-F20	S937200090
		10...30 V D.C.	NPN/PNP	S6-5-F20	S937200010
			PNP N.O./N.C.	S6R-5-F20-P	950201160
			PNP	S6T-5-F20-P	961211010
Through beam (Emitter)	-	15...264 V A.C.	-	S6-1-G20	S937130090
		10...30 V D.C.	-	S6-5-G20	S937130000
			-	S6T-5-G20	961211000

ACCESSORIES

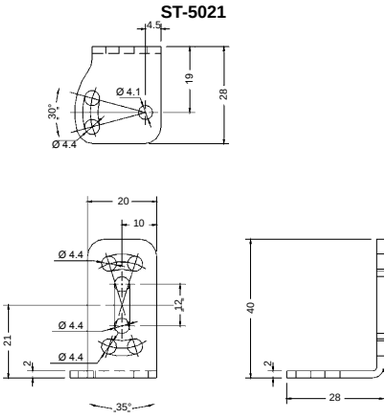
ST-504



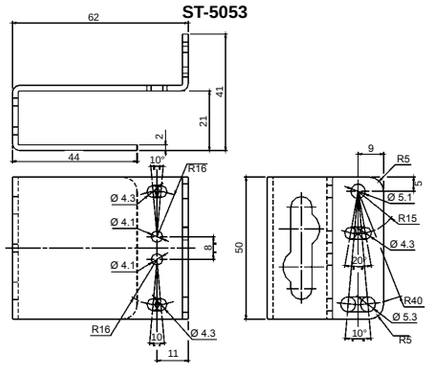
ST-5020



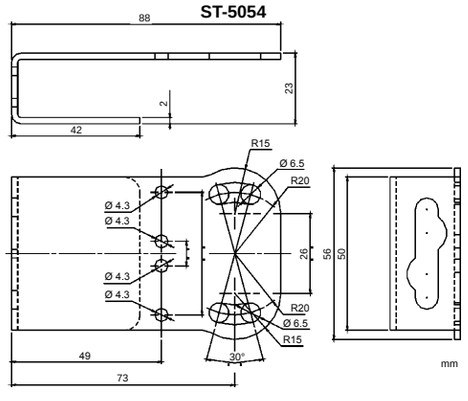
ST-5021



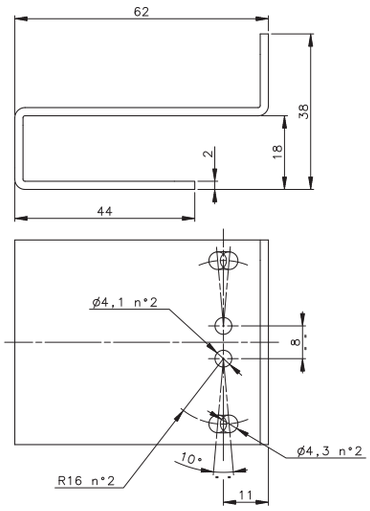
ST-5053

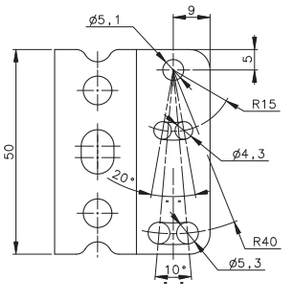


ST-5054

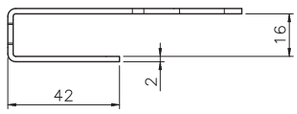


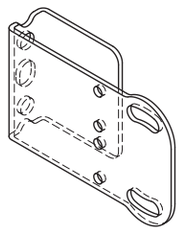
ST-5018

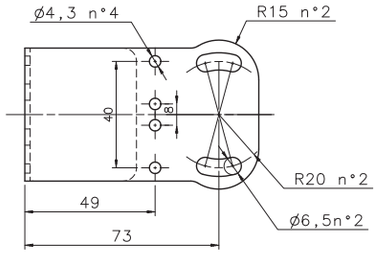


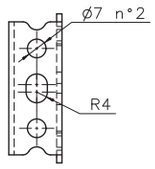


ST-5019









MODEL	DESCRIPTION	ORDER No.
ST-5018	protective bracket	95ACC5310
ST-5019	protective bracket	95ACC5320
ST-5020	mounting bracket	95ACC5330
ST-5021	mounting bracket	95ACC5340
ST-504	mounting bracket	95ACC2820
ST-5053	protective bracket	95ACC2410
ST-5054	protective bracket	95ACC2420
JOINT-S62	protective bracket with jointed support	95ACC2430

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		7 m	CS-A1-02-G-07	95A251280
		10 m	CS-A1-02-G-10	95A251390
	4-pole, P.U.R.	2 m	CS-A1-02-R-02	95A251540
		5 m	CS-A1-02-R-05	95A251560
Radial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A2-02-G-03	95A251360
		5 m	CS-A2-02-G-05	95A251240
		7 m	CS-A2-02-G-07	95A251245
		10 m	CS-A2-02-G-10	95A251260
	4-pole, P.U.R.	2 m	CS-A2-02-R-02	95A251550
		5 m	CS-A2-02-R-05	95A251570
Radial M12 Connector with LED (for PNP N.O. sensors)	4-pole, grey, P.V.C.	3 m	CS-A2-12-G-03	95A251400
		5 m	CS-A2-12-G-05	95A251350
		10 m	CS-A2-12-G-10	95A251370
Axial M12 Connector	4-pole, shielded, black, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
		5 m	CV-A1-22-B-05	95ACC1490
		10 m	CV-A1-22-B-10	95ACC1500
		15 m	CV-A1-22-B-15	95ACC2070
		25 m	CV-A1-22-B-25	95ACC2090
Radial M12 Connector		3 m	CV-A2-22-B-03	95ACC1540
		5 m	CV-A2-22-B-05	95ACC1550
		10 m	CV-A2-22-B-10	95ACC1560
Axial M12 Connector	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	4-pole, black	Connector- not cabled	CS-A1-02-B-NC	G5085002
Radial M12 Connector		Connector- not cabled	CS-A2-02-B-NC	G5085003

Rev. 01, 07/2016

S60

EXTENDED RANGE OF STANDARD “ONE FOR ALL” PHOTOELECTRIC COMPACT SENSORS

- Complete range of optic functions, basic, advanced and laser class 1
- Models with coaxial optics for polarized retroreflective, contrast and luminescence sensors
- Trimmer or EASY touchTM setting with
- Remote, Keylock and Delay functions
- Standard cable or M12 connection with standard NPN or PNP configuration

APPLICATIONS

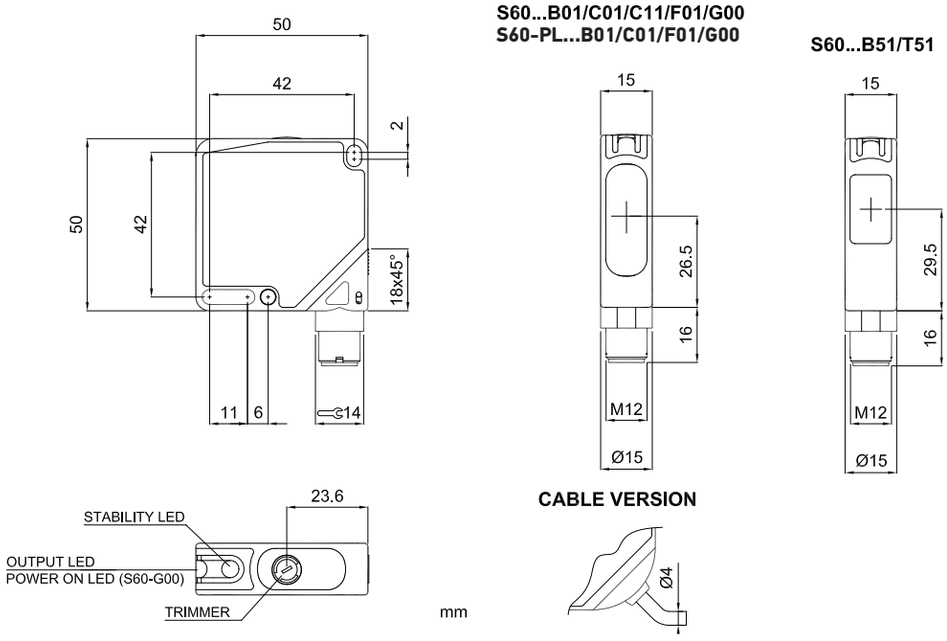
- Automatic machines
- Packaging lines
- Transportation lines
- Automatic warehouses
- Pharma and bottling

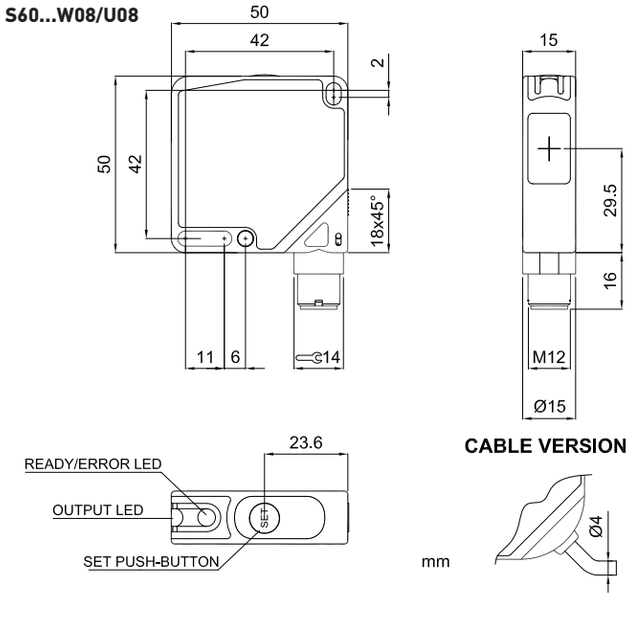
S60		
Through beam		0...20 m 0...60 m (class 1 LASER)
Polarized retroreflective (on R5 reflector)		0.1...8 m 0.1...20 m (class 1 LASER)
Polarized retroreflective coaxial (on R5 reflector)		0...4 m
Polarized retroreflective coaxial transparent (on R5 reflector)		0...2 m
Diffuse proximity		0...100 cm 0...200 cm (long range) 0...60 cm (class 1 LASER)
Background suppression		7...20 cm
		5...10 cm (class 1 LASER)
Contrast Sensor		19 mm ±2 m (white emission)
Luminescence Sensor		0...40 mm
Power supply	Vdc	10...30 V 18...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		50x50x15 mm
Housing material		ABS
Mechanical protection		IP67

TECHNICAL DATA

Power supply	10 ... 30 Vdc
Ripple	≤ 2 Vpp max.
Consumption (output current excluded)	≤ 40 mA max.
Light emission	red LED 660 nm (mod. S60...B01/B51/T51/C01) IR LED 880 nm (mod. S60...C11/G00) white LED 400-700 nm (mod. S60...W08) UV LED 370 nm (mod. S60...U08) red Laser 650 nm (mod. S60...G00/B01/C01/M08)
Setting	sensivity trimmer (mod. B01/B51/C01/C11/F01/T51)
Operating mode	LIGHT mode on N.O. output / DARK mode on N.C. output (mod.S60...C01/C11/M08/U08) DARK mode on N.O. output / LIGHT mode on N.C. output (mod.S60...B01/B51/F01/T51) LIGHT mode on N.O. output / remote input (mod.M08/W08/U08)
Indicators	yellow OUTPUT LED (S60 all models excluded G00) green STABILITY LED (mod. S60...F01/B01/B51/T51/C01/C11) POWER LED (mod. S60 LASER...F01/B01/C01) green/red READY/ERROR LED (mod. S60...M08/W08/U08)
Output	PNP or NPN; NO; NC (mod. S60)
Output current	100 mA max.
Saturation voltage	2 V max.
Response time	0,5 ms (mod. S60...A00/B01/T01/C10/C21/C01/D00/E01/U08) 2 ms (mod. S60...F01/G00) 1 ms (mod. S50...M08, A00/B01/C01/C10/G00) 4 ms (mod. S60) 100 µs (mod. S60...W08) 333 µs (Laser mod. S60)
Switching frequency	1 kHz (mod. S60...A00/B01/T01/C10/C21/C01/D00/E01/U08) 250 Hz (mod. S50...F01/G00) 500 Hz (mod. S60...M08, A00/B01/C01/C10/G00) 5 kHz (mod. S60...W08) 1,5 kHz (Laser mod. S60)
Connection	2 m Ø 4 mm cable / M12 4-pole connector
Dielectric strength	500 VAC, 1 min between electronic parts and housing
Insulating resistance	>20 MΩ, 500 VDC between electronic parts and housing
Electrical protection	Class 2
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Housing material	ABS
Lens material	window in PMMA, lenses in glass and polycarbonate
Operating temperature	-10 ... 50 °C (Laser Models) -25 ... 55 °C (LED Models)
Storage temperature	-25 ... 70 °C
Weight	90 g. max. cable vers. / 40 g. max. connector vers.

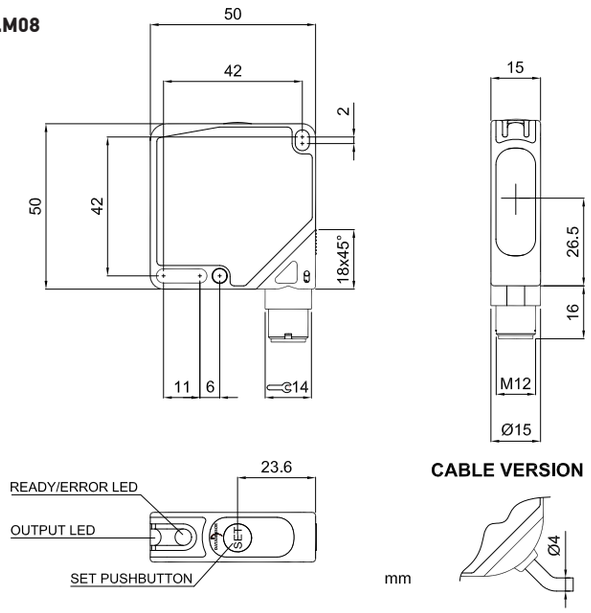
DIMENSIONS


S60...B01/C01/C11/F01/G00
S60-PL...B01/C01/F01/G00
S60...B51/T51
50
42
2
18x45°
11
6
14
15
26.5
16
M12
Ø15
29.5
23.6
STABILITY LED
OUTPUT LED
POWER ON LED (S60-G00)
TRIMMER
CABLE VERSION
Ø4
mm


S60...W08/U08
50
42
2
18x45°
11
6
14
15
29.5
16
M12
Ø15
23.6
READY/ERROR LED
OUTPUT LED
SET PUSH-BUTTON
SET
CABLE VERSION
Ø4
mm

S60...M08

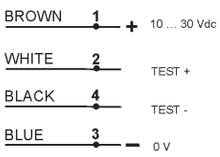
S60-PL...M08

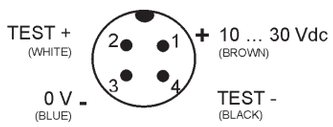


CONNECTIONS

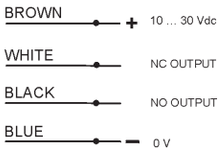
S60-PA-2

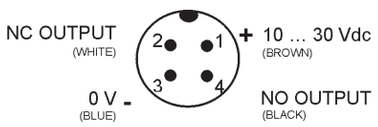
S60-PA-5



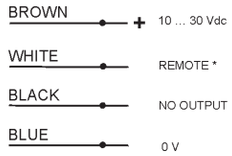


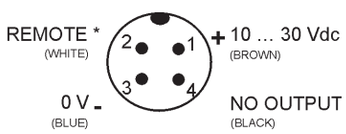
S60...G00
S60-PL...G00





S60...B01,B51,C01,C11,T51,F01
S60-PL...B01,C01,F01





S60...W08,U08,M08
S60-PL...M08

INFRARED EMISSION G00 - LASER RED EMISSION G00/F01

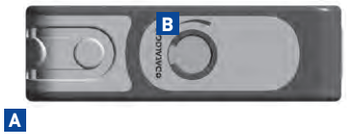
RECEIVER

EMITTER

- **A** Output status and stability LEDs (receiver); power on LED (emitter)
- **B** Adjustment trimmer (receiver)
- **C** M12 connector output
- **D** Cable output

Single-turn trimmer for sensitivity adjustment.
Rotate clockwise direction to increase the operating distance. Decrease sensitivity to increase resolution. Only for Receiver model

B01/B51/T51/C01/C11



- **A** Output status yellow LED and green Stability LED
- **B** Adjustment trimmer
- **C** M12 connector output
- **D** Cable output

Single-turn trimmer for sensitivity adjustment.
Rotate clockwise to increase the operating distance.

RED LASER MODEL B01/C01

- **A** Output status yellow LED and green Power LED
- **B** Teach-in push-button
- **C** M12 connector output
- **D** Cable output

Single-turn trimmer for sensitivity adjustment.
Rotate clockwise to increase the operating distance.

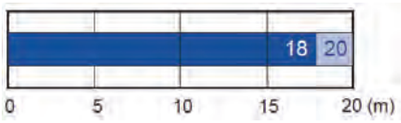
W08/U08/M08/M08 LASER

- **A** Output status and READY/ ERROR LEDs
- **B** Teach-in push-button
- **C** M12 connector output orientable in two positions
- **D** Cable output

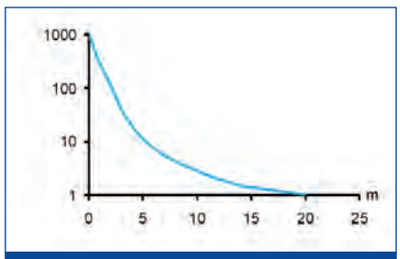
Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine. Please refer to instructions manual for operating details.

DETECTION DIAGRAMS

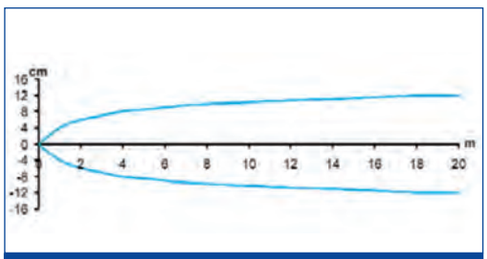
S60...F01,G00



Recommended operating distance
Maximum operating distance

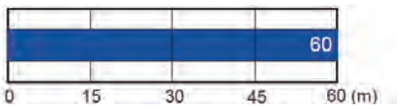


Excess gain

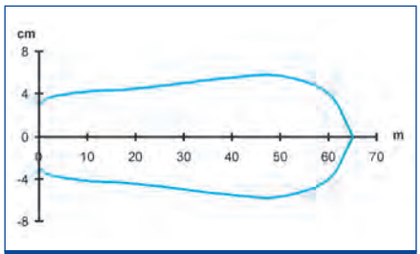


Detection area

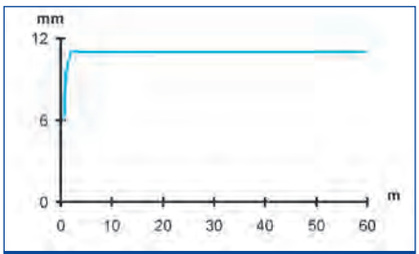
S60-PL...F01,G00



Operating distance

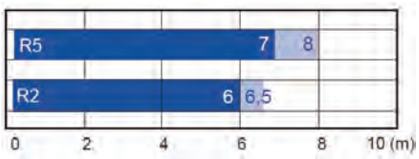


Detection area



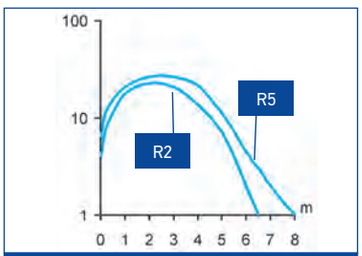
Resolution

S60...B01

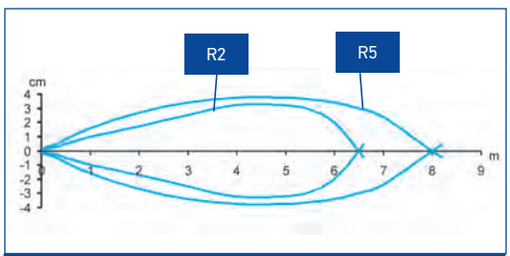


Recommended operating distance
Maximum operating distance

High efficiency reflectors can be used to obtain larger operating distances.
Refer to **Reflectors** (A.01) of the **General Catalogue.**

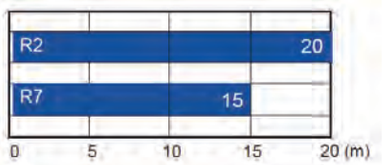


Excess gain



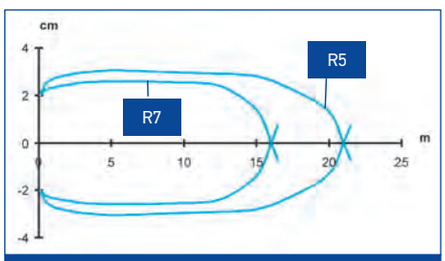
Detection area

S60-PL...B01

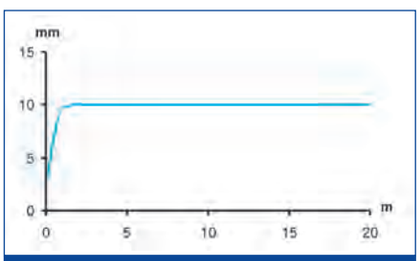


Operating distance

High efficiency reflectors can be used to obtain larger operating distances.
Refer to **Reflectors** (A.01) of the **General Catalogue.**

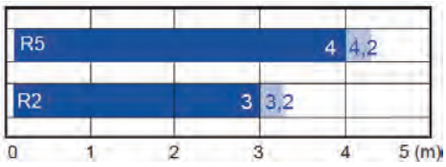


Detection area



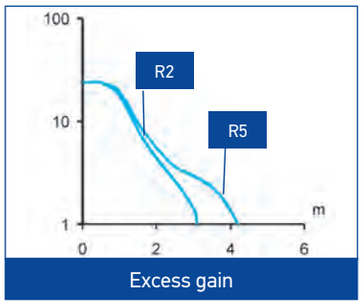
Resolution on R7 reflector

S60...B51

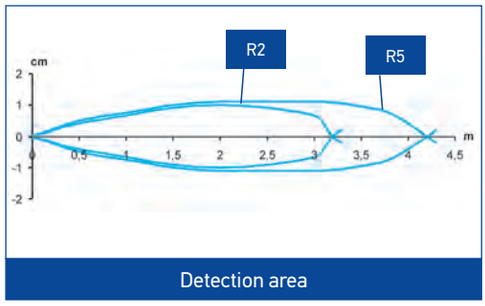


Recommended operating distance
Maximum operating distance

High efficiency reflectors can be used to obtain larger operating distances. Refer to **Reflectors.**

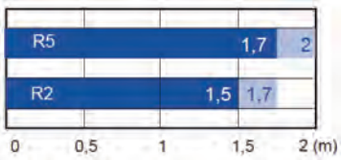


Excess gain

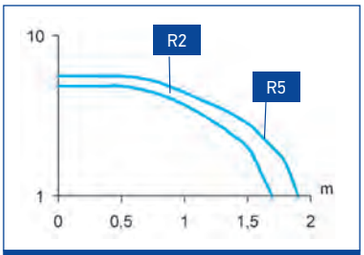


Detection area

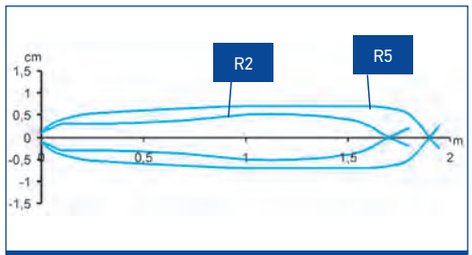
S60...T51



Recommended operating distance
Maximum operating distance

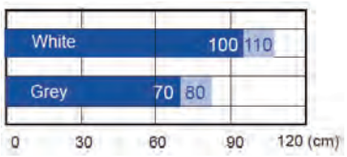


Excess gain

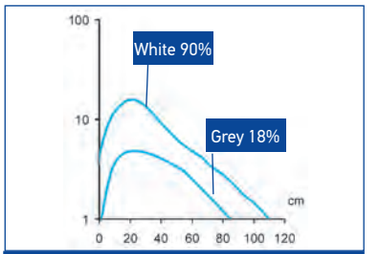


Detection area

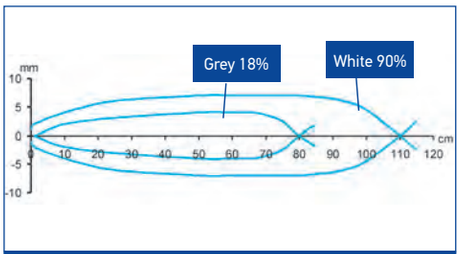
S60...C01



Recommended operating distance
Maximum operating distance

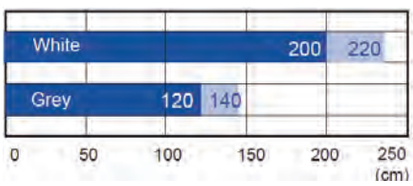


Excess gain

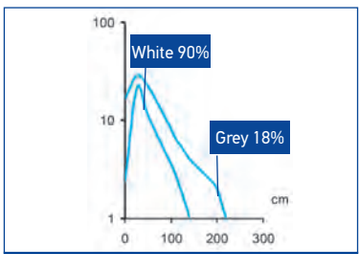


Detection area

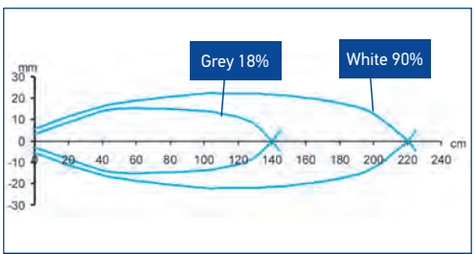
S60...C11



Recommended operating distance
Maximum operating distance

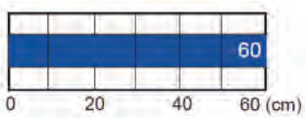


Excess gain

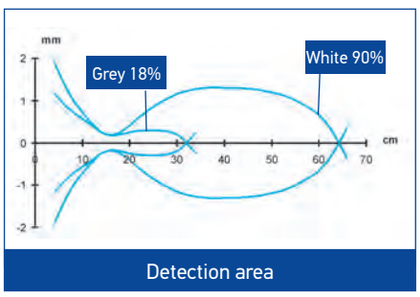


Detection area

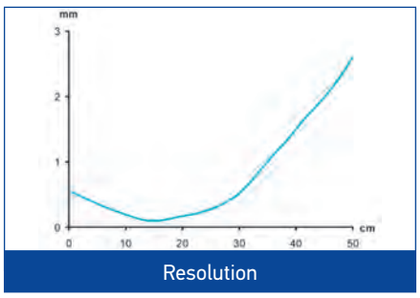
S60-PL...C01



Operating distance

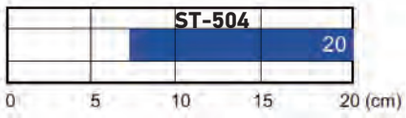


Detection area



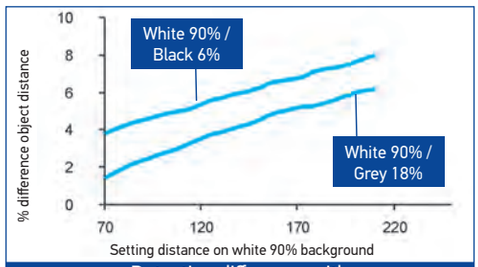
Resolution

S60...M08



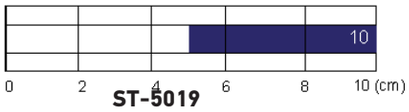
Operating distance

ST-5018



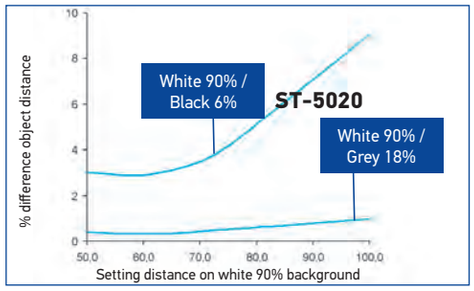
Detection difference with EASYtouch™ acquisition

S60-PL...M08



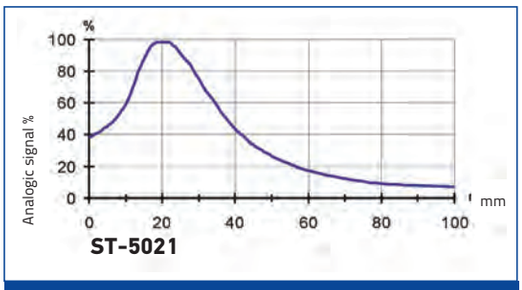
ST-5019

Operating distance



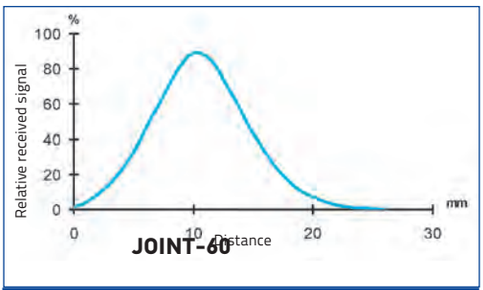
Detection difference with EASYtouch™ acquisition

S60...W08



ST-5021

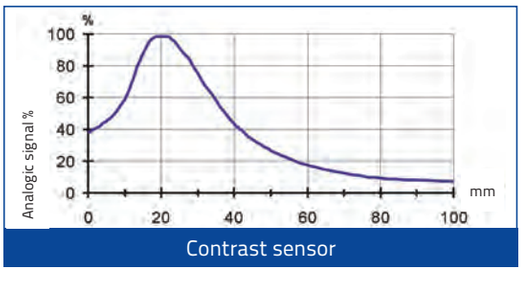
Contrast sensor



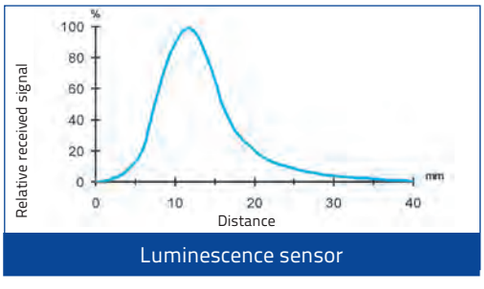
JOINT-60

Contrast sensor

S60...U08



Contrast sensor



Luminescence sensor

MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	N° ORDER
S60-PA-2-B01-NN	polarized retroreflective	956201460
S60-PA-2-B01-PP	polarized retroreflective	956201300
S60-PA-2-C01-NN	diffuse proximity	956201470
S60-PA-2-C01-PP	diffuse proximity	956201310
S60-PA-2-C11-NN	long diffuse proximity	956201480
S60-PA-2-C11-PP	long diffuse proximity	956201320
S60-PA-2-F01-NN	receiver	956201490
S60-PA-2-F01-PP	receiver	956201330
S60-PA-2-G00-XG	emitter	956201340
S60-PA-2-T51-NN	retroreflective for transparents	956201530
S60-PA-2-T51-PP	retroreflective for transparents	956201380
S60-PA-2-U08-NH	luminescence sensor	956201540
S60-PA-2-U08-PH	luminescence sensor	956201390
S60-PA-2-W08-NH	contrast sensor	956201550
S60-PA-2-W08-PH	contrast sensor	956201400
S60-PA-5-B01-NN	polarized retroreflective	956201180
S60-PA-5-B01-PP	polarized retroreflective	956201040
S60-PA-5-B51-NN	coaxial polarized retroreflective	956201630
S60-PA-5-B51-PP	coaxial polarized retroreflective	956201620
S60-PA-5-C01-NN	diffuse proximity	956201190
S60-PA-5-C01-PP	diffuse proximity	956201050
S60-PA-5-C11-NN	long diffuse proximity	956201200
S60-PA-5-C11-PP	long diffuse proximity	956201110
S60-PA-5-F01-NN	receiver	956201210
S50-PA-5-F01-PP	receiver	956201060
S60-PA-5-G00-XG	emitter	956201070
S60-PA-5-M08-NH	background suppression	956201220
S60-PA-5-M08-PH	background suppression	956201080

MODEL	FUNCTION	N° ORDER
S60-PA-5-T51-NN	retroreflective for transparents	956201250
S60-PA-5-T51-PP	retroreflective for transparents	956201100
S60-PA-5-U08-NH	luminescence sensor	956201010
S60-PA-5-U08-PH	luminescence sensor	956201000
S60-PA-5-W08-NH	contrast sensor	956201030
S60-PA-5-W08-PH	contrast sensor	956201020
S60-PL-2-B01-NN	laser polarized retroreflective	956201560
S60-PL-2-B01-PP	laser polarized retroreflective	956201410
S60-PL-2-C01-NN	laser diffuse proximity	956201640
S60-PL-2-C01-PP	laser diffuse proximity	956201650
S60-PL-2-F01-NN	laser receiver	956201570
S60-PL-2-F01-PP	laser receiver	956201420
S60-PL-2-G00-XG	laser emitter	956201430
S60-PL-2-M08-NH	laser background suppression	956201580
S60-PL-2-M08-PH	laser background suppression	956201440
S60-PL-5-B01-NN	laser polarized retroreflective	956201260
S60-PL-5-B01-PP	laser polarized retroreflective	956201120
S60-PL-5-C01-NN	laser diffuse proximity	956201660
S60-PL-5-C01-PP	laser diffuse proximity	956201670
S60-PL-5-F01-NN	laser receiver	956201270
S50-PL-5-F01-PP	laser receiver	956201140
S60-PL-5-G00-XG	laser emitter	956201150
S60-PL-5-M08-NH	laser background suppression	956201280
S60-PL-5-M08-PH	laser background suppression	956201160

ACCESSORIES

The series is compatible with the following Datalogic Automation accessories

- CS connectors
- R reflectors

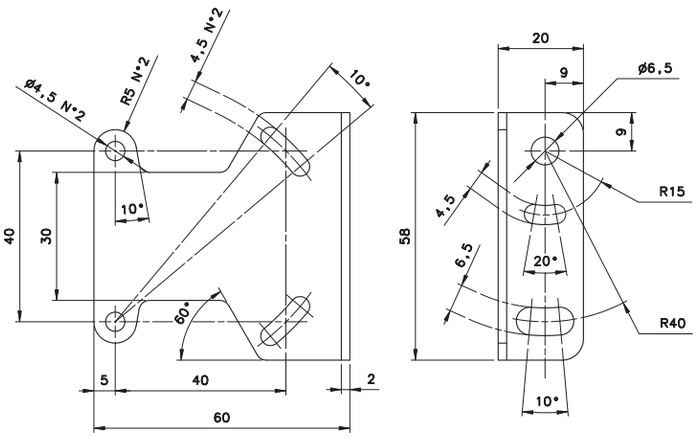
New accessories dedicated to the S60 series have been developed to cover all the fixing requirements and improve functioning.

ACCESSORY SELECTION AND ORDER INFORMATION

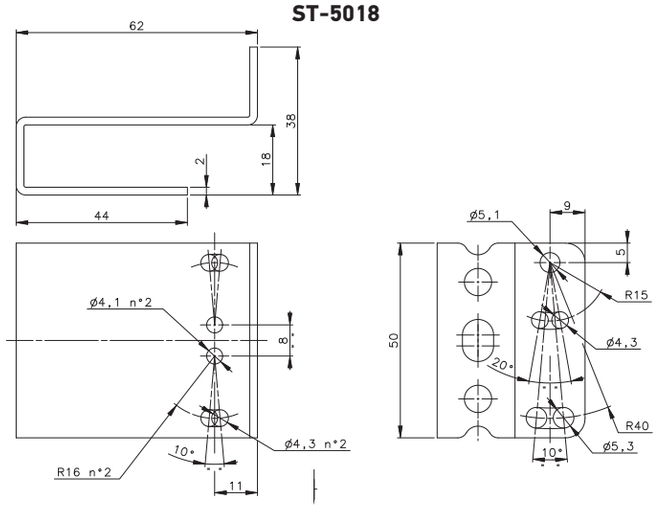
MODEL	DESCRIPTION	ORDER N°
ST-5018	protection bracket	95ACC5310
ST-5019	protection bracket	95ACC5320
ST-5020	fixing bracket	95ACC5330
ST-5021	fixing bracket	95ACC5340
JOINT-60	protection bracket with jointed support	95ACC5350
ST-504	S6/S60 fixing bracket	95ACC2820

ACCESSORIES DIMENSIONS

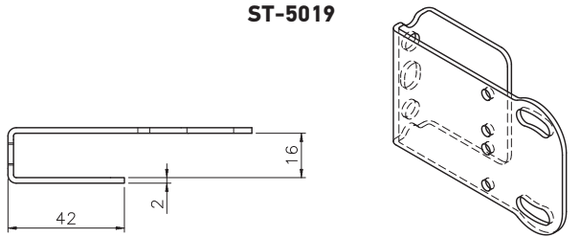
ST-504



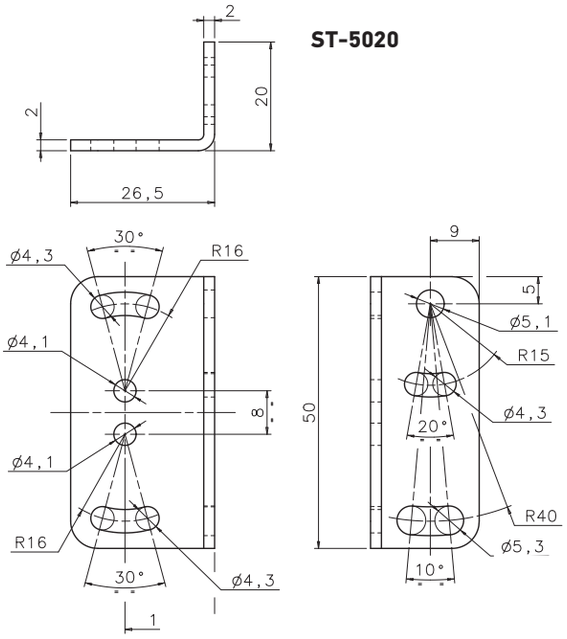
ST-5018

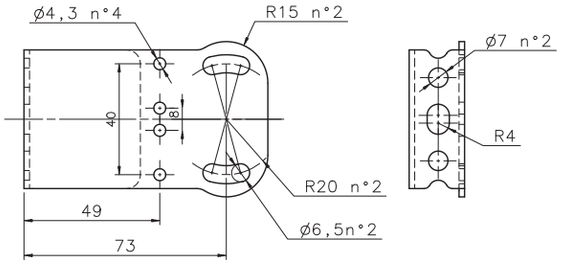


ST-5019

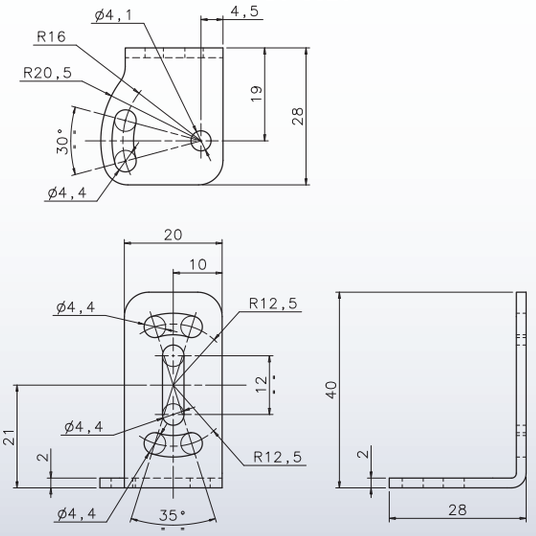


ST-5020

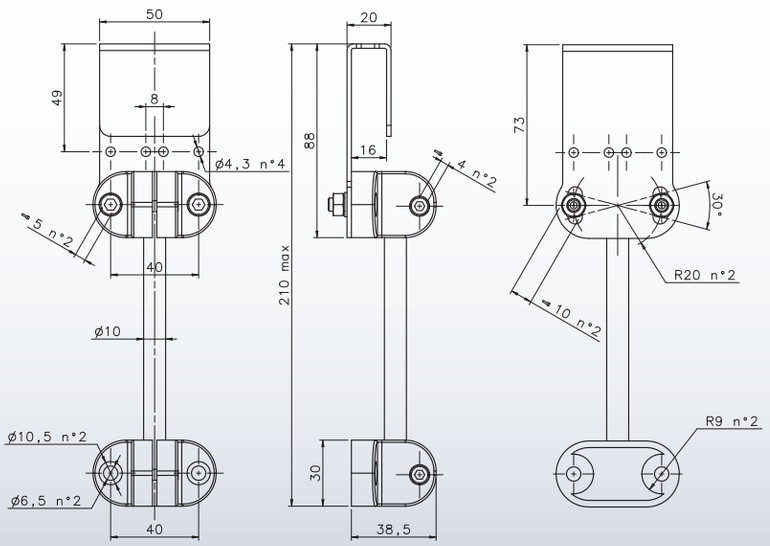




ST-5021



JOINT-60



Rev. 01, 07/2016

S62

THE MOST COMPLETE UNIVERSAL SENSOR IN A COMPACT 50X50 MM HOUSING

- Sensors with red, infrared LED or LASER emission
- Background suppression from 3 cm to 2 m
- Polarized retroreflective up to 20 m
- Multivoltage 24-240Vac/24-60Vdc with Relay output
- NPN/PNP output NO-NC configuration

APPLICATIONS

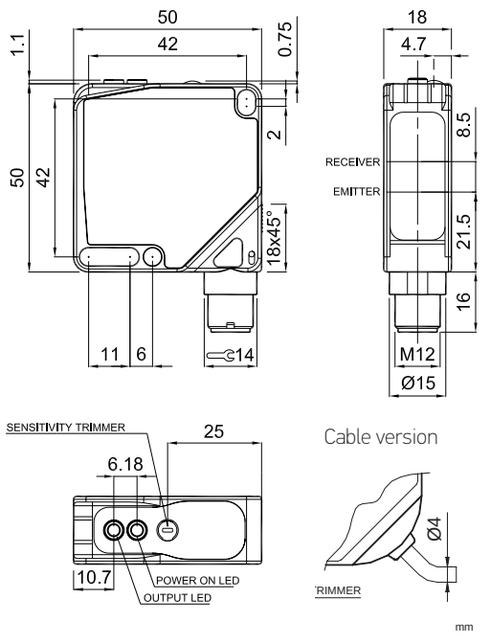
- Processing and Packaging machinery
- Conveyor lines, material handling

S62		
Through beam		0...25 m
Retroreflective (on R2 reflector)		0,1...13 m
Polarized retroreflective		0,1...8 m
		0,3...20 m (class 2 LASER)
Diffuse proximity		short 0...900 mm, long 0...2000 mm
		0...900 mm (class 2 LASER)
Background suppression		short 30...300 mm
		medium 60...600 mm
		long 60...1200 mm
		very long 200...2000 mm
		short LASER 30...150 mm (class 2 LASER)
		long LASER 50...350 mm (class 2 LASER)
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	24/240 Vac/24...60 Vdc
Output	PNP	•
	NPN	•
	NPN/PNP	•
	relay	•
	other	
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		18x50x50
Housing material		ABS
Mechanical protection		IP67

TECHNICAL DATA

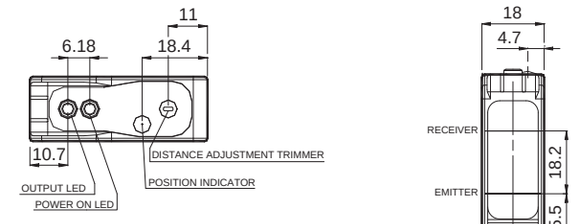
Power supply	10 ... 30 Vdc (mod. S62...2/5)
	24...240 Vac/ 24...60 Vdc (mod. S62...1)
Ripple	2 Vpp max. (mod. S62...2/5), 10% max. (mod. S62...1)
Consumption (output current excluded)	30 mA max. (mod. S62...2/5)
	3 VA max. (mod. S62...1)
Light emission	red LED 640 nm (mod. S62-PA...A/B/C/G/M01/M05/M11/M15) IR LED 880 nm (mod. S62-PA...M21/M25/M31/M35) red Laser 645...665 nm (mod. S62-PL)
Setting	sensitivity adjustment trimmer
Operating mode	mono-turn LIGHT/DARK trimmer (mod. S62...RX/PN)
Indicators	yellow OUTPUT LED green STABILITY LED, POWER LED (S62...G)
Output	PNP or NPN N.O./N.C. (mod. S62...PP/NN); NPN/PNP (mod. S62...PN); electromechanical SPDT 250 Vac/30 Vdc (mod. S62...RX)
Output current	100 mA max. (mod. S62...2/5), 2 A max. (mod. S62...1)
Saturation voltage	2 V max. (mod. S62...2/5)
Response time	25 ms (mod. S62...1) 1,5 ms (mod. S62...M3x) 1 ms (mod. S62...2/5-F/G/M2x) 500 µs (mod. S62-PA...2/5-A/B/C/M0x/M1x) 200 µs (mod. S62-PL...B/C/M11) 140 µs (mod. S62-PL...M01)
Switching frequency	20 Hz (mod. S62...1) 330 Hz (mod. S62...M3x) 500 Hz (mod. S62...2/5-F/G/M2x) 1 kHz (mod. S62-PA...2/5-A/B/C/M0x/M1x) 2,5 kHz (mod. S62-PL...B/C/M11) 3,5 kHz (mod. S62-PL...M01)
Connection	M12 4-pole connector, 2 m Ø 4 mm cable vers., 2 m Ø 5 mm cable vers.
Dielectric strength	500 Vac 1 min., between electronics and housing
Insulation resistence	>20 MΩ 500 Vdc, between electronics and housing
Mechanical protection	IP67
Ambient light rejection	According to EN 60947-5-2
Vibrations	0.5 mm amplitude, 10 ... 55 Hz frequency, for each axis (EN60068-2-6)
Shock resistence	11ms (30G) 6 shock for every axis (EN60068-2-27)
Housing material	ABS
Lens material	PMMA window, policarbonate lens
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Weight	40 g max. conn. vers., 90 max. cable vers.

DIMENSIONS

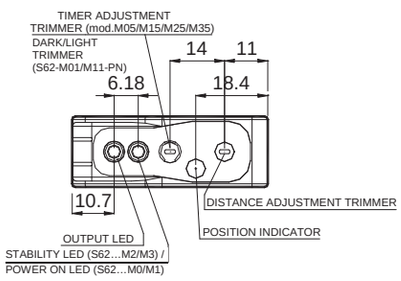


Background suppression

Laser version

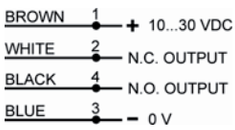


Led version

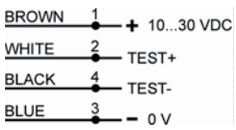


CONNECTIONS

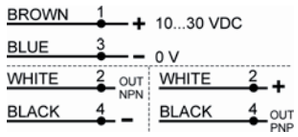
VDC MODELS



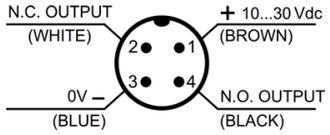
Through beam emitter



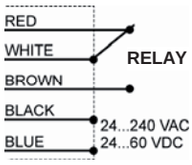
NPN/PNP version



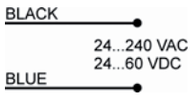
M12 CONNECTOR



VAC MODELS

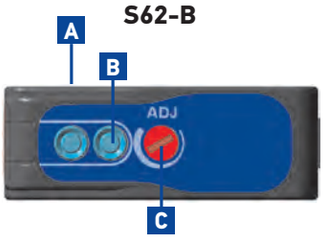


Through beam emitter

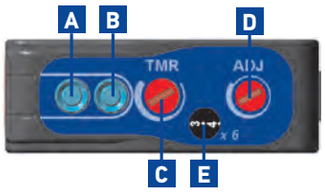


INDICATORS AND SETTINGS

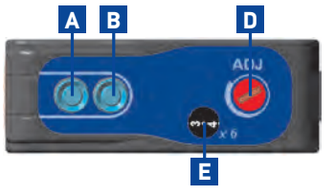
S62-B



S62-M WITH TIMER

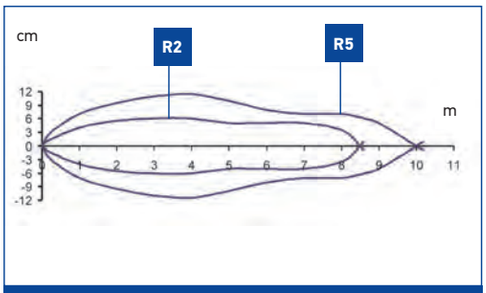


S62-M W/O TIMER



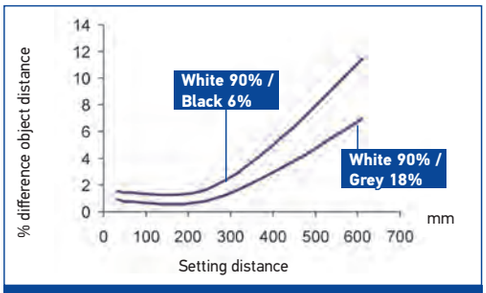
- **A** Output status LED
- **B** Stability LED or Power ON LED (laser vers.)
- **C** Timer adjustment trimmer
- **D** Distance adjustment trimmer
- **E** Geared numeric scale
- **F** M12 connector output
- **G** Cable output

DETECTION DIAGRAMS OF MODELS WITH LED EMISSION



Polarized retroreflective

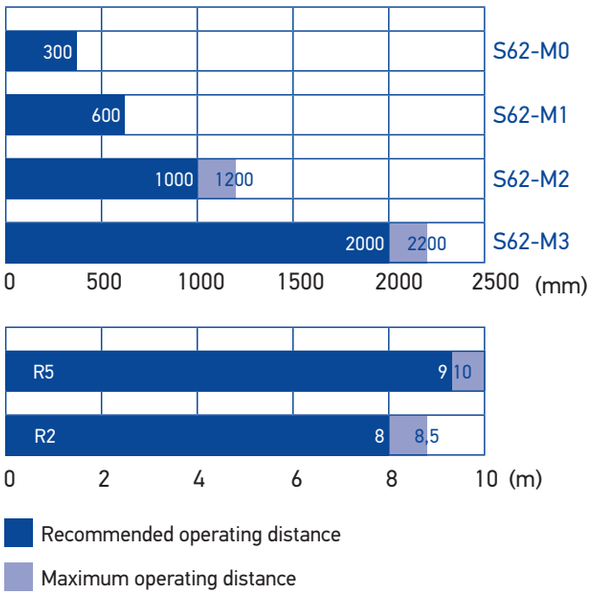
30 ... 300 mm background suppression



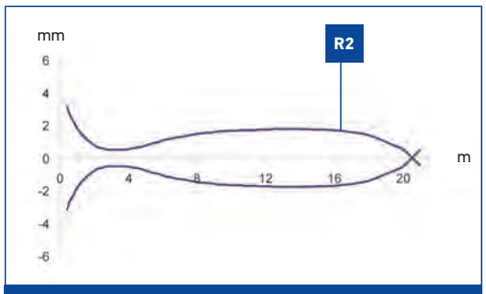
60 ... 600 mm background suppression

60 ... 1200 mm background suppression

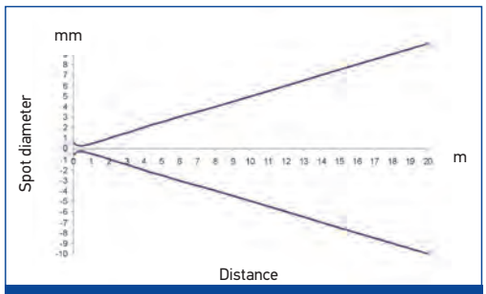
200 ... 2000 mm background suppression



DETECTION DIAGRAMS OF MODELS WITH LASER EMISSION

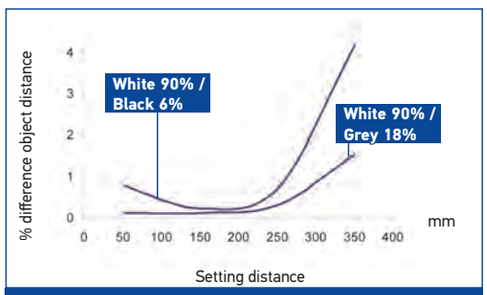


Laser polarized retroreflective



Light spot dimension - Laser polarized retroreflective

30 ... 150 mm laser background suppression

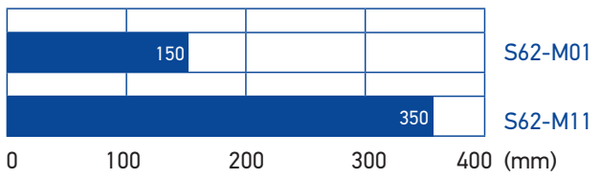


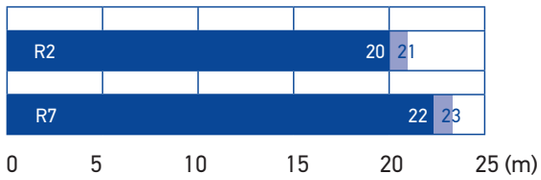
50 ... 350 mm laser background suppression

Reflector operating distances (m)

R1	R2	R6	R7 / R20	R8
0.3 ... 16	0.3 ... 20	0.4 ... 22	0.3 ... 22	0.2 ... 2

The use of the RT3970 reflecting tape is suggested.





Recommended operating distance

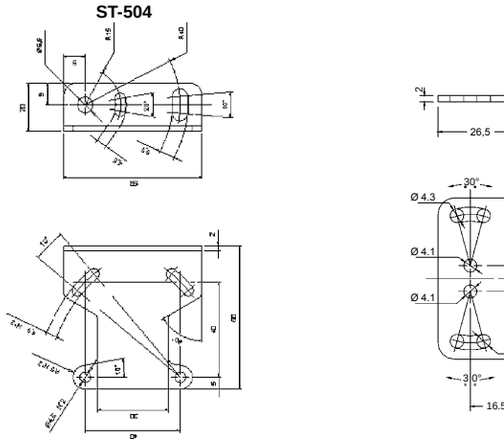
Maximum operating distance

MODEL SELECTION AND ORDER INFORMATION

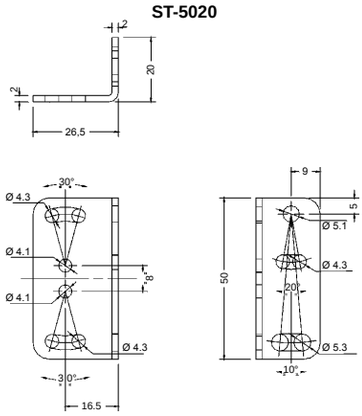
OPTIC FUNCTION	EMISSION	CONNECTION	SETTING	OUTPUT	MODEL	ORDER No.
Retroreflective	LED (red 640nm)	2m Cable	sensitivity trimmer (mono turn)	PNP/NPN	S62-PA-2-A01-PN	956211240
		M12 Connector		PNP/NPN	S62-PA-5-A01-PN	956211310
		Vac relay	mono-turn light/dark trimmer	Relay	S62-PA-1-A01-RX	956211180
Polarized retroreflective	LED (red 640nm)	2m Cable	sensitivity trimmer (mono-turn)	PNP/NPN	S62-PA-2-B01-PN	956211250
				PNP	S62-PA-2-B01-PP	956211010
		M12 Connector		NPN	S62-PA-5-B01-NN	956211020
				PNP/NPN	S62-PA-5-B01-PN	956211320
				PNP	S62-PA-5-B01-PP	956211000
		Vac relay	mono-turn light/dark trimmer	Relay	S62-PA-1-B01-RX	956211190
	LASER	M12 Connector	mono-turn light/dark trimmer	NPN	S62-PL-5-B01-NN	956211100
				PNP	S62-PL-5-B01-PP	956211110
Short diffused proximity	LED (red 640nm)	2m Cable	sensitivity trimmer (mono-turn)	NPN	S62-PA-2-C01-NN	956211420
				PNP/NPN	S62-PA-2-C01-PN	956211260
				PNP	S62-PA-2-C01-PP	956211380
		M12 Connector		NPN	S62-PA-5-C01-NN	956211500
				PNP/NPN	S62-PA-5-C01-PN	956211330
				PNP	S62-PA-5-C01-PP	956211460
		Vac relay	mono-turn light/dark trimmer	Relay	S62-PA-1-C01-RX	956211200
	LASER	2m Cable	sensitivity trimmer (mono turn)	NPN	S62-PL-2-C01-NN	956211440
				PNP	S62-PL-2-C01-PP	956211400
		M12 Connector		NPN	S62-PL-5-C01-NN	956211520
				PNP	S62-PL-5-C01-PP	956211480
Long diffused proximity	LED (red 640nm)	2m Cable		NPN	S62-PA-2-C11-NN	956211430
				PNP/NPN	S62-PA-2-C11-PN	956211270
				PNP	S62-PA-2-C11-PP	956211390
		M12 Connector		NPN	S62-PA-5-C11-NN	956211510
				PNP/NPN	S62-PA-5-C11-PN	956211340
				PNP	S62-PA-5-C11-PP	956211470
		Vac relay	mono-turn light/dark trimmer	Relay	S62-PA-1-C11-RX	956211210
Through beam receiver	-	2m Cable	sensitivity trimmer (mono turn)	NPN	S62-PA-2-F01-NN	956211450
				PNP/NPN	S62-PA-2-F01-PN	956211290
				PNP	S62-PA-2-F01-PP	956211410
		M12 Connector		NPN	S62-PA-5-F01-NN	956211530
				PNP/NPN	S62-PA-5-F01-PN	956211360
				PNP	S62-PA-5-F01-PP	956211490
		Vac relay	mono-turn light/dark trimmer	Relay	S62-PA-1-F01-RX	956211220
Through beam emitter	LED (red 640nm)	2m Cable	sensitivity trimmer (mono turn)	-	S62-PA-2-G00-XG	956211300
		M12 Connector			S62-PA-5-G00-XG	956211370
		Vac relay			S62-PA-1-G00-XX	956211230
Background suppression (short distance)	LED (red 640nm)	2m Cable	6 turns distance adjustment trimmer	PNP/NPN	S62-PA-2-M01-PN	956211280
				PNP	S62-PA-2-M01-PP	956201841
		M12 Connector		NPN	S62-PA-5-M01-NN	956201811
				PNP/NPN	S62-PA-5-M01-PN	956211350
				PNP	S62-PA-5-M01-PP	956201831
			timer adjustment trimmer	NPN	S62-PA-5-M05-NN	956201801
				PNP	S62-PA-5-M05-PP	956201821
	LASER	M12 Connector	4 turns distance adjustment trimmer	NPN	S62-PL-5-M01-NN	956211120
				PNP	S62-PL-5-M01-PP	956211130
Background suppression (medium distance)	LED (red 640nm)	2m Cable	6 turns distance adjustment trimmer	PNP	S62-PA-2-M11-PP	956201891
		M12 Connector		NPN	S62-PA-5-M11-NN	956201861
				PNP	S62-PA-5-M11-PP	956201881
			timer adjustment trimmer	NPN	S62-PA-5-M15-NN	956201851
				PNP	S62-PA-5-M15-PP	956201871
	LASER	M12 Connector	6 turns distance adjustment trimmer	NPN	S62-PL-5-M11-NN	956211140
				PNP	S62-PL-5-M11-PP	956211150
Background suppression (long distance)	LED (infrared 880nm)	2m Cable	6 turns distance adjustment trimmer	PNP	S62-PA-2-M21-PP	956201940
		M12 Connector		NPN	S62-PA-5-M21-NN	956201910
				PNP	S62-PA-5-M21-PP	956201900
			timer adjustment trimmer	NPN	S62-PA-5-M25-NN	956201930
				PNP	S62-PA-5-M25-PP	956201920
Background suppression (very long distance)		2m Cable	6 turns distance adjustment trimmer	PNP	S62-PA-2-M31-PP	956211050
		M12 Connector		NPN	S62-PA-5-M31-NN	956211060
				PNP	S62-PA-5-M31-PP	956211070
			timer adjustment trimmer	NPN	S62-PA-5-M35-NN	956211080
				PNP	S62-PA-5-M35-PP	956211090

ACCESSORIES

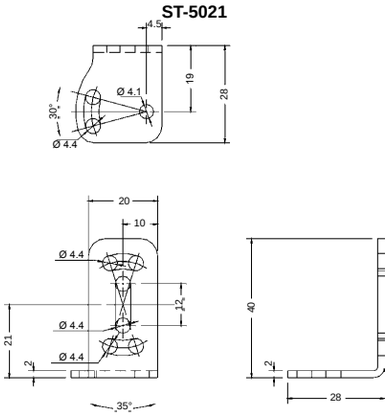
ST-504



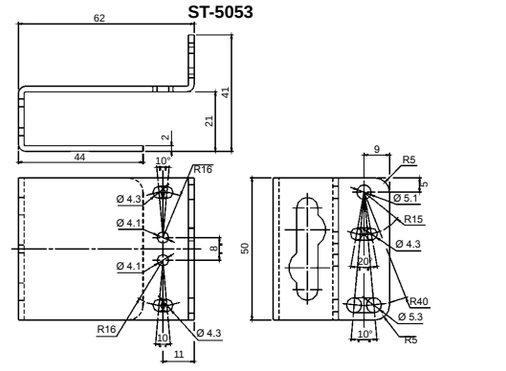
ST-5020



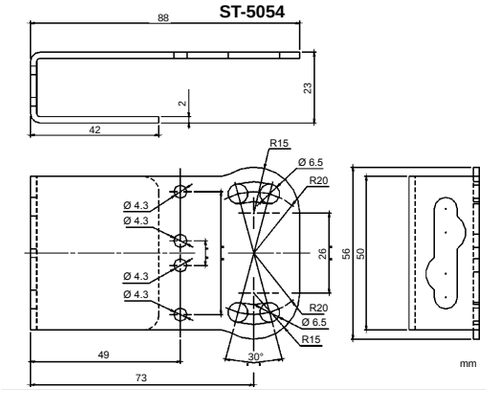
ST-5021



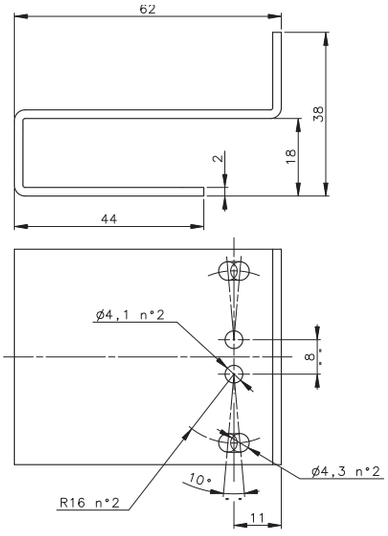
ST-5053



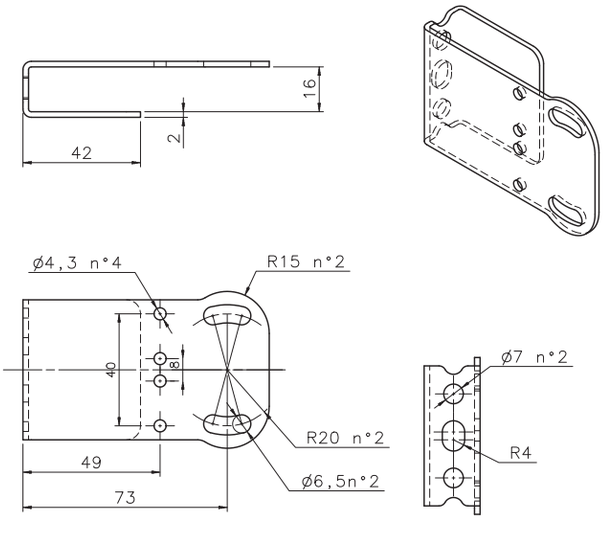
ST-5054



ST-5018



ST-5019



MODEL	DESCRIPTION	ORDER No.
ST-5018	protective bracket	95ACC5310
ST-5019	protective bracket	95ACC5320
ST-5020	mounting bracket	95ACC5330
ST-5021	mounting bracket	95ACC5340
ST-504	mounting bracket	95ACC2820
ST-5053	protective bracket	95ACC2410
ST-5054	protective bracket	95ACC2420
JOINT-S62	protective bracket with jointed support	95ACC2430

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		7 m	CS-A1-02-G-07	95A251280
		10 m	CS-A1-02-G-10	95A251390
	4-pole, P.U.R.	2 m	CS-A1-02-R-02	95A251540
		5 m	CS-A1-02-R-05	95A251560
Radial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A2-02-G-03	95A251360
		5 m	CS-A2-02-G-05	95A251240
		7 m	CS-A2-02-G-07	95A251245
		10 m	CS-A2-02-G-10	95A251260
	4-pole, P.U.R.	2 m	CS-A2-02-R-02	95A251550
		5 m	CS-A2-02-R-05	95A251570
Radial M12 Connector with LED (for PNP N.O. sensors)	4-pole, grey, P.V.C.	3 m	CS-A2-12-G-03	95A251400
		5 m	CS-A2-12-G-05	95A251350
		10 m	CS-A2-12-G-10	95A251370
Axial M12 Connector	4-pole, shielded, black, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
		5 m	CV-A1-22-B-05	95ACC1490
		10 m	CV-A1-22-B-10	95ACC1500
		15 m	CV-A1-22-B-15	95ACC2070
		25 m	CV-A1-22-B-25	95ACC2090
Radial M12 Connector		3 m	CV-A2-22-B-03	95ACC1540
		5 m	CV-A2-22-B-05	95ACC1550
		10 m	CV-A2-22-B-10	95ACC1560
Axial M12 Connector	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	4-pole, black	Connector- not cabled	CS-A1-02-B-NC	G5085002
Radial M12 Connector		Connector- not cabled	CS-A2-02-B-NC	G5085003

Rev. 01, 07/2016

S300 PA

Advanced MAXI photoelectric multivoltage sensors

- Industrial plastic housing with IP67 mechanical protection
- Timing function from 0.6-16 s ON delay, OFF delay and ONE SHOT
- Terminal block for both Vdc and Vac/ Vdc free voltage
- Distance trimmer for mechanical background suppression models

APPLICATIONS

- Packaging end of line, palletizers
- Outdoor or indoor gates control
- Manufacturing plants

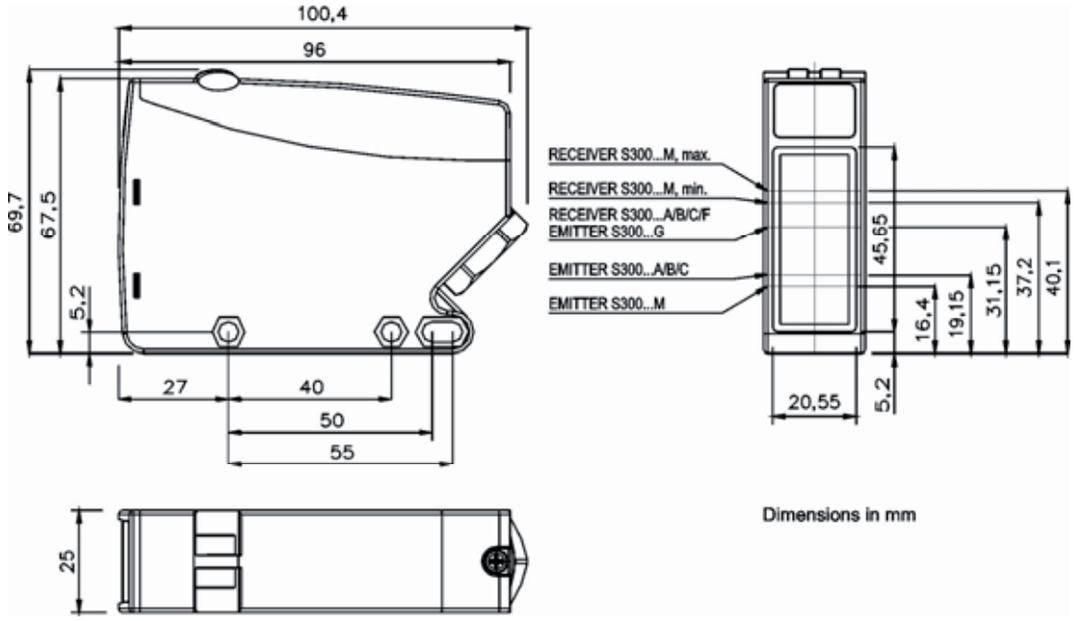
(*)DC models: ATEX II 3DG

S300 PA		
Through beam		0...50 m
Retroreflective (on R2 reflector)		0,1...15 m
Polarized retroreflective		0,1...10 m
Diffuse proximity		0,05...2 m
Background suppression		0,2...2 m
Power supply	Vdc	12...30 V
	Vac	
	Vac/dc	24...240 Vac/24...60 Vdc
Output	PNP	
	NPN	
	NPN/PNP	•
	relay	•
	other	
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		25x100x70
Housing material		PBT
Mechanical protection		IP67

TECHNICAL DATA

Power supply	12 ... 30 Vdc (mod. S300...2) 24...240 Vac/24...60 Vdc (mod. S300...1)
Ripple	10% max.
Consumption (output current excluded)	35 mA max. (mod. S300...2) 3 VA max. (mod. S300...1)
Light emission	red LED 660 nm (mod. S300...B) IR LED 940 nm (mod. S300...C) IR LED 880 nm (mod. S300...A/G/M)
Setting	sensitivity trimmer (mod. S300...A/B/C/F), DARK/LIGHT dip-switch (mod. S300...A/B/C/F/M) 7-turns distance adjustment trimmer (mod. S300...M) dip-switch mode ON delay/OFF delay/ON-OFF delay/single pulse (ONE-SHOT) (mod. S300...x06) timing trimmer (mod. S300...x06)
Indicators	yellow OUTPUT LED (excl. mod. S300...G) green STABILITY LED, POWER LED (mod. S300...G)
Output	PNP or NPN open collector (mod. S300...2); electromechanical SPDT 250 Vac/30 Vdc (mod. S300...1)
Output current	100 mA (mod. S300...2) 3 A max. (mod. S300...1)
Saturation voltage	2,4 V max.
Response time	1 ms (mod. S300..2-A/B/C/M) 2 ms (mod. S300...2-F/G) 25 ms (mod. S300...1)
Switching frequency	500 Hz (mod. S300..2-A/B/C/M) 250 Hz (mod. S300...2-F/G) 20 Hz max. (mod. S300...1)
Connection	terminal block
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2 (mod. S300...2)
Mechanical protection	IP67 (IEC/EN60529)
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 shock for every axis (EN60068-2-27)
Housing material	PBT 30% glass fiber-reiforced
Lens material	frontal window and lens in PC
Operating temperature	-25 ... 55 °C
Storage temperature	-25 ... 70 °C
Weight	120 g (mod. S300...2), 130 g (mod. S300...1)

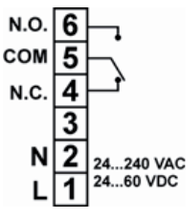
DIMENSIONS

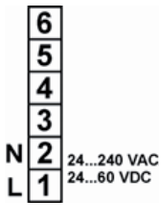


CONNECTIONS

VAC MODELS

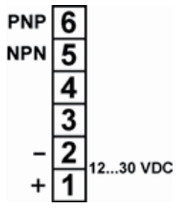
Through beam emitter

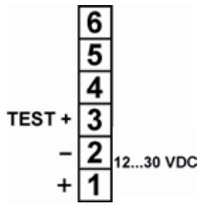




VDC MODELS

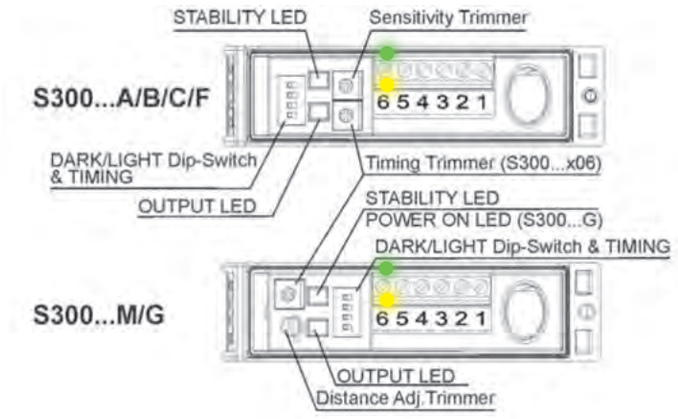
Through beam emitter





INDICATORS AND SETTINGS

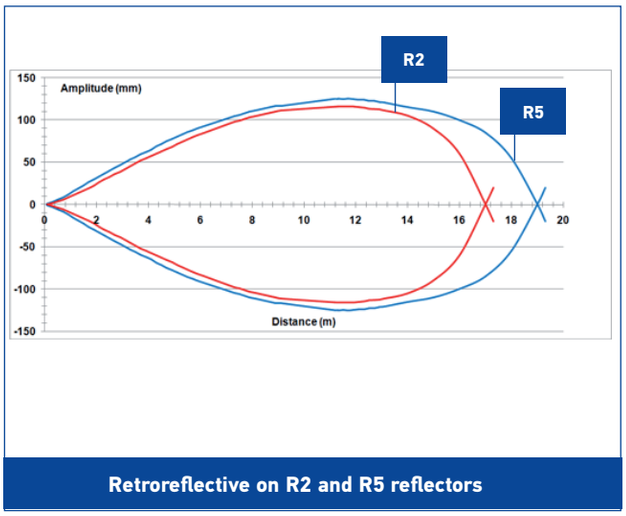
INDICATORS AND SETTINGS



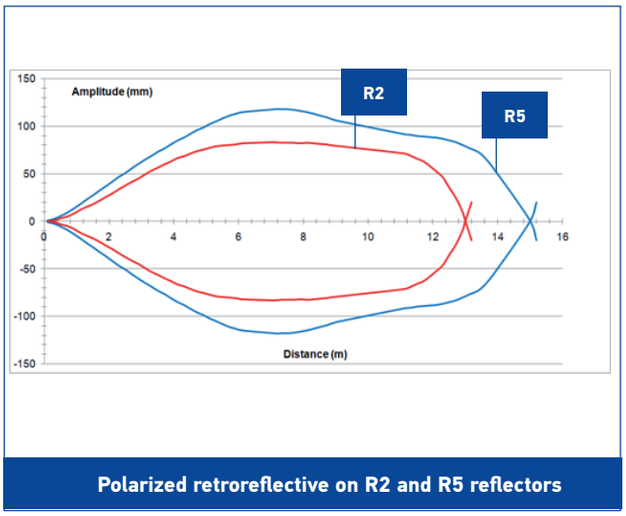
SETTINGS

The **M** model presents a **multiturn adjustment screw** for the adjustment of the background suppression distance using a mechanical variation of the optic triangulation angle. The **other models have a mono-turn electronic trimmer** that adjusts the sensitivity and the sensor operating distance. The operating distance can be increased by rotating the screws clockwise.
Trimmers can be used to adjust the output activation and deactivation delay time whilst functioning mode selection is performed through DIP SWITCHES.

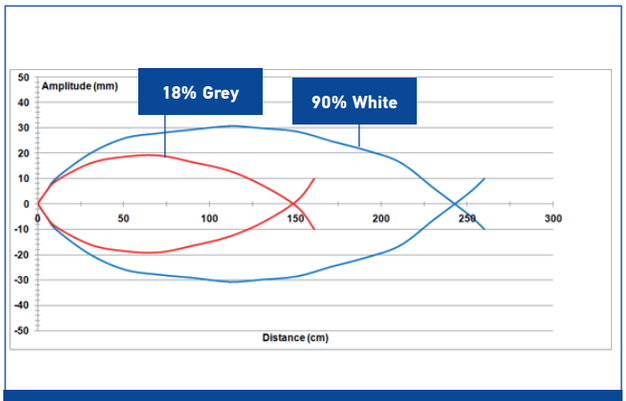
DETECTION DIAGRAMS



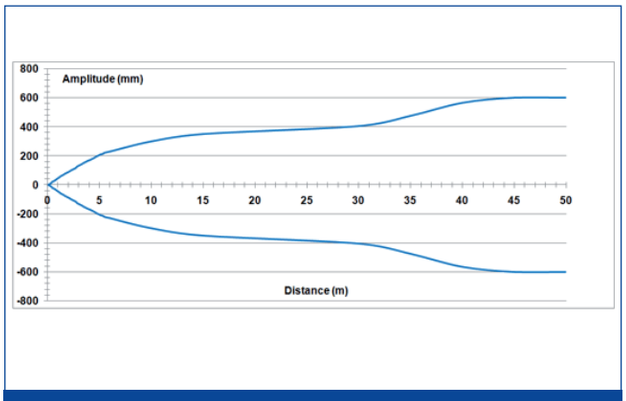
Retroreflective on R2 and R5 reflectors



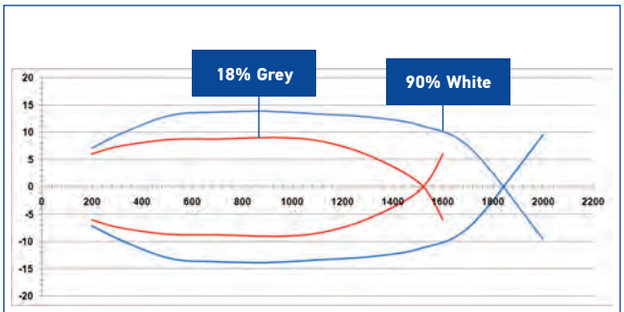
Polarized retroreflective on R2 and R5 reflectors



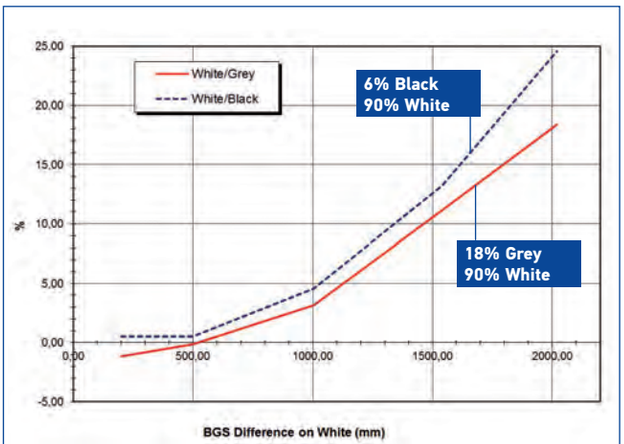
Diffused proximity



Through beam



Background suppression



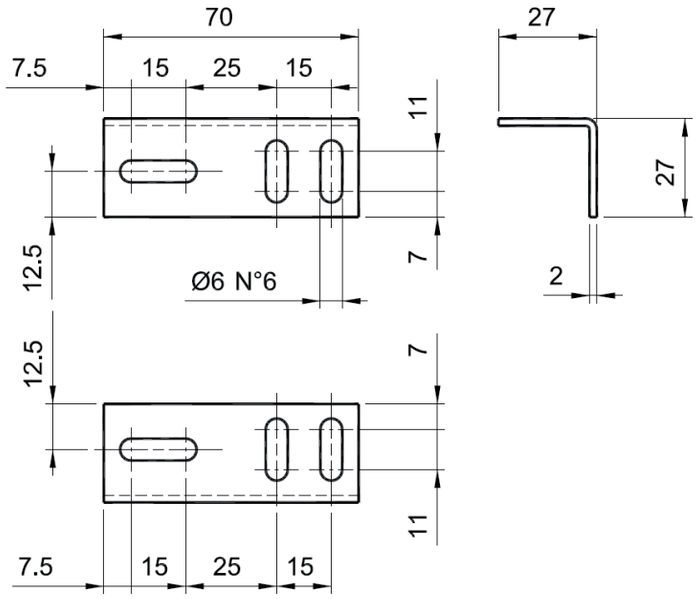
BGS - White/Grey and White/Black Difference

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	POWER SUPPLY	OUTPUT	SETTING	MODEL	ORDER No.
Retroreflective (IR LED 880 nm)	12...30 Vdc	NPN/PNP	Sensitivity trimmer and D/L dip-switch	S300-PA-2-A01-OC	951451500
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-2-A06-OC	951451510
	24...240 Vac/24...60 Vdc	Relay	Sensitivity trimmer and D/L dip-switch	S300-PA-1-A01-RX	951451480
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-1-A06-RX	951451490
Polarized retroreflective (red LED 660 nm)	12...30 Vdc	NPN/PNP	Sensitivity trimmer and D/L dip-switch	S300-PA-2-B01-OC	951451540
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-2-B06-OC	951451550
	24...240 Vac/24...60 Vdc	Relay	Sensitivity trimmer and D/L dip-switch	S300-PA-1-B01-RX	951451520
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-1-B06-RX	951451530
Diffused proximity (IR LED 940 nm)	12...30 Vdc	NPN/PNP	Sensitivity trimmer D/L dip-switch	S300-PA-2-C01-OC	951451420
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-2-C06-OC	951451430
	24...240 Vac/24...60 Vdc	Relay	Sensitivity trimmer and D/L dip-switch	S300-PA-1-C01-RX	951451400
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-1-C06-RX	951451410
Through beam receiver	12...30 Vdc	NPN/PNP	Sensitivity trimmer and D/L dip-switch	S300-PA-2-F01-OC	951451600
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-2-F06-OC	951451610
	24...240 Vac/24...60 Vdc	Relay	Sensitivity trimmer and D/L dip-switch	S300-PA-1-F01-RX	951451580
			Timing and sensitivity trimmers, D/L dip-switch	S300-PA-1-F06-RX	951451590
Through beam emitter (IR LED 880 nm)	12...30 Vdc	-	-	S300-PA-2-G00-EX	951451570
	24...240 Vac/24...60 Vdc			S300-PA-1-G00-EX	951451560
Background suppression (IR LED 880 nm)	12...30 Vdc	NPN/PNP	7-turns distance adjustment trimmer and /L dip-switch	S300-PA-2-M01-OC	951451460
			Timing and 7-turns distance adj. trimmers, D/L dip-switch	S300-PA-2-M06-OC	951451470
	24...240 Vac/24...60 Vdc	Relay	7-turns distance adjustment trimmer and D/L dip-switch	S300-PA-1-M01-RX	951451440
			Timing and 7-turns distance adj. trimmers, D/L dip-switch	S300-PA-1-M06-RX	951451450

ACCESSORIES

ST-511



MODEL	DESCRIPTION	ORDER No.
ST-511	mounting bracket	95ACC2810

S300 PR

Heavy duty sensor for outdoor applications and harsh environments

- Industrial plastic housing with IP67 mechanical protection
- Defogging system function
- Double independent timing functions with double time scale from 0-2s or 0-10s, One-Delay, Off Delay, ONE SHOT

APPLICATIONS

- Packaging end of line, palletizers
- Outdoor or indoor gates control
- Automotive plants
- Automated warehousing

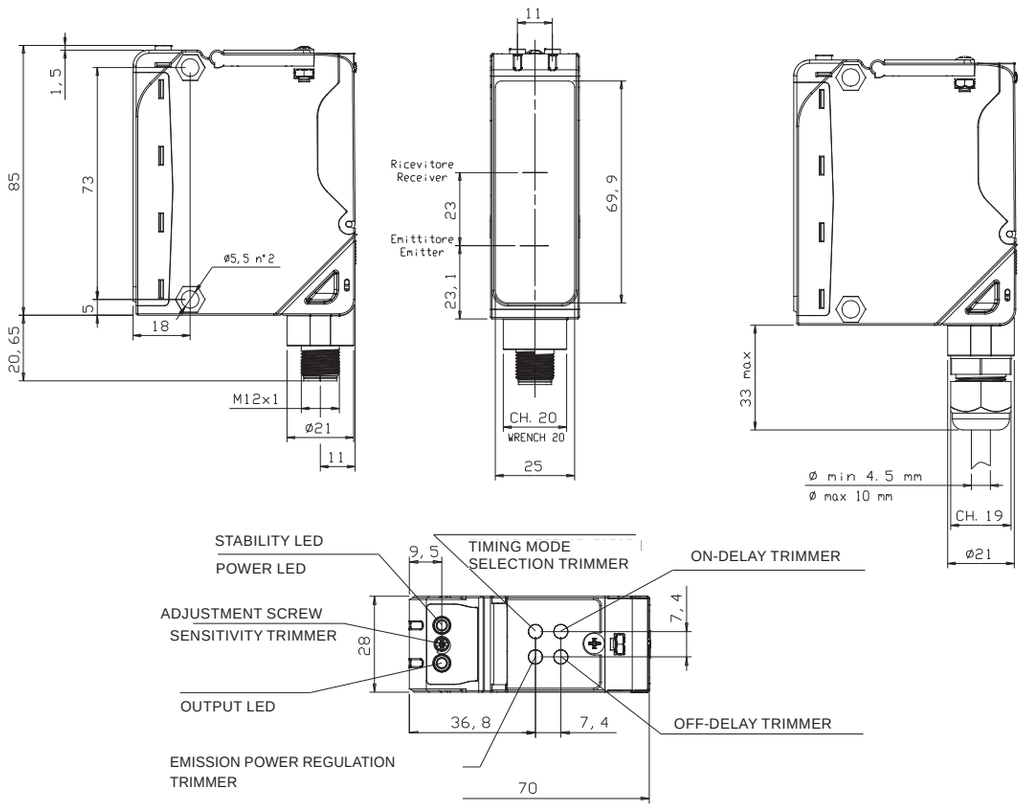
(*)DC models:
ATEX II 3DG

S300 PA		
Through beam		0...60 m
Polarized retroreflective		0,1...22 m
Diffuse proximity		0,05...5 m
Background suppression		0,4...2,5 m
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	24...240 Vac/24...60 Vdc
Output	PNP	
	NPN	
	NPN/PNP	•
	relay	•
	other	
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		25x100x70
Housing material		PBT
Mechanical protection		IP67

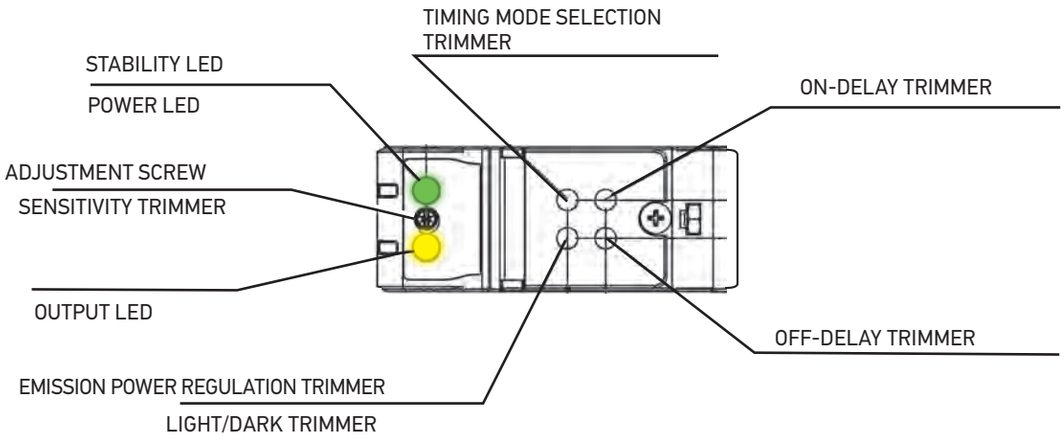
TECHNICAL DATA

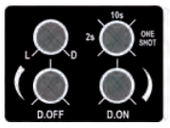
Power supply	10 ... 30 Vdc (mod. S300...2/5) 24...240 Vac/24...60 Vdc (mod. S300...1)
Ripple	10% max.
Consumption (output current excluded)	30 mA max. (mod. S300...2/5-B/C) 35 mA max. (mod. S300...2/5-M) 25 mA max. (mod. S300...2/5-F) 20 mA max. (mod. S300...2/5-G) 3 VA max. (mod. S300...1)
Light emission	red LED 660 nm (mod. S300...B) IR LED 880 nm (mod. S300...C/G/M)
Setting	sensitivity trimmer, DARK/LIGHT trimmer (mod. S300...F/C/B) 15 turns adjustment screw/DARK/LIGHT trimmer (mod. S300...M) emission power regulation trimmer (mod. S300...G) versions with timing functions: time base selection and one shot trimmer/ON DELAY trimmer/OFF DELAY trimmer (mod. S300... x06)
Indicators	yellow OUTPUT LED (excl. mod. S300...G) green STABILITY LED, POWER LED (mod. S300...G)
Output	PNP or NPN open collector (mod. S300...2/5); Electromechanical SPDT 250 Vac/30 Vdc (mod. S300...1)
Output current	100 mA (mod. S300...2/5) 3 A max. (mod. S300...1)
Saturation voltage	2,4 V max.
Response time	1 ms (mod. S300..2/5-B/C/F/G) 2 ms (mod. S300...2/5-M) 20 ms (mod. S300...1)
Switching frequency	500 Hz (mod. S300..2/5-/B/C/F/G) 250 Hz (mod. S300...2/5-M) 25 Hz (mod. S300...1)
Connection	terminal block, M12 4-pole connector (only DC mod.)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2 (mod. S300...2/5)
Mechanical protection	IP67 (IEC/EN60529)/cable gland EN50262
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 shock for every axis (EN60068-2-27)
Housing material	PBT 30% glass fiber-reiforced
Lens material	frontal window and lens in PC
Operating temperature	-40 ... 55 °C
Storage temperature	-40 ... 70 °C
Weight	140 g (mod. S300...2/5), 150 g (mod. S300...1)

DIMENSIONS

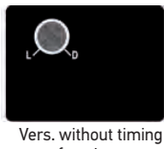


INDICATORS AND SETTINGS





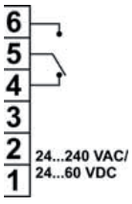
Vers. with timing functions



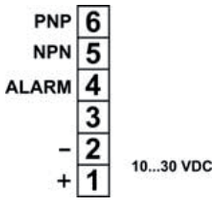
Vers. without timing functions

CONNECTIONS

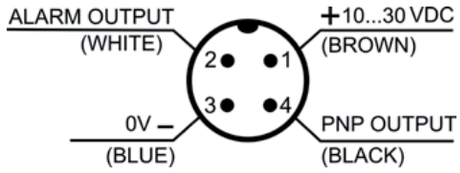
MODELS



DC MODELS

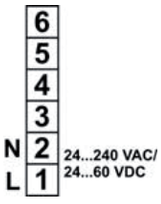


M12 CONNECTOR (only DC models)

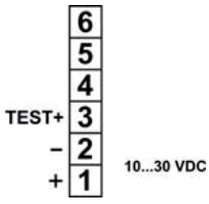


Through beam emitter

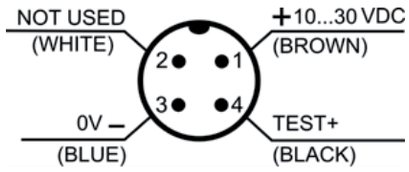
AC MODELS



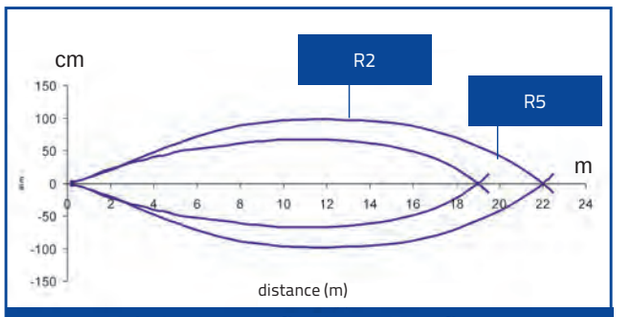
DC MODELS



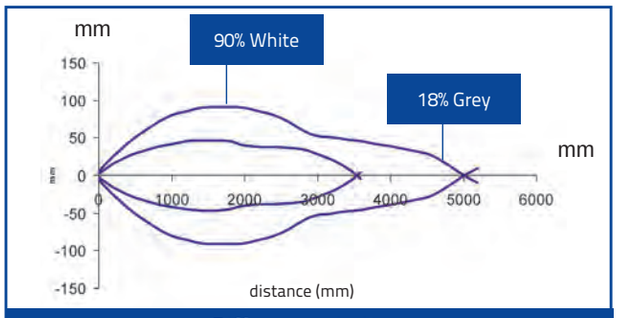
M12 CONNECTOR (only DC models)



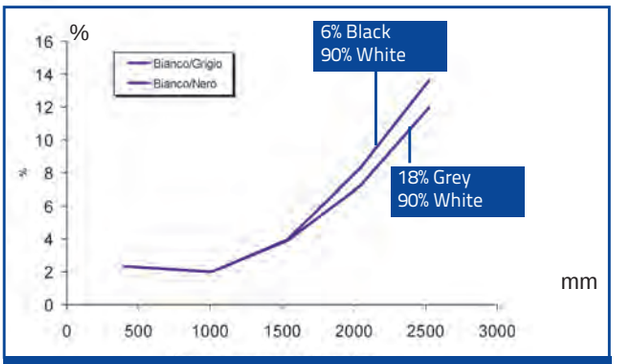
DETECTION DIAGRAMS



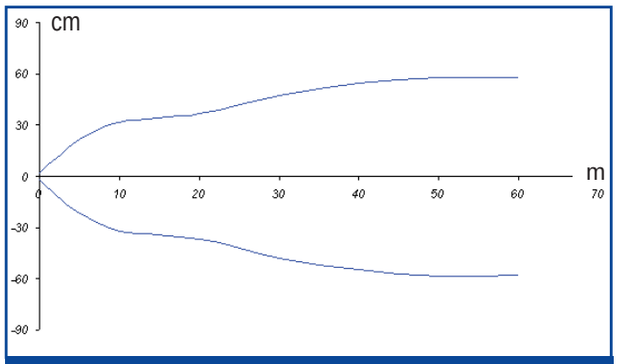
Polarized retroreflective on R2 reflector



Diffuse proximity



Background suppression

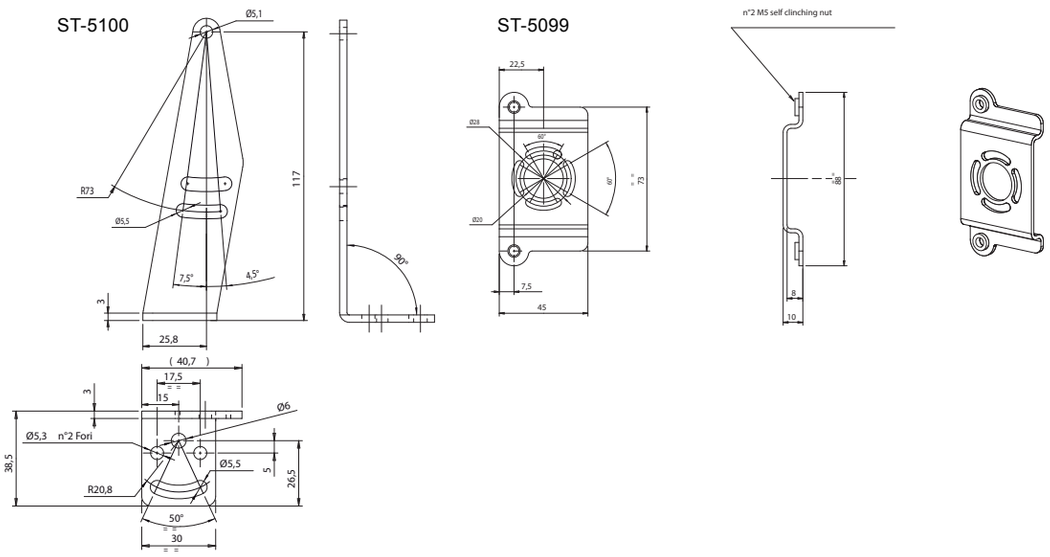


Through beam

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	OUTPUT	CONNECTION	SETTING	MODEL	ORDER No.
Polarized retroreflective	NPN/PNP	Vdc - Terminal block	Sensitivity and D/L trimmers	S300-PR-2-B01-OC	951451000
			Timing, sensitivity and D/L trimmers	S300-PR-2-B06-OC	951451010
		Vdc - M12 Connector	Sensitivity and D/L trimmers	S300-PR-5-B01-OC	951451020
			Timing, sensitivity and D/L trimmers	S300-PR-5-B06-OC	951451030
	Relay	Vac - Terminal block	Sensitivity and D/L trimmers	S300-PR-1-B01-RX	951451040
			Timing, sensitivity and D/L trimmers	S300-PR-1-B06-RX	951451050
			Timing, sensitivity and D/L trimmers; defogging function	S300-PR-1-B06-RX-M	951451060
Diffused proximity	NPN/PNP	Vdc - Terminal block	Sensitivity and D/L trimmers	S300-PR-2-C01-OC	951451070
			Timing, sensitivity and D/L trimmers	S300-PR-2-C06-OC	951451080
		Vdc - M12 Connector	Sensitivity and D/L trimmers	S300-PR-5-C01-OC	951451090
			Timing, sensitivity and D/L trimmers	S300-PR-5-C06-OC	951451100
	Relay	Vac - Terminal block	Sensitivity and D/L trimmers	S300-PR-1-C01-RX	951451110
			Timing, sensitivity and D/L trimmers	S300-PR-1-C06-RX	951451120
			Timing, sensitivity and D/L trimmers; defogging function	S300-PR-1-C06-RX-M	951451130
Through beam receiver	NPN/PNP	Vdc - Terminal block	Sensitivity and D/L trimmers	S300-PR-2-F01-OC	951451210
			Timing, sensitivity and D/L trimmers	S300-PR-2-F06-OC	951451220
		Vdc - M12 Connector	Sensitivity and D/L trimmers	S300-PR-5-F01-OC	951451230
			Timing, sensitivity and D/L trimmers	S300-PR-5-F06-OC	951451240
	Relay	Vac - Terminal block	Sensitivity and D/L trimmers	S300-PR-1-F01-RX	951451250
			Timing, sensitivity and D/L trimmers	S300-PR-1-F06-RX	951451260
			Timing, sensitivity and D/L trimmers; defogging function	S300-PR-1-F06-RX-M	951451270
Through beam emitter	-	Vdc - Terminal block	Emission power regulation trimmer	S300-PR-2-G00-EX	951451280
		Vdc - M12 Connector		S300-PR-5-G00-EX	951451290
		Vac - Terminal block		S300-PR-1-G00-EX	951451300
			Defogging function	S300-PR-1-G00-EX-M	951451310
Background suppression	NPN/PNP	Vdc - Terminal block	Sensitivity and D/L trimmers	S300-PR-2-M01-OC	951451140
			Timing, sensitivity and D/L trimmers	S300-PR-2-M06-OC	951451150
		Vdc - M12 Connector	Sensitivity and D/L trimmers	S300-PR-5-M01-OC	951451160
			Timing, sensitivity and D/L trimmers	S300-PR-5-M06-OC	951451170
	Relay	Vac - Terminal block	Sensitivity and D/L trimmers	S300-PR-1-M01-RX	951451180
			Timing, sensitivity and D/L trimmers	S300-PR-1-M06-RX	951451190
			Timing, sensitivity and D/L trimmers; defogging function	S300-PR-1-M06-RX-M	951451200

ACCESSORIES



MODEL	DESCRIPTION	ORDER No.
ST-5099	mounting BRACKET	95ACC2830
ST-5100	mounting BRACKET	95ACC2840

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		7 m	CS-A1-02-G-07	95A251280
		10 m	CS-A1-02-G-10	95A251390
	4-pole, P.U.R.	2 m	CS-A1-02-R-02	95A251540
		5 m	CS-A1-02-R-05	95A251560
Radial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A2-02-G-03	95A251360
		5 m	CS-A2-02-G-05	95A251240
		7 m	CS-A2-02-G-07	95A251245
		10 m	CS-A2-02-G-10	95A251260
	4-pole, P.U.R.	2 m	CS-A2-02-R-02	95A251550
		5 m	CS-A2-02-R-05	95A251570
Axial M12 Connector	4-pole, shielded, black, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
		5 m	CV-A1-22-B-05	95ACC1490
		10 m	CV-A1-22-B-10	95ACC1500
		15 m	CV-A1-22-B-15	95ACC2070
		25 m	CV-A1-22-B-25	95ACC2090
Radial M12 Connector		3 m	CV-A2-22-B-03	95ACC1540
		5 m	CV-A2-22-B-05	95ACC1550
		10 m	CV-A2-22-B-10	95ACC1560
Axial M12 Connector	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	4-pole, black	Connector- not cabled	CS-A1-02-B-NC	G5085002
Radial M12 Connector		Connector- not cabled	CS-A2-02-B-NC	G5085003

S7

Fiber optic amplifiers in a DIN rail compatible format for small object detection in limited spaces

- High-resolution models with integrated display
- 12 bit resolution and 50 µs response time
- Trimmer or teach-in models
- Wide range of accessory fiber optics
- 4 wire NO/NC output or Remote teach input

APPLICATIONS

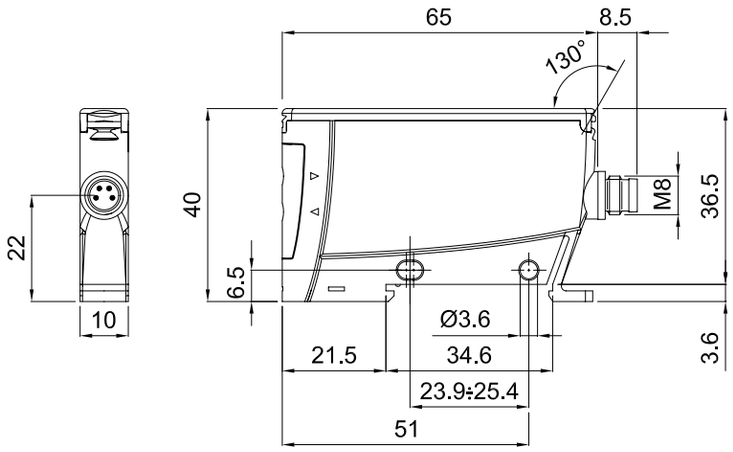
- Processing and Packaging machinery
- Electronics assembling
- Pharmaceutical industry

S7		
Through beam with fiber optic		0...300 mm
		0...150 mm
		0...75 mm
Diffuse proximity with fiber optic		0...100 mm
		0...50 mm
		0...25 mm
Power supply	Vdc	12...24 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		10x65x40
Housing material		ABS
Mechanical protection		IP65, IP60 (trimmer vers.)

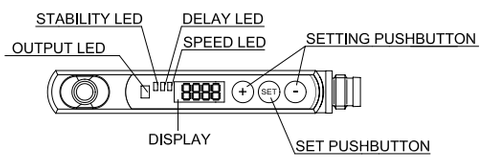
TECHNICAL DATA

Power supply	12 ... 24 Vdc ± 10% (reverse polarity protection)
Ripple	2 Vpp max.
Consumption (output current excluded)	50 mA max. (mod. S7-1/2/4/5) 40 mA (mod. S7-3/6) 30 mA max. (mod. S7-7/8)
Light emission	red 670 nm (mod. S7-2/3/5/6/7/8) white 400-700 nm (mod. S7-1/4)
Setting	SET pushbutton, + pushbutton, - pushbutton (mod. S7-1/2/4/5) 1 SET pushbutton (mod. S7-3/6) 12 multiturn trimmer (mod. S7-7/8)
Indicators	yellow OUTPUT LED green STABILITY LED, DELAY LED and SPEED LED (mod. S7-1/2/4/5) green/red READY/ERROR LED (mod. S7-3/6/7/8)
Output	PNP or NPN
Output current	100 mA max.
Saturation voltage	1,2 V max. (mod. S7-3/6/7/8) 2 V max. (mod. S7-1/2/4/5)
Response time	500 µs max. (at low speed for mod. S7-1/2/7/8) 100 µs max. (at fast speed for mod. S7-2/5) 50 µs max. (at fast speed for mod. S7-1/4)
Switching frequency	1 kHz (at low speed for mod. S7-1/2/7/8) 5 kHz (at fast speed for mod. S7-2/5) 10 kHz (at fast speed for mod. S7-1/4)
Connection	2 m Ø 4 mm cable (S7-1/2/3/7), M8 4-pole connector (S7-4/5/6/8)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2
Mechanical protection	IP65 IP60 (mod. S7-7/8)
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 shock for every axis (EN60068-2-27)
Housing material	ABS
Operating temperature	-10 ... 55 °C
Storage temperature	-25 ... 70 °C
Weight	115 g max. cable vers., 30 g max. conn. vers.

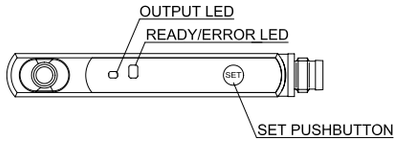
DIMENSIONS



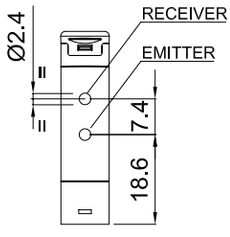
S7-1/2/4/5

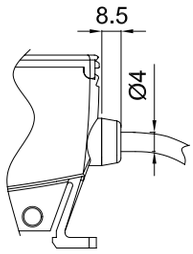


S7-3/6

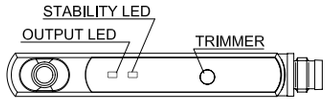


CABLE VERSION

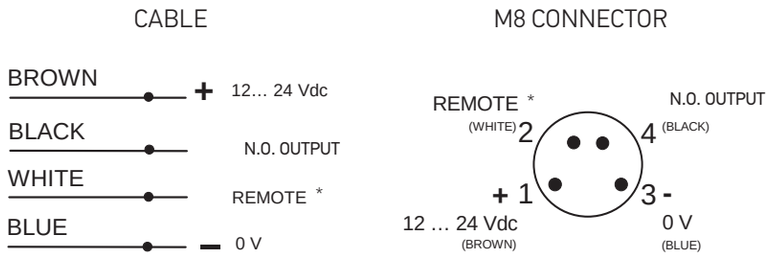




S7-7/8

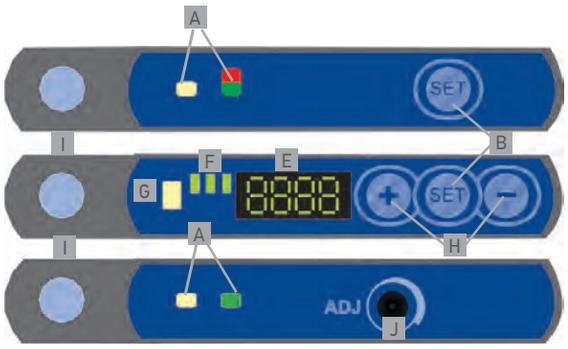


CONNECTIONS



* N.C. OUTPUT on S7-7/8 models

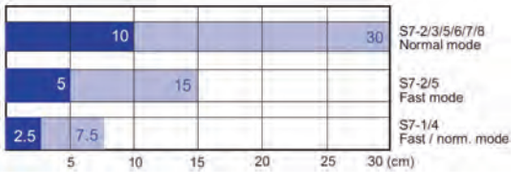
INDICATOR AND SETTINGS



Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details

- A OUTPUT status and READY/ERROR LEDs
- B Teach-in push-button
- C M8 connector output
- D Cable output
- E 4 digit display
- F STATUS signalling LEDs
- G OUTPUT status LED
- H '+' e '-' buttons
- I Fiber lock/unlock button
- J Multiturn trimmer

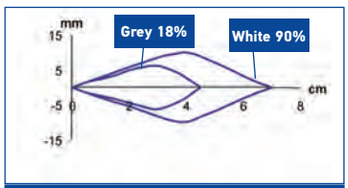
DETECTION DIAGRAMS



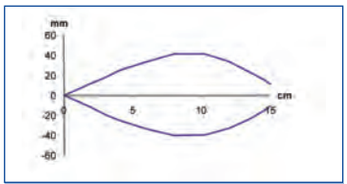
Proximity operating distance
Through beam operating distance

High efficiency Fiber-optics or accessory lenses can be used to obtain larger operating distances.

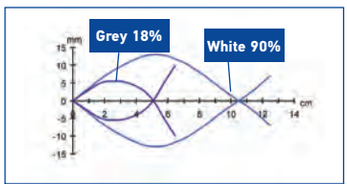
Note: the detection diagrams of the S7-1/4 models in normal and fast mode, corresponds to the values of the S7-2/5 models in fast mode, but with half the operating distance



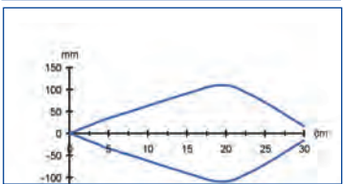
S7-2/5 proximity - Fast mode *



S7-2/5 through beam Fast mode *



S7-2/3/5/6/7/8 proximity Normal mode *



S7-2/3/5/6/7/8 th. beam Normal mode*

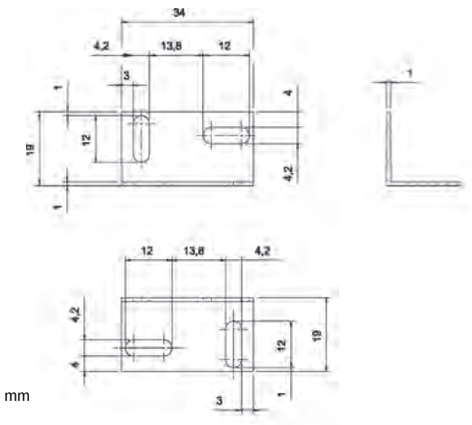
MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	SETTING	CONNECTION	OUTPUT	MODEL	ORDER No.
OPTIC FIBER (white LED)	display, push-button	2m Cable	PNP	S7-1-E-P	950551090
			NPN	S7-1-E-N	950551080
		M8 Connector	PNP	S7-4-E-P	950551110
			NPN	S7-4-E-N	950551100
OPTIC FIBER (red LED)	display, push-button	2m Cable	PNP	S7-2-E-P	950551010
			NPN	S7-2-E-N	950551000
	push-buttons		PNP	S7-3-E-P	950551050
			NPN	S7-3-E-N	950551040
	display, push-buttons	M8 Connector	PNP	S7-5-E-P	950551030
			NPN	S7-5-E-N	950551020
	push-buttons	M8 Connector	PNP	S7-6-E-P	950551070
			NPN	S7-6-E-N	950551060
	trimmer	2m Cable	PNP	S7-7-E-P	950551120
			NPN	S7-7-E-N	950551130
		M8 Connector	PNP	S7-8-E-P	950551140
			NPN	S7-8-E-N	950551150

Datalogic Automation offers a wide range of fiber optic cables available in two different lines: OF series for standard applications and OFA series for specialistic applications, such as 90° optics as well as fixed focus optics. These accessories allow to carry out the diffuse proximity and through beam detection of small object in difficult point of the machine. Refer to the next page for the complete list.

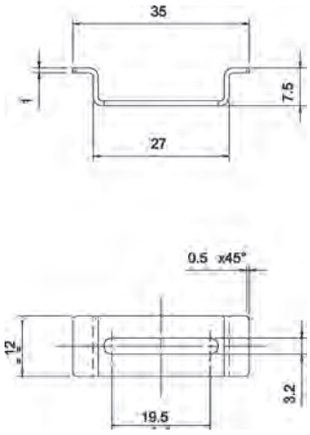
ACCESSORIES

ST-505



mm

CRD-5000



mm

MODEL	DESCRIPTION	ORDER No.
ST -505	L-shaped mounting bracket	95ACC 2800
CRD -5000	DIN rail mounting bracket	95ACC 2790

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

Rev. 03, 04/2019

S70

ADVANCED FIBER OPTIC AMPLIFIERS FOR HIGH SPEED AND LOW CONTRAST APPLICATIONS

- DIN rail mountable models with dual digital displays
- High speed models: 200 µs...5 ms
- Super high speed models: 10 µs...1ms
- Analog output models
- Teach-in setting via +/SET/- push-button/switch, remote input or IO-Link
- Standard 2 m cable or M8 4-pole connection

APPLICATIONS

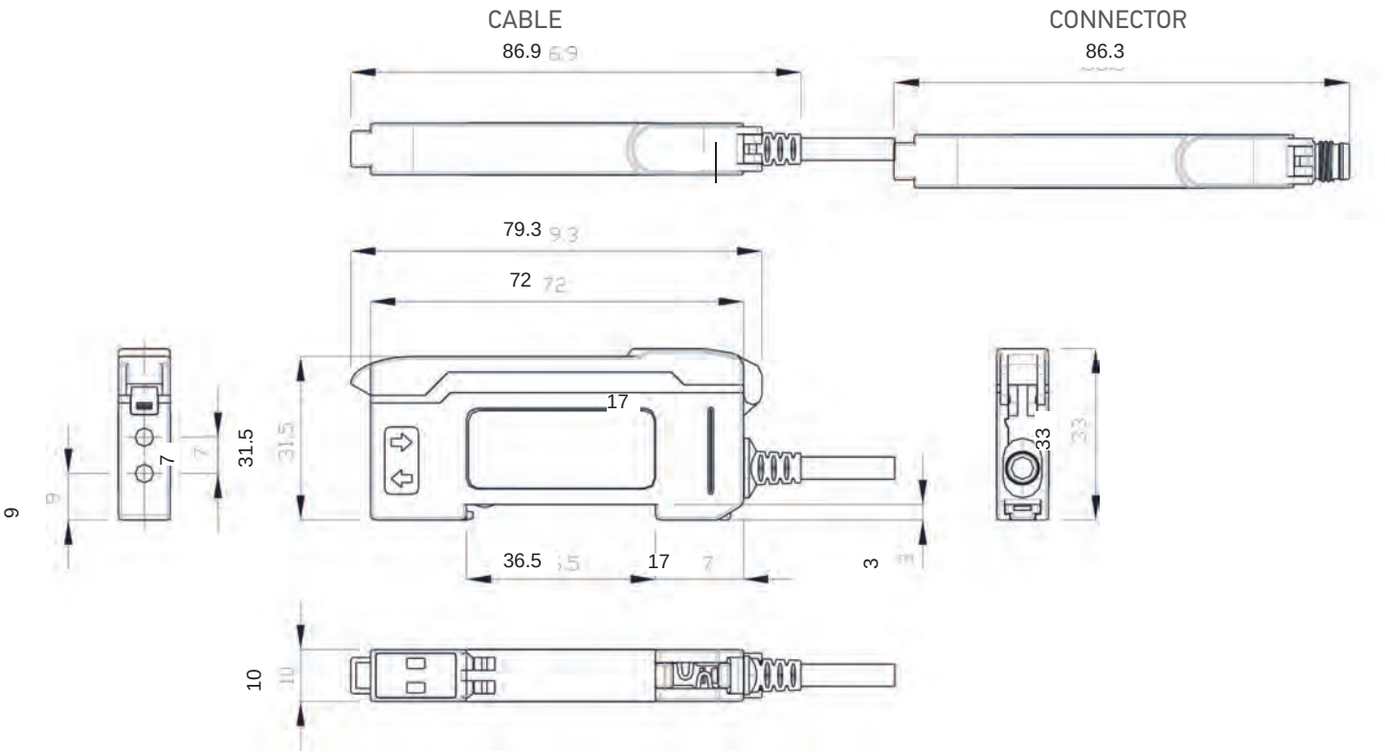
- Processing and Packaging machinery
- Electronics assembling
- Pharmaceutical industry
- Cosmetic and bottling industries

S70		
Response time		Super high speed: 10 µs (S70...E2) High speed: 200 µs (S70...E1), 15 µs (S70...E2), 250 µs (S70...E3) Fast: 50 µs (S70...E2), 500 µs (S70...E3) Standard: 500 µs (S70...E1), 250 µs (S70...E2), 1 ms (S70...E3) Medium range: 500 µs (S70...E2) Long range: 2 ms (S70...E1), 1 ms (S70...E2), 4 ms (S70...E3) Extra long range: 5 ms (S70...E1), 12 ms (S70...E3)
Repeatability		Super high speed: 5 µs (S70...E2) High speed: 66 µs (S70...E1), 5 µs (S70...E2), 100 µs (S70...E3) Fast: 12 µs (S70...E2), 150 µs (S70...E3) Standard: 100 µs (S70...E1), 50 µs (S70...E2), 180 µs (S70...E3) Medium range: 80 µs (S70...E2) Long range: 100 µs (S70...E1), 165 µs (S70...E2), 180 µs (S70...E3) Extra long range: 100 µs (S70...E1), 180 µs (S70...E3)
Power supply	Vdc	10...30 V (current output models and digital output models) 12...30 (voltage output models)
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	Analog out 4...20mA; Analog out 0...10V; Analog out 0...5V
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		10x79x31.5
Housing material		ABS and polycarbonate
Mechanical protection		IP50, NEMA 1

TECHNICAL DATA

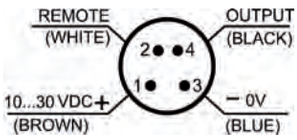
Power supply	10...30 V (current output models and digital output models) 12...30 (voltage output models)
Ripple	10% max.
Consumption (output current excluded)	40 mA max. (standard display mode), 30 mA max. (ECO display mode)
Light emission	red 660 nm (mod. S70...E1, S70...E3) red 635 nm (mod. S70...E2)
Setting	+/SET/- push-button, LIGHT/DARK switch, RUN/PRG/ADJ mode switch
Indicators	yellow OUTPUT LED red SIGNAL LEVEL 4-digit display green THRESHOLD 4-digit display
Output	PNP or NPN PNP and push-pull (IO-Link mod. S70...PZ)
Output current	100 mA max.
Saturation voltage	1,5 V max. (mod. S70...N) 2 V max. (mod. S70...P/PZ)
Response time	Super high speed: 10 µs (S70...E2) High speed: 200 µs (S70...E1), 15 µs (S70...E2), 250 µs (S70...E3) Fast: 50 µs (S70...E2), 500 µs (S70...E3) Standard: 500 µs (S70...E1), 250 µs (S70...E2), 1 ms (S70...E3) Medium range: 500 µs (S70...E2) Long range: 2 ms (S70...E1), 1 ms (S70...E2), 4 ms (S70...E3) Extra long range: 5 ms (S70...E1), 12 ms (S70...E3)
Switching frequency	S70...E1: 2,5 kHz (High Speed), 1 kHz (Standard), 250 Hz (Long Range), 100 Hz (Extra Long Range) S70...E2: 50 kHz (Super High Speed), 33 kHz (High Speed), 10 kHz (Fast), 2 kHz (Standard), 1 kHz (Medium Range), 500 Hz (Long Range) S70...E3: 1 kHz (High Speed), 500 Hz (Fast), 250Hz (Standard), 62,5 Hz (Long Range), 20 Hz (Extra Long Range)
IO-Link interface	baud rate: 38400 bps (COM2) process data width: 16 bits IODD files: provide all programming options of top panel interface, plus additional functionality
Connection	2 m cable, M8 4-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2
Mechanical protection	IP50, NEMA 1
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 shock for every axis (EN60068-2-27)
Housing material	ABS and polycarbonate
Operating temperature	-10 ... 55 °C
Storage temperature	-25 ... 85 °C
Weight	69 g max. cable vers., 21 g max. conn. vers.

DIMENSIONS

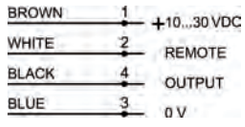


CONNECTIONS

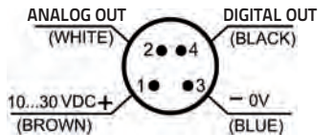
M8 CONNECTOR



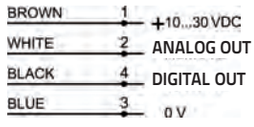
CABLE



M8 CONNECTOR



CABLE

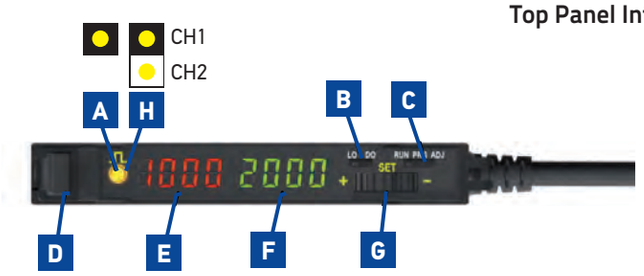


INDICATOR AND SETTINGS

The **RUN/PRG/ADJ Mode Switch** puts the sensor in RUN, PRG (Program), or ADJ (Adjust) mode. RUN mode allows the sensor to operate normally and prevents unintentional programming changes via the **+/SET/- button.** PRG mode allows the sensor to be programmed through the display driven programming menu. ADJ mode allows the user to perform TEACH and SET methods and Manual Adjust.

The **LO/DO Switch** is used to select Light Operate or Dark Operate mode.

Top Panel Interface



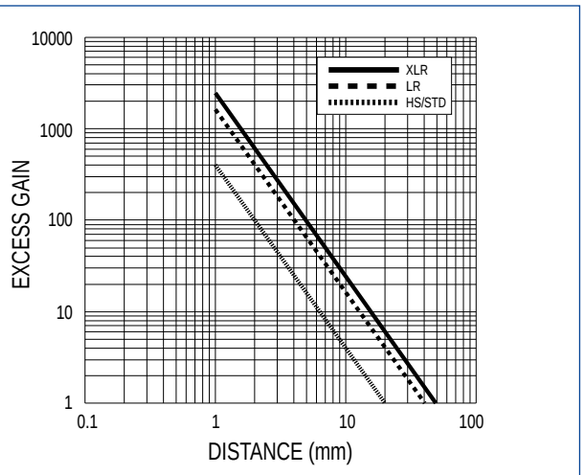
- A Output LED
- B LO/DO Switch
- C RUN/PRG/ADJ
- D Lever Action Fiber Clamp
- E Red Signal Level
- F Green Threshold
- G +/SET/- Rocker Button
- H CH1 Analog out, CH2 Discrete out (only S70...E3)

As an alternative the sensor can be programmed remotely and the remote input may be used to perform TEACH and SET methods (not available on IO-Link models).

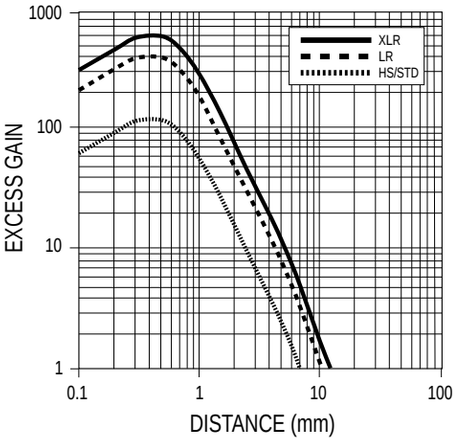
DETECTION DIAGRAMS

S70-E1				
	HIGH SPEED	STANDARD	LONG RANGE	EXTRA LONG RANGE
Response Time	200 µs	500 µs	2 ms	5 ms
Repeatability	66 µs	100 µs	100 µs	100 µs

EXCESS GAIN

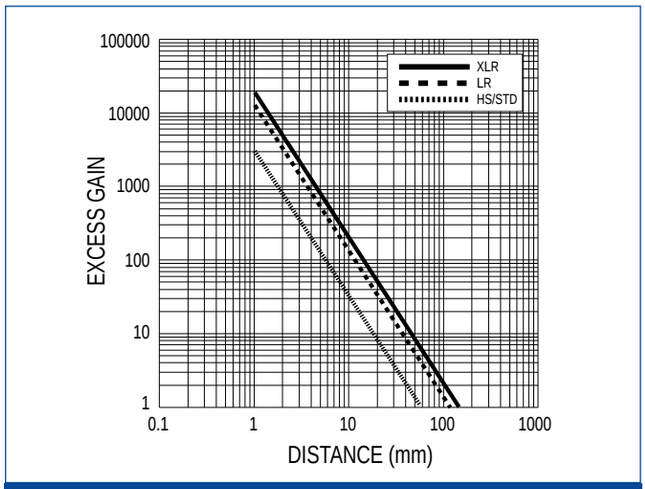


Through beam with 0.2 mm internal fiber optic diameter

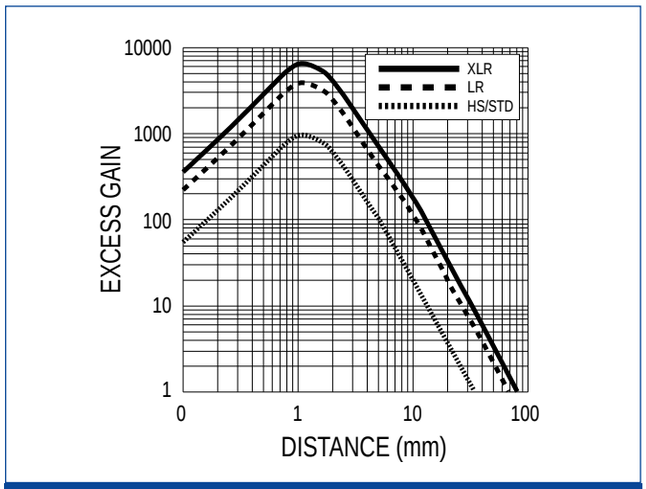


Diffuse proximity with 0.2 mm internal fiber optic diameter

EXCESS GAIN

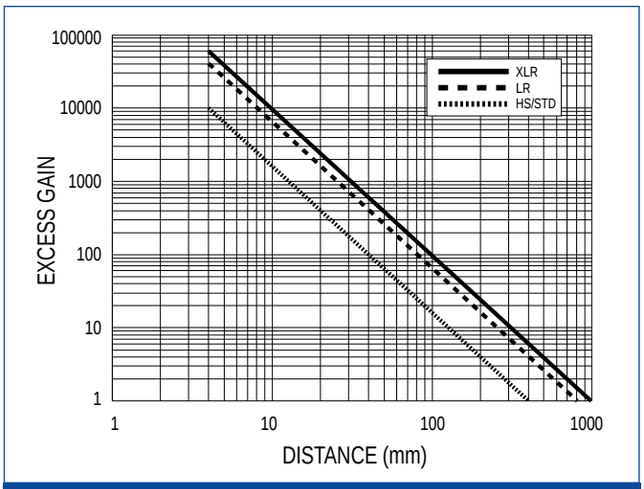


Through beam with 0.5 mm internal fiber optic diameter

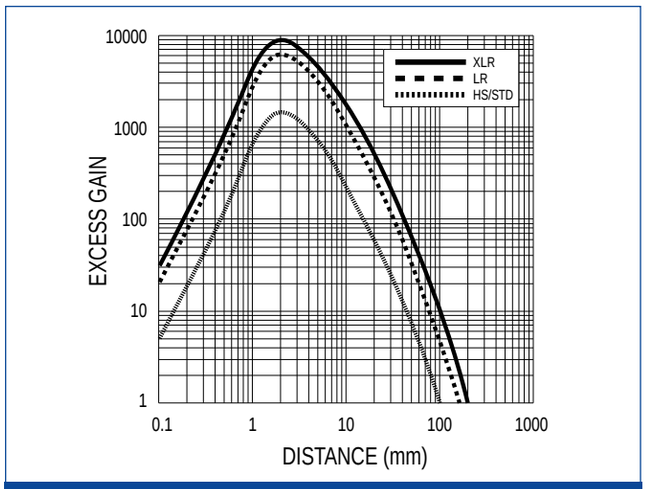


Diffuse proximity with 0.5 mm internal fiber optic diameter

EXCESS GAIN

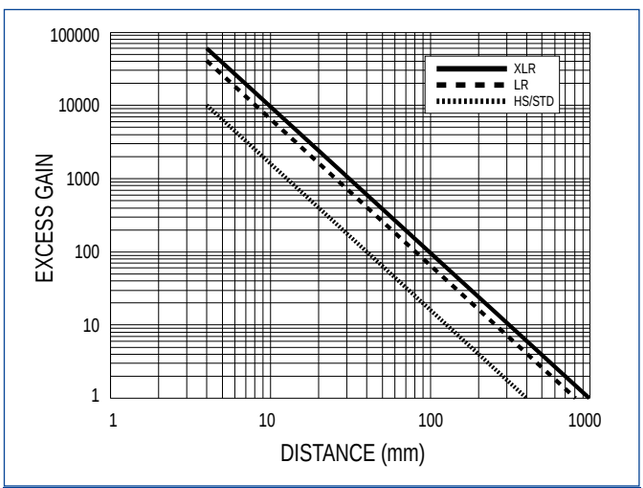


Through beam with 1 mm internal fiber optic diameter

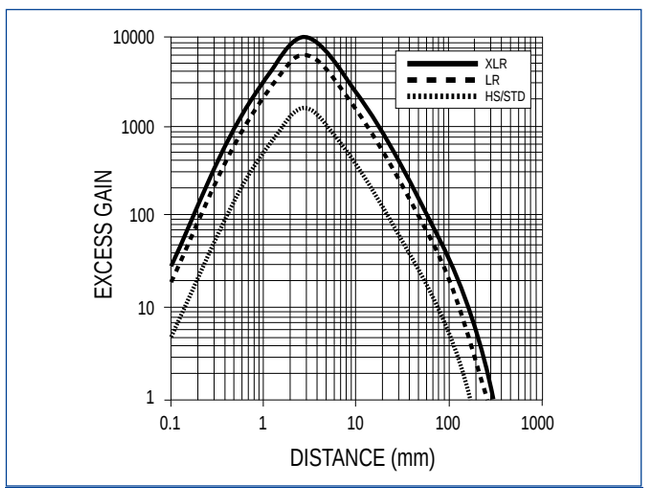


Diffuse proximity with 1 mm internal fiber optic diameter

EXCESS GAIN



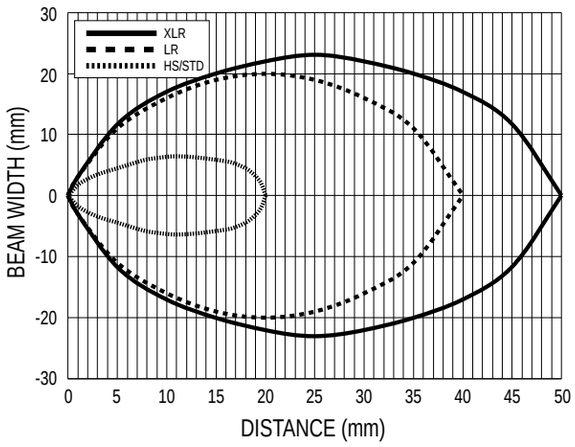
Through beam with 1.5 mm internal fiber optic diameter



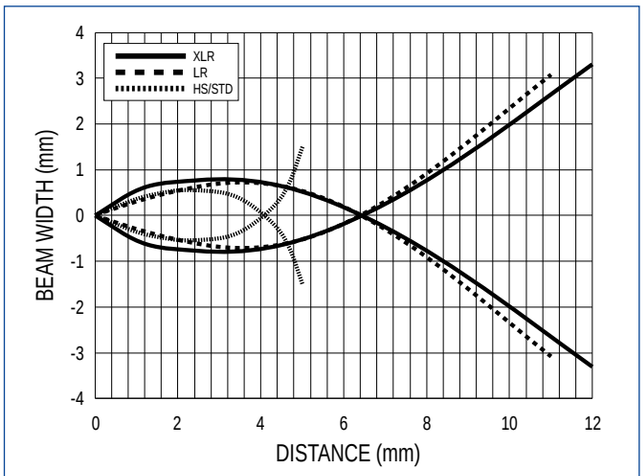
Diffuse proximity with 1.5 mm internal fiber optic diameter

S70-E1				
	HIGH SPEED	STANDARD	LONG RANGE	EXTRA LONG RANGE
Response Time	200 µs	500 µs	2 ms	5 ms
Repeatability	66 µs	100 µs	100 µs	100 µs

DETECTION AREA

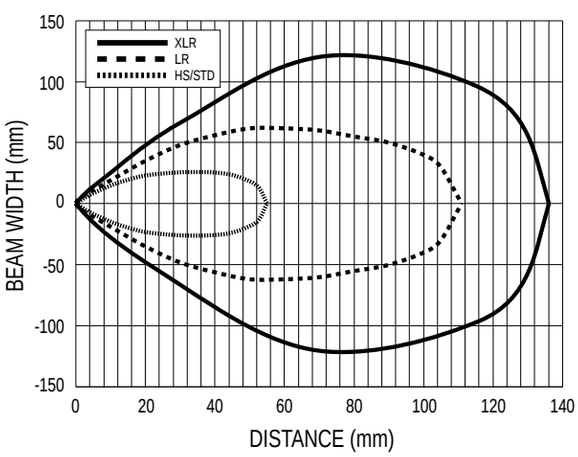


Through beam with 0.2 mm internal fiber optic diameter

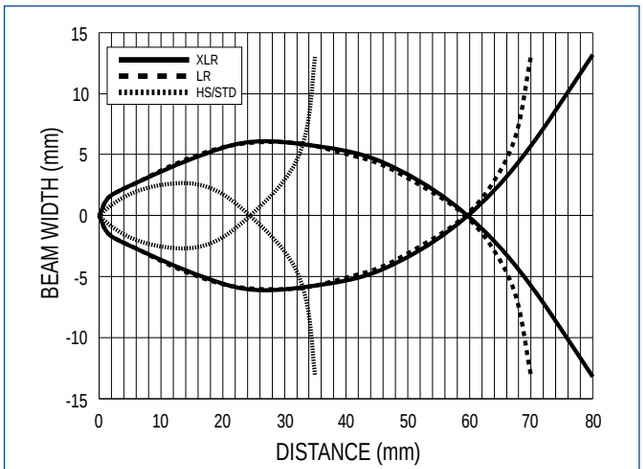


Diffuse proximity with 0.2 mm internal fiber optic diameter

DETECTION AREA



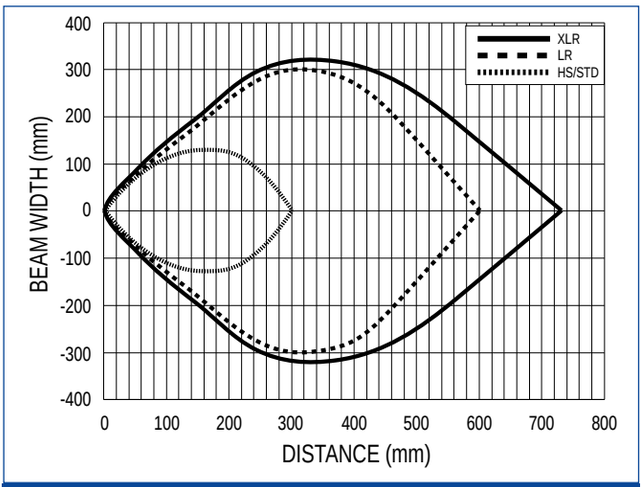
Through beam with 0.5 mm internal fiber optic diameter



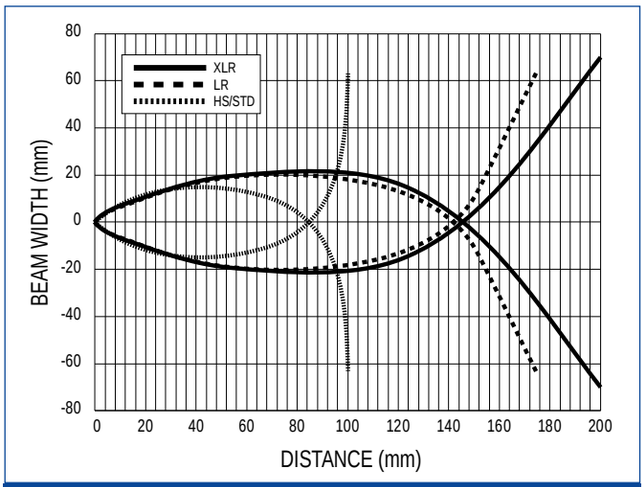
Diffuse proximity with 0.5 mm internal fiber optic diameter

S70-E1				
	HIGH SPEED	STANDARD	LONG RANGE	EXTRA LONG RANGE
Response Time	200 µs	500 µs	2 ms	5 ms
Repeatability	66 µs	100 µs	100 µs	100 µs

DETECTION AREA

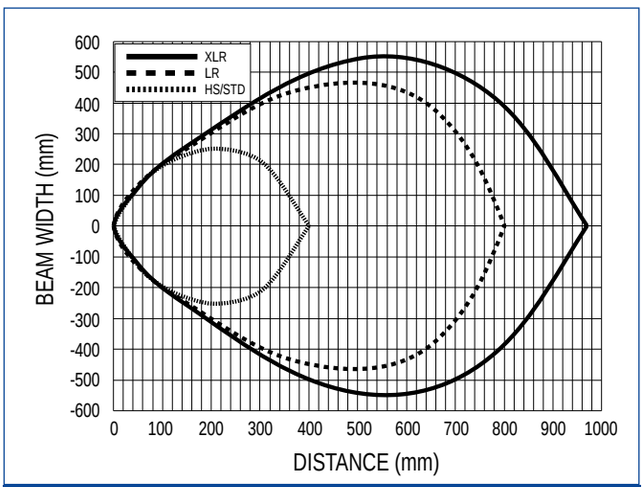


Through beam with 1 mm internal fiber optic diameter

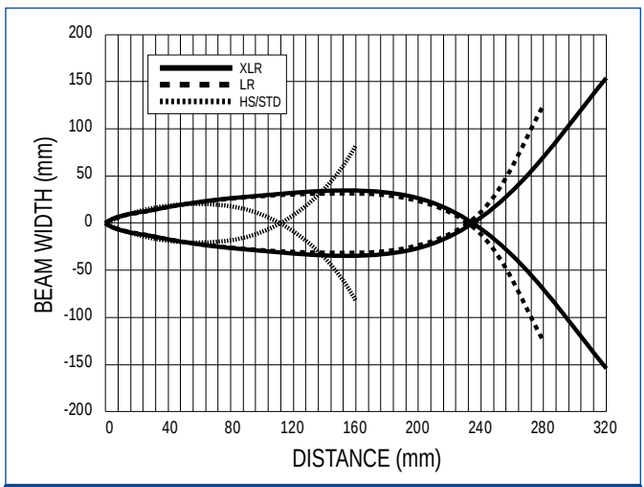


Diffuse proximity with 1 mm internal fiber optic diameter

DETECTION AREA



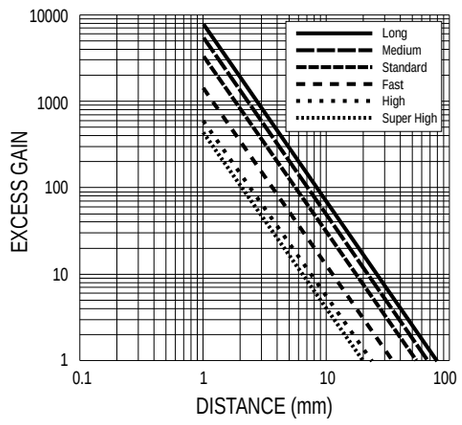
Through beam with 1.5 mm internal fiber optic diameter



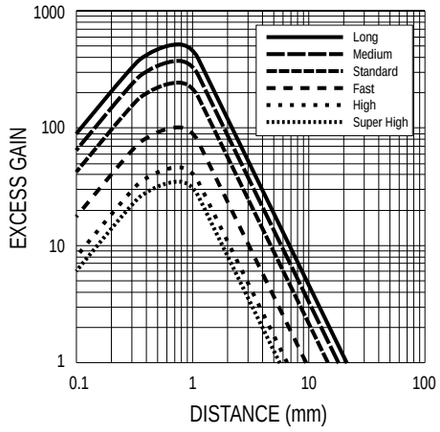
Diffuse proximity with 1.5 mm internal fiber optic diameter

S70-E2						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	MEDIUM RANGE	LONG RANGE
Response Time	10 µs	15 µs	50 µs	250 µs	500 µs	1 ms
Repeatability	5 µs	5 µs	12 µs	50 µs	80 µs	165 µs

EXCESS GAIN

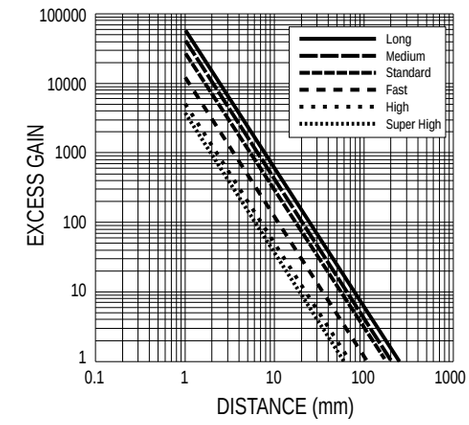


Through beam with 0.2 mm internal fiber optic diameter

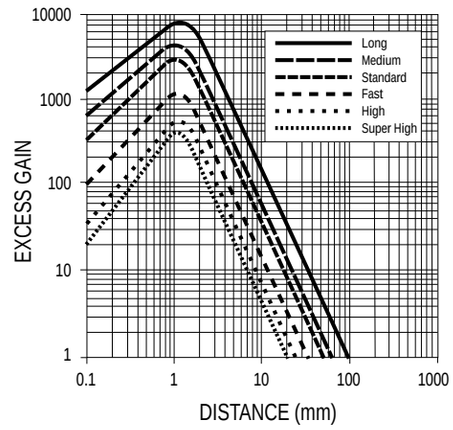


Diffuse proximity with 0.2 mm internal fiber optic diameter

EXCESS GAIN



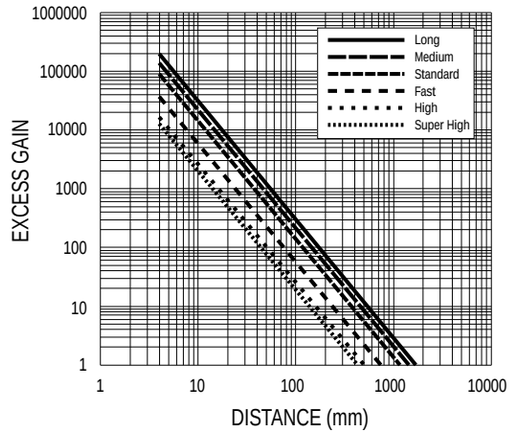
Through beam with 0.5 mm internal fiber optic diameter



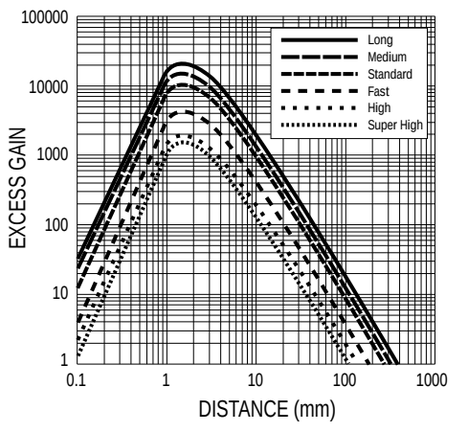
Diffuse proximity with 0.5 mm internal fiber optic diameter

S70-E2						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	MEDIUM RANGE	LONG RANGE
Response Time	10 µs	15 µs	50 µs	250 µs	500 µs	1 ms
Repeatability	5 µs	5 µs	12 µs	50 µs	80 µs	165 µs

EXCESS GAIN

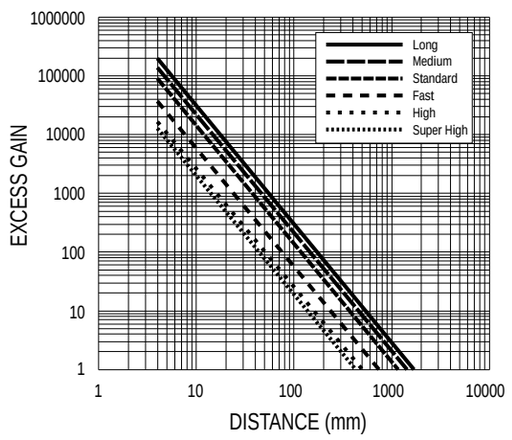


Through beam with 1 mm internal fiber optic diameter

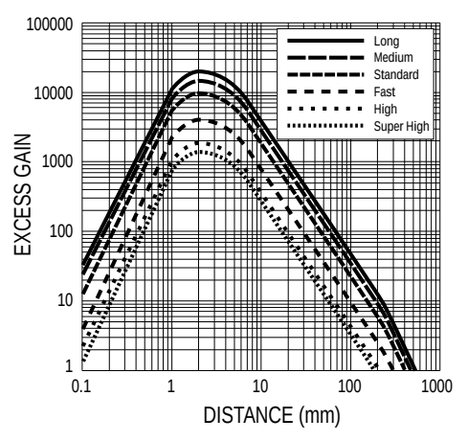


Diffuse proximity with 1 mm internal fiber optic diameter

EXCESS GAIN



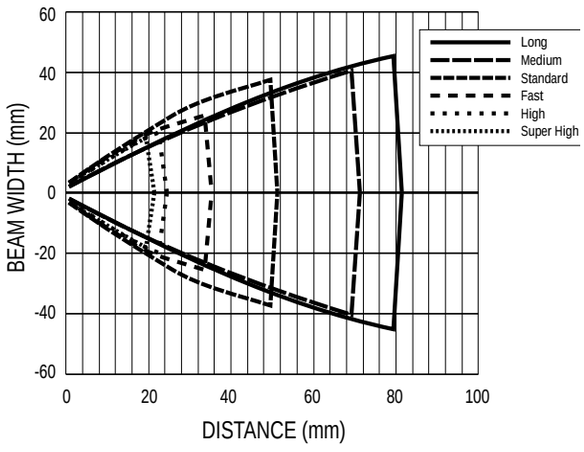
Through beam with 1.5 mm internal fiber optic diameter



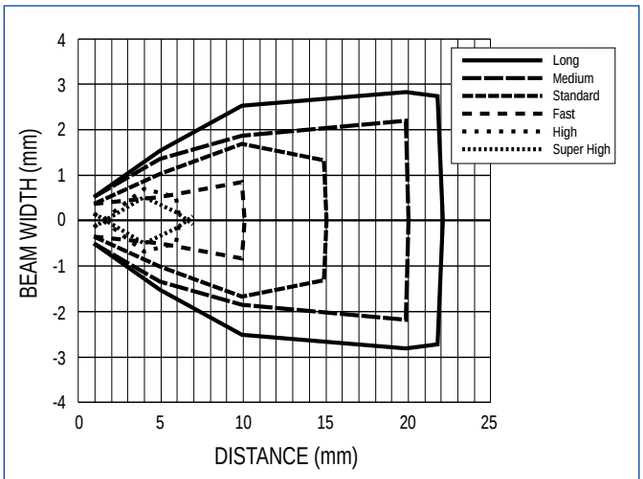
Diffuse proximity with 1.5 mm internal fiber optic diameter

S70-E2						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	MEDIUM RANGE	LONG RANGE
Response Time	10 µs	15 µs	50 µs	250 µs	500 µs	1 ms
Repeatability	5 µs	5 µs	12 µs	50 µs	80 µs	165 µs

DETECTION AREA

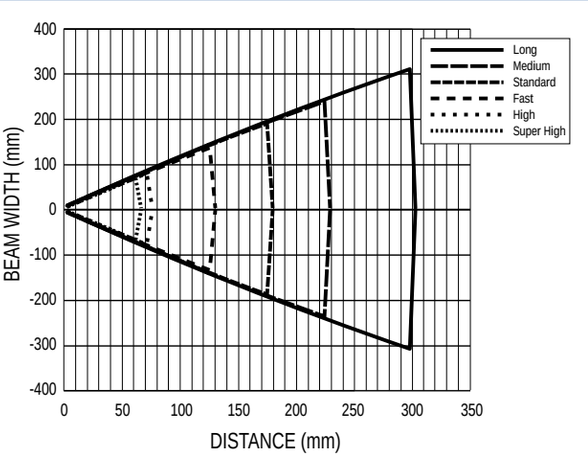


Through beam with 0.2 mm internal fiber optic diameter

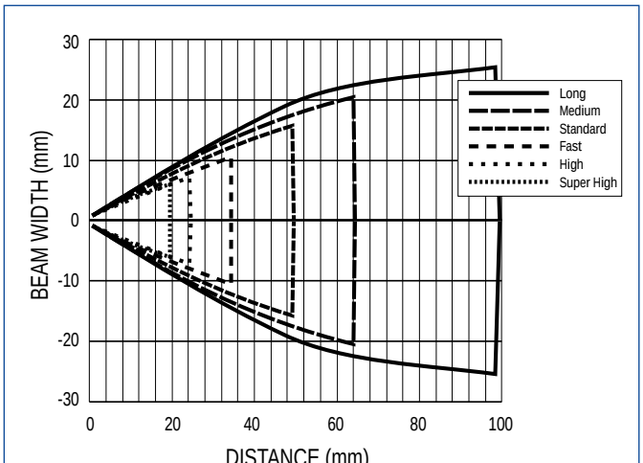


Diffuse proximity with 0.2 mm internal fiber optic diameter

DETECTION AREA



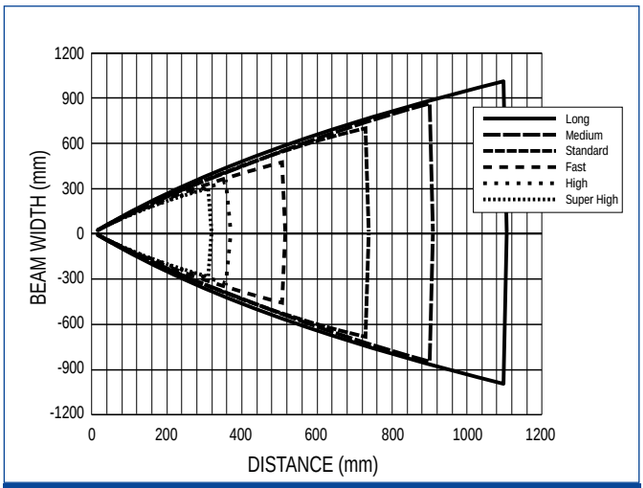
Through beam with 0.5 mm internal fiber optic diameter



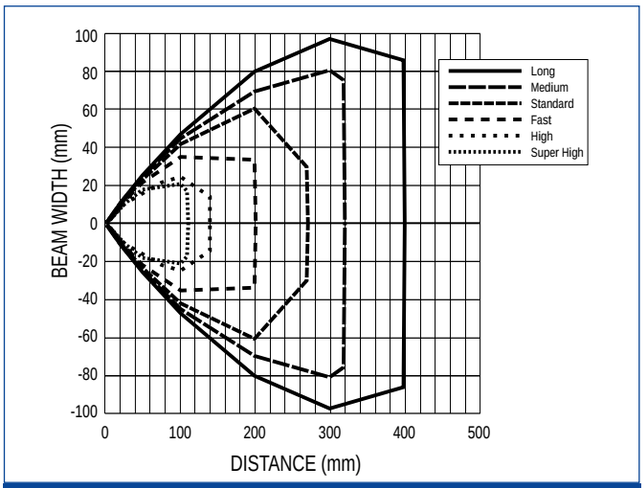
Diffuse proximity with 0.5 mm internal fiber optic diameter

S70-E2						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	MEDIUM RANGE	LONG RANGE
Response Time	10 µs	15 µs	50 µs	250 µs	500 µs	1 ms
Repeatability	5 µs	5 µs	12 µs	50 µs	80 µs	165 µs

DETECTION AREA

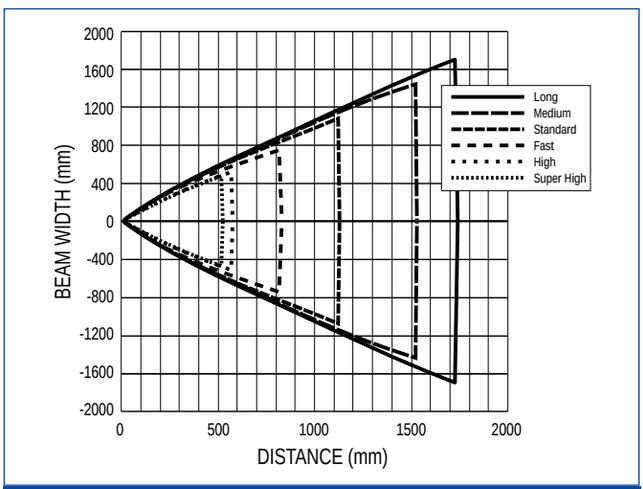


Through beam with 1 mm internal fiber optic diameter

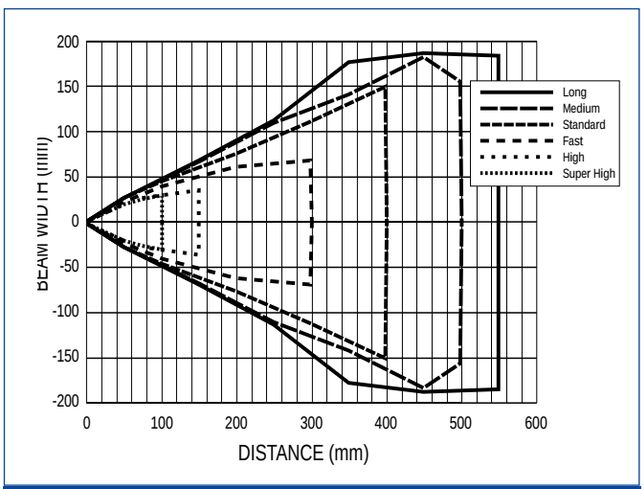


Diffuse proximity with 1 mm internal fiber optic diameter

DETECTION AREA



Through beam with 1.5 mm internal fiber optic diameter



Diffuse proximity with 1.5 mm internal fiber optic diameter

S70-E3						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	LONG RANGE	EXTRA LONG RANGE
Response Time	-	250 µs	500 µs	1 ms	4 ms	12 ms
Repeatability	-	100 µs	150 µs	180 µs	180 µs	180 µs

EXCESS GAIN

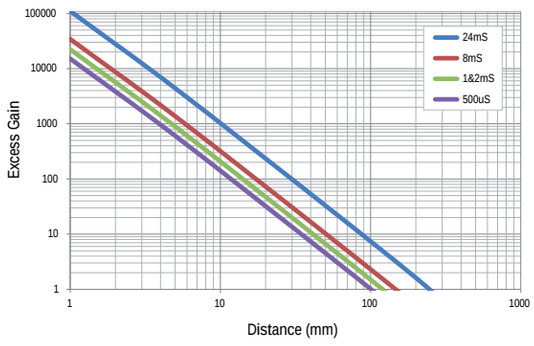
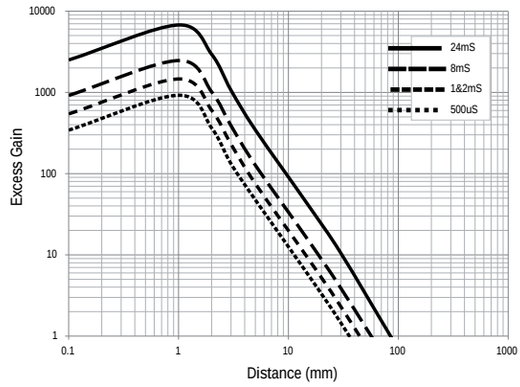


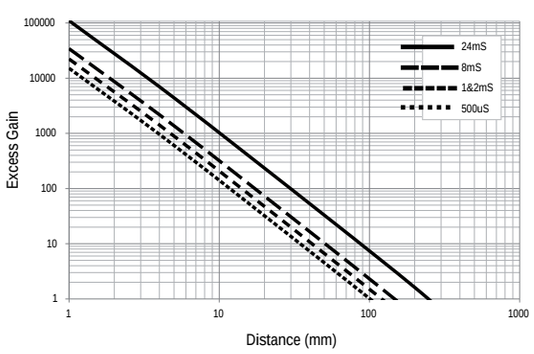
Figure 17. Opposed Mode—PIT16U

Through beam with 0.2 mm internal fiber optic diameter

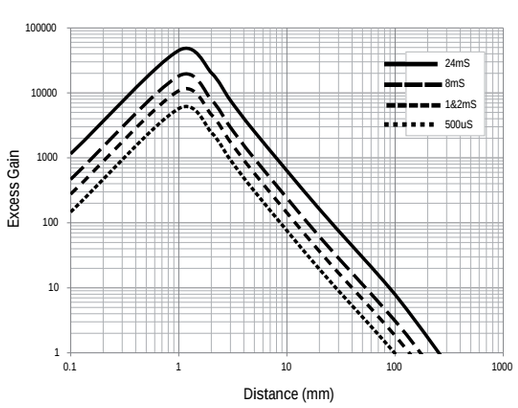


Diffuse proximity with 0.2 mm internal fiber optic diameter

EXCESS GAIN



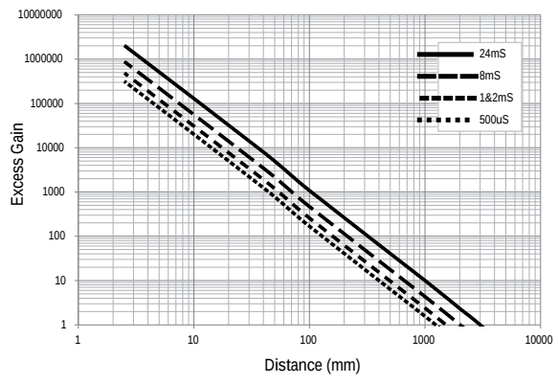
Through beam with 0.5 mm internal fiber optic diameter



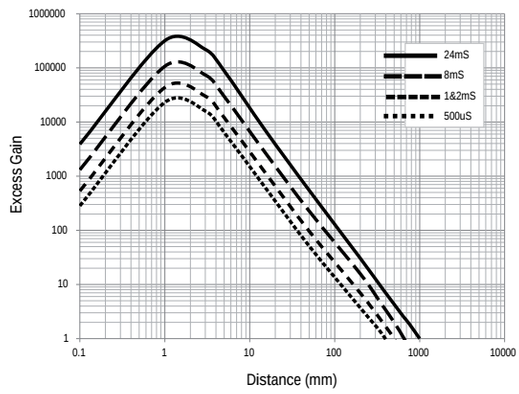
Diffuse proximity with 0.5 mm internal fiber optic diameter

S70-E3						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	LONG RANGE	EXTRA LONG RANGE
Response Time	-	250 µs	500 µs	1 ms	4 ms	12 ms
Repeatability	-	100 µs	150 µs	180 µs	180 µs	180 µs

EXCESS GAIN

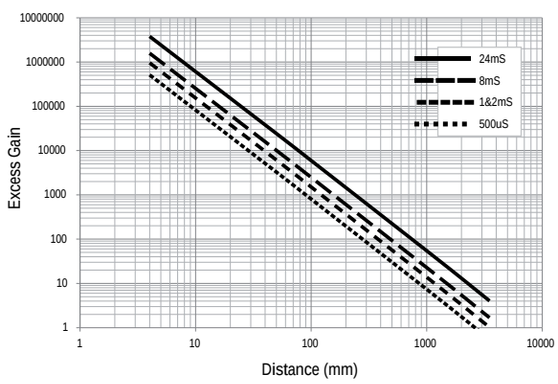


Through beam with 1 mm internal fiber optic diameter

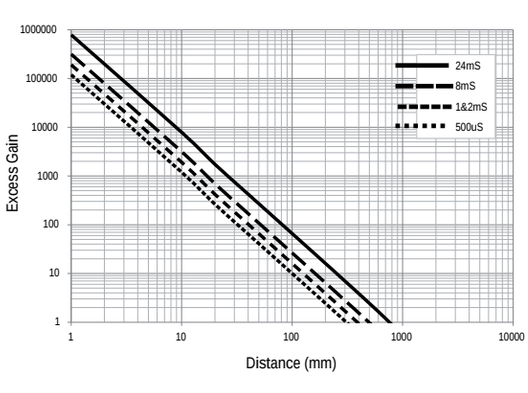


Diffuse proximity with 1 mm internal fiber optic diameter

EXCESS GAIN



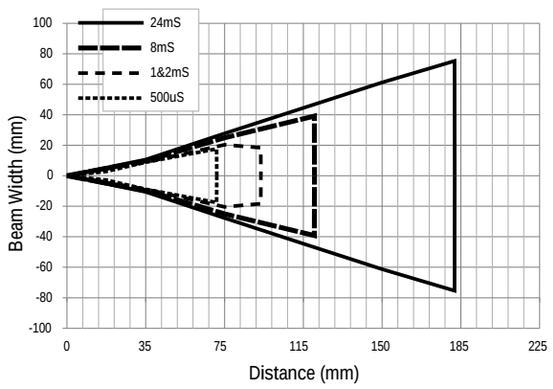
Through beam with 1.5 mm internal fiber optic diameter



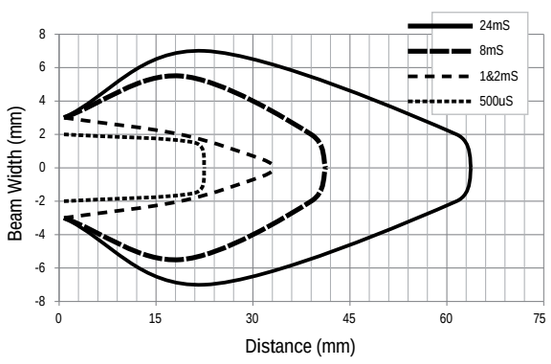
Diffuse proximity with 1.5 mm internal fiber optic diameter

S70-E3						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	LONG RANGE	EXTRA LONG RANGE
Response Time	-	250 µs	500 µs	1 ms	4 ms	12 ms
Repeatability	-	100 µs	150 µs	180 µs	180 µs	180 µs

DETECTION AREA

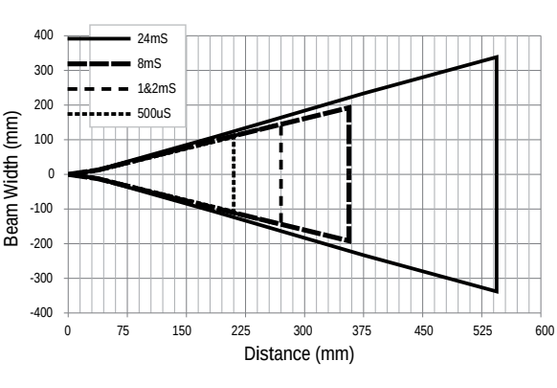


Through beam with 0.2 mm internal fiber optic diameter

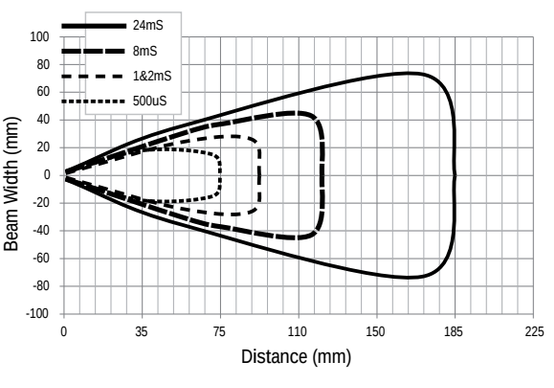


Diffuse proximity with 0.2 mm internal fiber optic diameter

DETECTION AREA



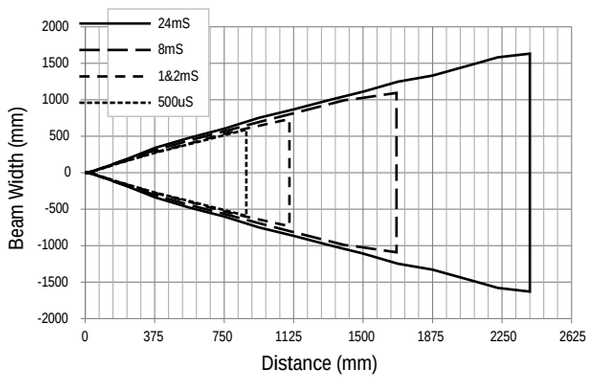
Through beam with 0.5 mm internal fiber optic diameter



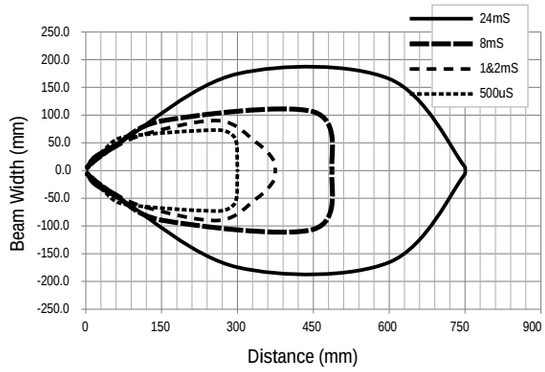
Diffuse proximity with 0.5 mm internal fiber optic diameter

S70-E3						
	SUPER HIGH SPEED	HIGH SPEED	FAST	STANDARD	LONG RANGE	EXTRA LONG RANGE
Response Time	-	250 µs	500 µs	1 ms	4 ms	12 ms
Repeatability	-	100 µs	150 µs	180 µs	180 µs	180 µs

DETECTION AREA

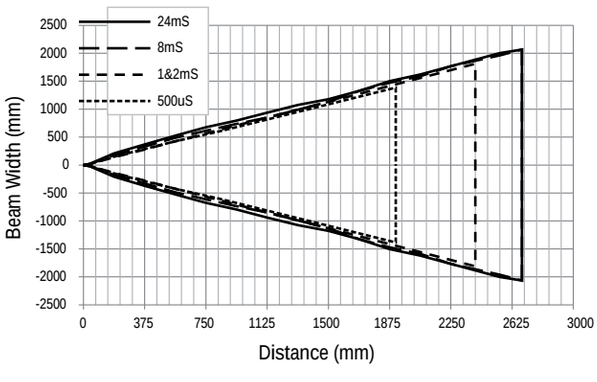


Through beam with 1 mm internal fiber optic diameter

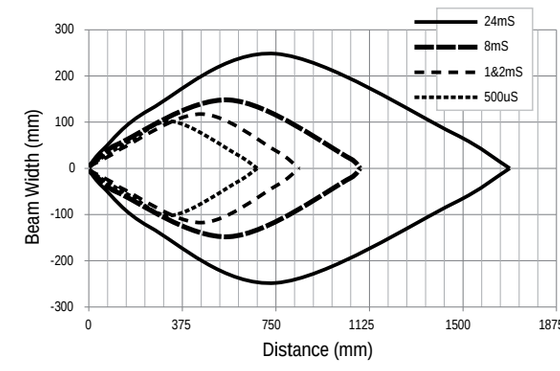


Diffuse proximity with 1 mm internal fiber optic diameter

DETECTION AREA



Through beam with 1.5 mm internal fiber optic diameter

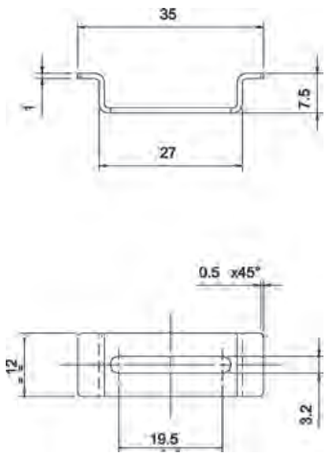


Diffuse proximity with 1.5 mm internal fiber optic diameter

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	RESPONSE TIME	CONNECTION	OUTPUT	MODEL	ORDER No.
Fiber Optic Amplifier	200 µs ... 5 ms	2 m Cable	NPN	S70-2-E1-N	950561000
			PNP	S70-2-E1-P	950561010
		M8 Connector	NPN	S70-5-E1-N	950561060
			PNP	S70-5-E1-P	950561020
			PNP, push-pull IO-Link	S70-5-E1-PZ	950561030
	10 µs ... 1 ms		NPN	S70-5-E2-N	950561040
			PNP	S70-5-E2-P	950561050
	250us...12ms		4...20mA, NPN	S70-5-E3-NI	950561100
			0...10V, NPN	S70-5-E3-NV	950561080
			4...20mA, PNP	S70-5-E3-PI	950561090
			0...10V, PNP	S70-5-E3-PV	950561070

CRD-5000



mm

MODEL	DESCRIPTION	ORDER No.
CRD-5000	DIN rail mounting bracket	95ACC2790

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
Radial M8 Connector	4-pole, P.U.R.	2 m	CS-B1-02-R-02	95A251620
		5 m	CS-B1-02-R-05	95A251640
	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 Connector	5-pole, L coded power cable	3 m	CS-M1-02-B-03	95ACC0007
Axial M12 F/M8 M Connector	4-pole, double headed	3 m	CS-H1-02-B-03	95ACC0008
Axial M12 F/M12 M Connector	4-pole, double headed	3 m	CS-I1-02-B-03	95ACC0009

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SR21

2MM HIGH-RESOLUTION FORK SENSORS FOR LABELING AND PACKAGING

- 25 kHz high switching frequency
- IR or red/green light models
- Detection of labels (SR21-IR) or print register mark on transparent films (SR21-RG)
- 4 wire NPN and PNP output

APPLICATIONS

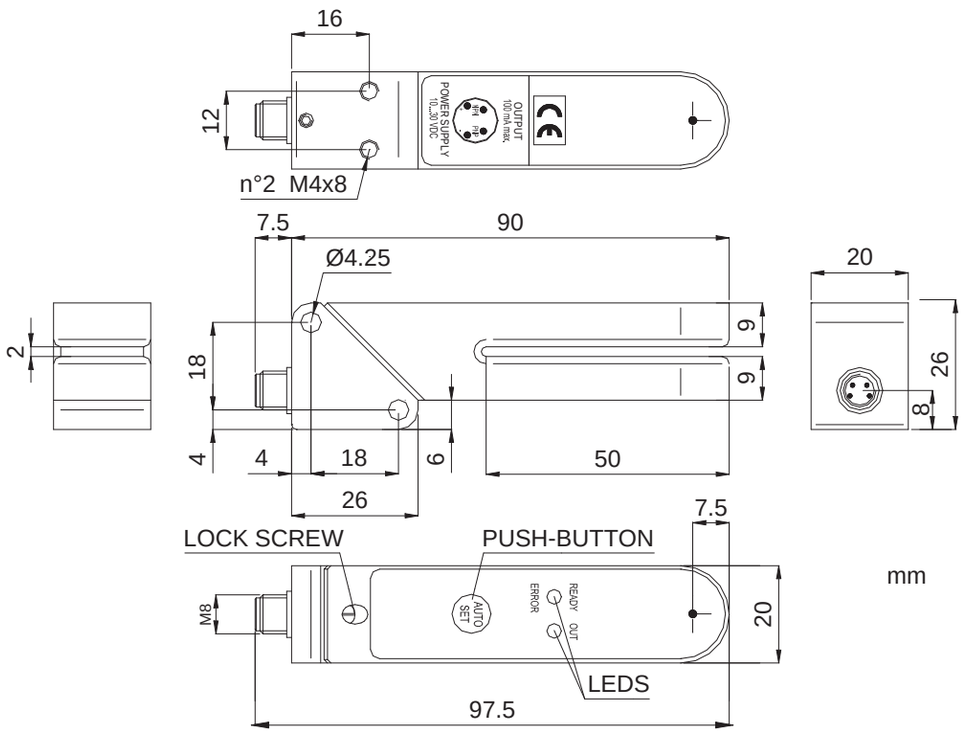
- Packaging and labeling machinery
- Print and apply systems

SR21		
Slot width		2 mm
Slot depth		50 mm
Switching frequency		25 kHz
Light emission		IR LED
		red/green LED
Setting		push button
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		20x90x26
Housing material		Zama
Mechanical protection		IP65

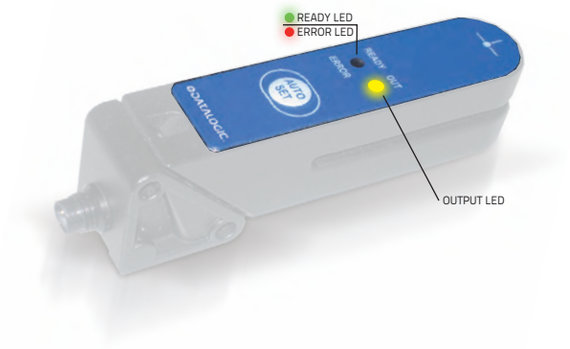
TECHNICAL DATA

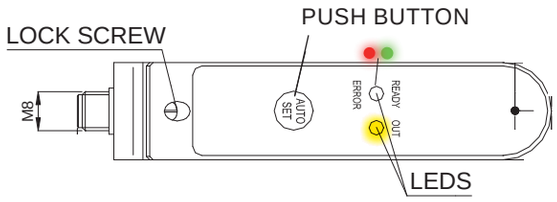
Power supply	10 ... 30 Vdc (limit values)
Ripple	2 Vpp max.
Consumption (output current excluded)	55 mA max.
Light emission	red LED 633 nm/green LED 570 nm
	IR LED 880 nm
Setting	AUTO-SET push-button
Operating mode	LIGHT/DARK configurable
Indicators	yellow OUTPUT LED
	green/red READY/ERROR LED
Output	PNP and NPN
Output current	100 mA max.
Saturation voltage	2 V max.
Response time	20 µs max.
Switching frequency	25 kHz max.
Connection	M8 4-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 1
Mechanical protection	IP65
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 shock for every axis (EN60068-2-27)
Slot width	2 mm
Resolution	0,5 mm
Housing material	ZAMA
Lens material	glass
Operating temperature	-20 ... 60 °C
Storage temperature	-20 ... 70 °C
Weight	115 g

DIMENSIONS



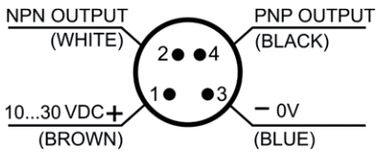
INDICATORS AND SETTINGS





CONNECTIONS

M8 CONNECTOR



MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	EMISSION	CONNECTION	OUTPUT	MODEL	ORDER No.
Fork sensor	Infrared LED	M8 Connector	PNP/NPN	SR21-IR	953151070
	Red/Green LED			SR21-RG	953151080

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

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SR23

HIGH EFFICIENCY FORK SENSOR FOR BOOKLET AND MULTILAYER LABELS DETECTION

- Multilayer labels detection
- Up to 0,5 mm of minimum size labels/gap
- 5 mm slot width
- 50 mm slot depth
- Dynamic or static setting through single push-button
- 12 kHz switching frequency
- Compact and robust housing, IP65
- M8 connector or 2 m cable models
- PNP or NPN models

APPLICATIONS

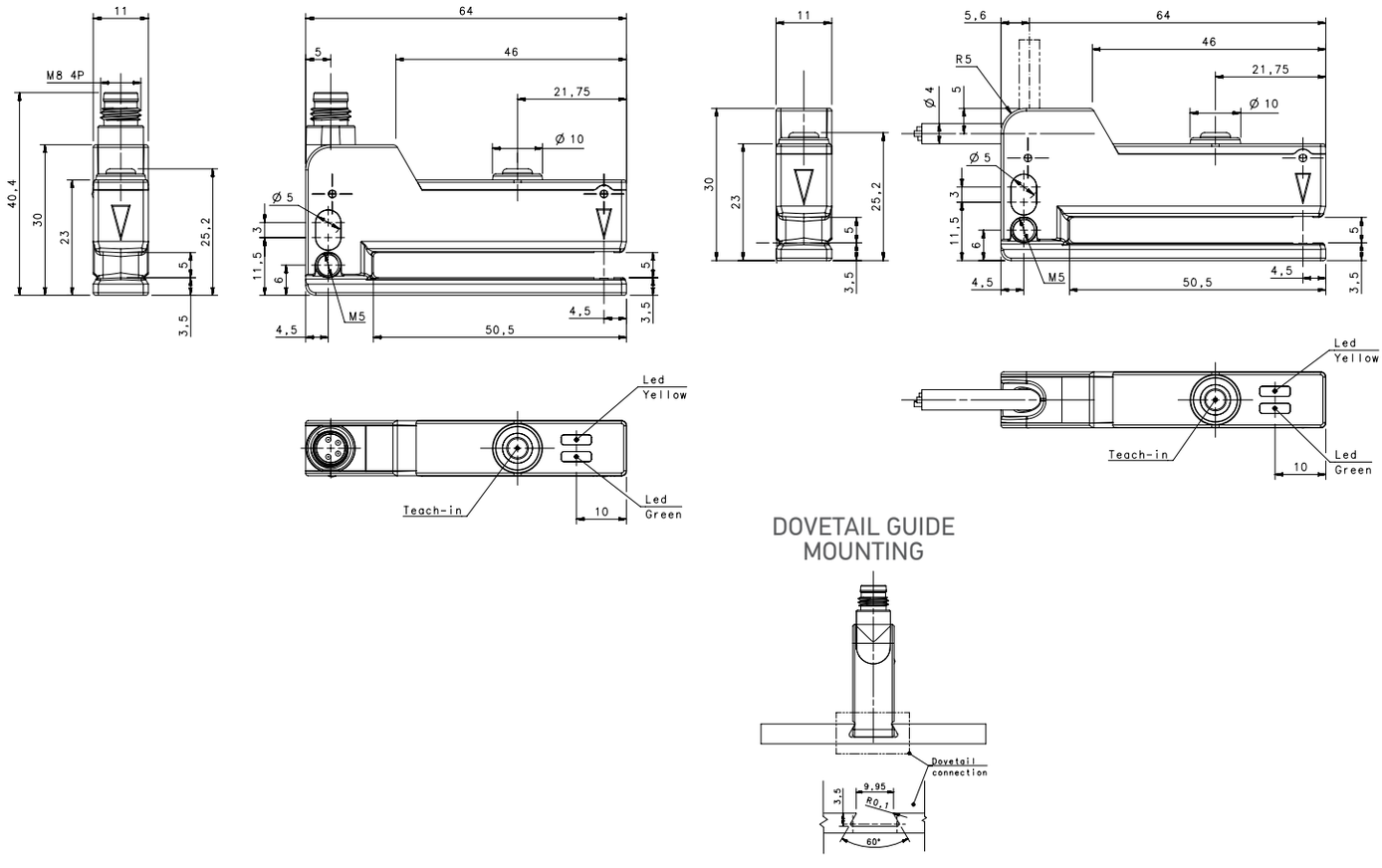
- Processing and Packaging machinery
- Automatic labelers

SR23		
Slot width		5 mm
Slot depth		50 mm
Switching frequency		12 kHz
Light emission		IR LED
Setting		push button
Power supply	Vdc	10...30 Vdc
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		30x63x10
Housing material		Alluminum (Zama), Plastic (PBT)
Mechanical protection		IP65

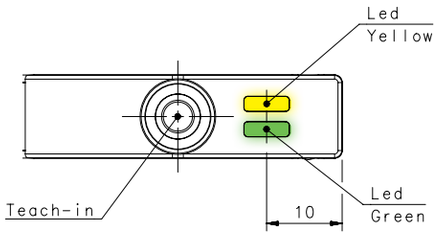
TECHNICAL DATA

Power supply	10 ... 30 Vdc (reverse polarity protection)
Ripple	2 Vpp max.
Consumption (output current excluded)	30 mA max.
Light emission	IR LED 850 nm
Setting	SET push-button
Indicators	yellow OUTPUT LED green READY LED
Output	PNP or NPN
Output current	100 mA max.
Saturation voltage	2 V max.
Slot width	5 mm
Slot depth	50 mm
Minimum label width	0,5...2 mm
Minimum space between labels	0,5...2 mm
Speed of the conveyor during setting procedure	20 m/min (30 cm/s) max.
Response time	40 µs max.
Switching frequency	12 kHz max.
Connection	M8 4-pole connector, 2 m cable
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	> 20 MΩ, 500 Vdc between electronics and housing
Mechanical protection	IP65
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 shock for every axis (EN60068-2-27)
Housing material	Aluminum (Zama)
Cover material	PBT
Lens material	PC
Operating temperature	-20 ... 55°C
Storage temperature	-20 ... 70°C
Weight	85 g cable vers., 46 g M8 conn. vers.

DIMENSIONS

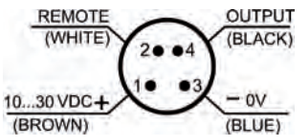


INDICATORS AND SETTINGS

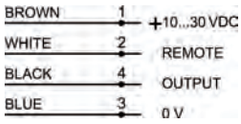


CONNECTIONS

M8 CONNECTOR



CABLE



MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	CONNECTION	OUTPUT	MODEL	ORDER No.
Fork Sensor	2m Cable	PNP	SR23-2-IR-PH	953161000
		NPN	SR23-2-IR-NH	953161020
	M8 Connector	PNP	SR23-5-IR-PH	953161010
		NPN	SR23-5-IR-NH	953161030

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

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SRF

ULTIMATE PRECISION USING LED OR LASER EMISSIONS FOR HIGH RESOLUTION

- Visible red emission models
- High resolution LASER models
- Sensitivity adjustment trimmer and dark/light selectors
- Industrial metal housing with glass lenses

APPLICATIONS

- Packaging and labeling machinery
- Automotive
- Packaging lines

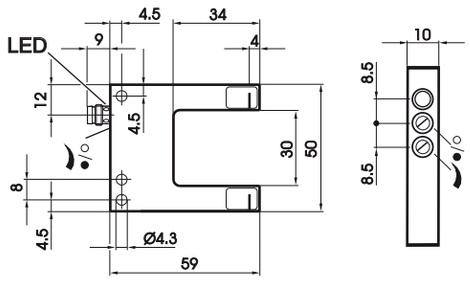
SRF-30/50/80/120		
Slot width		30 mm (SRF-30)
		50 mm (SRF-50)
		80 mm (SRF-80)
		120 mm (SRF-120)
Slot depth		34 mm (SRF-30)
		54 mm (SRF-50/80/120)
Switching frequency		1,5 kHz
		5 kHz (class 2 LASER)
Light emission		red LED
		red LASER (class 2)
Setting		trimmer
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		10x50x59 (SRF-30)
		10x70x79 (SRF-50)
		10x100x79 (SRF-80)
		10x140x84 (SRF-120)
Housing material		Aluminium
Mechanical protection		IP67

TECHNICAL DATA

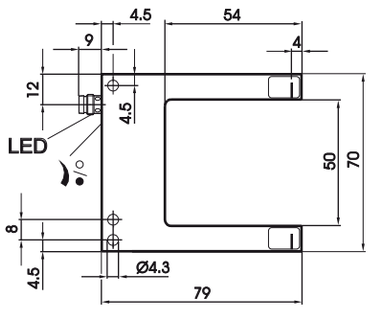
Power supply	10 ... 30 Vdc (reverse polarity protection)
Ripple	2 Vpp max.
Consumption (output current excluded)	35 mA max. 20 mA max. (Laser mod.)
Light emission	red LED 640 nm red Laser 650 nm
Setting	sensitivity trimmer and N.O./N.C. trimmer
Operating mode	LIGHT/DARK configurable
Indicators	yellow LED
Output	PNP or NPN; NO; NC
Output current	200 mA max.
Saturation voltage	3 V max. PNP, 2,5 V max. NPN
Response time	333 µs 100 µs (Laser mod.)
Switching frequency	1,5 kHz 5 kHz (Laser mod.)
Connection	M8 3-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 1
Mechanical protection	IP67
Ambient light rejection	5 kLux
Vibrations	0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Slot width	30, 50, 80, 120 mm
Resolution	0,3 mm (mod. SRF...30), 0,5 mm (mod. SRF...50/80), 0,8 mm (mod. SRF...120) 0,05 mm (Laser mod. SRF...30), 0,08 mm (Laser mod. SRF...50), 0,1 mm (Laser mod. SRF...80), 0,15 mm (Laser mod. SRF...120)
Housing material	GDZn
Lens material	glass
Operating temperature	-10 ... 60 °C
Storage temperature	-20 ... 70 °C
Weight	36 g (mod. SRF...30), 54 g (mod. SRF...50), 77 g (mod. SRF...80), 118 g (mod. SRF...120) 66 g (Laser mod. SRF...30), 110 g (Laser mod. SRF...50), 135 g (Laser mod. SRF...80), 210 g (Laser mod . SRF...120)

DIMENSIONS

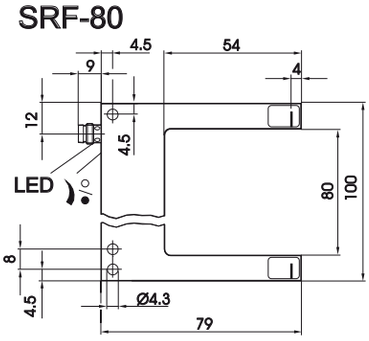
SRF-30



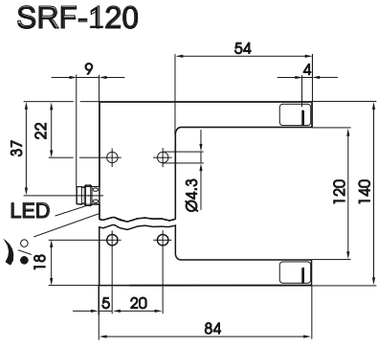
SRF-50



SRF-80

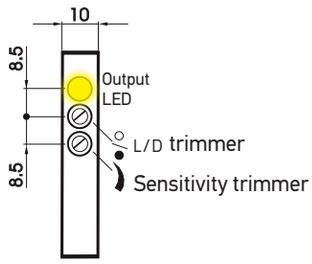


SRF-120



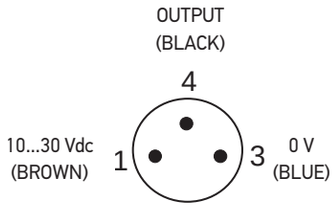
INDICATORS AND SETTINGS

ALL MODELS



CONNECTIONS

M8 CONNECTOR



MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	EMISSION	CONNECTION	OUTPUT	MODEL	ORDER No.
Fork sensor (30 mm)	Red LED	M8 Connector	PNP	SRF-30-5-P	95B020050
			NPN	SRF-30-5-N	95B020090
	LASER		PNP	SRF-L-30-5-P	95B020130
Fork sensor (50 mm)	Red LED	M8 Connector	PNP	SRF-50-5-P	95B020060
			NPN	SRF-50-5-N	95B020100
	LASER		PNP	SRF-L-50-5-P	95B020140
Fork sensor (80 mm)	Red LED	M8 Connector	PNP	SRF-80-5-P	95B020070
			NPN	SRF-80-5-N	95B020110
	LASER		PNP	SRF-L-80-5-P	95B020150
Fork sensor (120 mm)	Red LED	M8 Connector	PNP	SRF-120-5-P	95B020080
			NPN	SRF-120-5-N	95B020120
	LASER		PNP	SRF-L-120-5-P	95B020160

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M8 connector	3-pole, Grey, P.V.C.	3 m	CS -B1-01-G-03	95A251490
		5 m	CS -B1-01-G-05	95A251510
Radial M8 connector		3 m	CS -B2-01-G-03	95A251500
		5 m	CS -B2-01-G-05	95A251520

Rev. 03, 04/2019

SRX3

HIGH PERFORMANCE ULTRASONIC FORK SENSORS FOR TRANSPARENT LABEL DETECTION

- Dynamic or static teach models
- Slot size 3mm
- High resolution up to 2 mm label gap
- M8 connector with PNP or NPN output
- M12 connector with PNP/NPN output and external teach-in
- Rugged and sturdy aluminium housing

APPLICATIONS

- Detection of transparent, opaque, or metallic ink labels
- Double sheet detection
- Adhesive surface detection

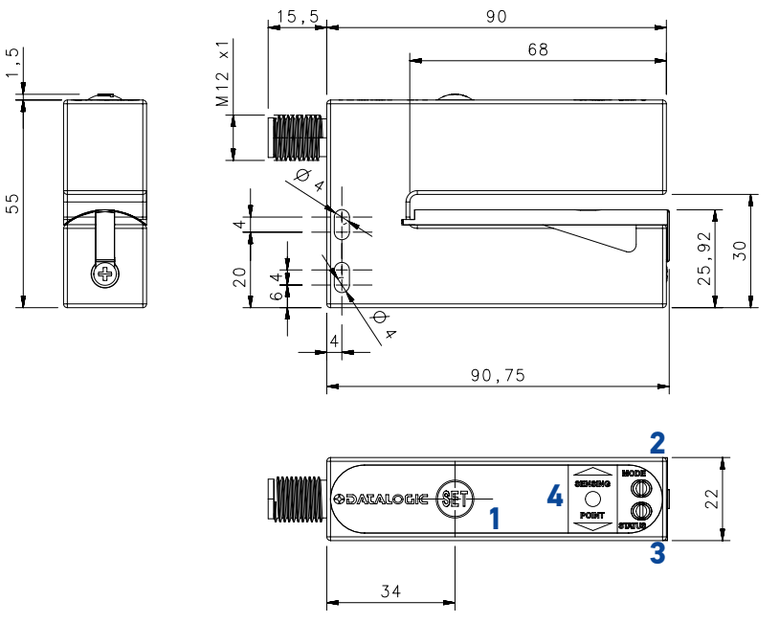
SRX3		
Slot width		3 mm
Slot depth		68 mm
Switching frequency		500 hz
Emission type		Ultrasonic 300 Khz
Setting		300 mm
Power supply	Vdc	12...30 Vdc ●
Output	PNP	●
	NPN	●
Connection	Connector	M12 5-pin
	Connector	M8 4-pin
Approximate dimensions (mm)		90 x 55 x 22
Housing material		Aluminium
Mechanical protection		IP54

TECHNICAL DATA

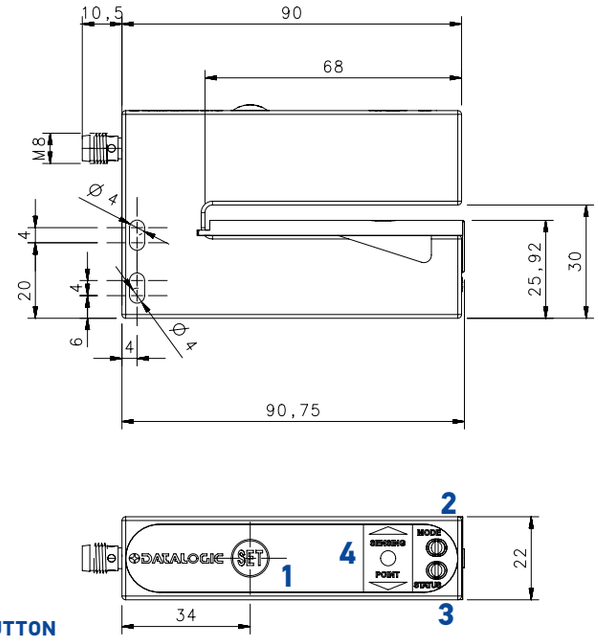
SPECIFICATION	
Minimum pulse time	1ms
Detectable size	> 2mm
Max. tape speed	60m/min
Tape size	> 16mm
Ultrasonic frequency	300 Khz
ELECTRICAL DATA	
Power supply	12...30 Vdc
Current consumption	< 55mA
Ripple	10%
Output current	250 mA max.
Output saturation voltage	< 1,5V @ 100mA
Rising time	0,8 us max
Falling time	1,6 us max
Power On delay	325 ms
Response time	1ms
Switching frequency	500 hz
Output	PNP / NPN
MECHANICAL DATA	
Connection	M12 5 pin
Operating temperature	0 °C ... +50 °C
Storage temperature	-25 °C ... +75 °C
Humidity	35...85% rH non condensing
Vibration	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	Aluminium
Protection class	IP54
Weight	300g

DIMENSIONS

M12 CONNECTOR



M8 CONNECTOR



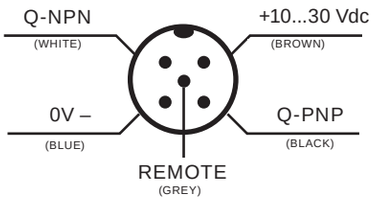
1 - TEACH-IN PUSH BUTTON
2 - MODE LED
3 - STATUS LED
4 – SENSING POINT REFERENCE

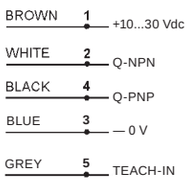
INDICATORS AND SETTINGS

1 - TEACH-IN PUSH BUTTON
2 - MODE LED
3 - STATUS LED (OUTPUT LED)
4 – SENSING POINT REFERENCE

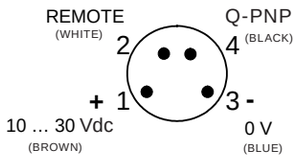
CONNECTIONS

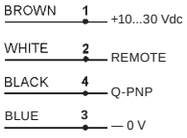
M12 CONNECTOR – 5 PIN

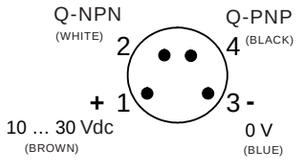


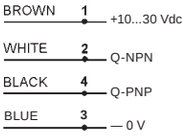


M8 CONNECTOR –8 PIN









MODEL SELECTION AND ORDER INFORMATION

ADJUSTMENT	OUTPUT	CONNECTION	MODEL	ORDER No.
Dynamic Teach-in	PNP/NPN +EXT	M12 5 pin	SRX3-5-US-M12-PNH	953171000
Static Teach-in	PNP/NPN +EXT	M12 5 pin	SRX3-5-US-3-M12-PNH	953171010
Dynamic Teach-in	PNP+EXT	M8 4 pin	SRX3-6-US-M8-PH	953171020
Static Teach-in	PNP+EXT	M8 4 pin	SRX3-6-US-3-M8-PH	953171030
Dynamic Teach-in	PNP/NPN	M8 4 pin	SRX3-6-US-M8-PN	953171040
Static Teach-in	PNP/NPN	M8 4 pin	SRX3-6-US-3-M8-PN	953171050

CABLES

TYPE	No. Of POLES	SHEAT	LENGTH	DESCRIPTION	ORDER No.
Female M12 Connector (Axial)	5-poles	Grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
			5 m	CS-A1-03-G-05	95ACC2120
			10 m	CS-A1-03-G-10	95ACC2140
		Black, P.V.C. UL	3	CS-A1-03-U-03	95ASE1170
			5	CS-A1-03-U-05	95ASE1180
			10	CS-A1-03-U-10	95ASE1190
M8 Connector (Axial)	4-poles	Grey, P.V.C.	3 m	CS-B-1-02-G-03	95A251420
			5 m	CS-B-1-02-G-05	95A251430
			7 m	CS-B-1-02-G-07	95A251440
			10 m	CS-B-1-02-G-10	95A251480
		P.U.R.	2 m	CS-B-1-02-R-02	95A251500
			5 m	CS-B-1-02-R-05	95A251520
M8 Connector (radial 90°)	4-poles	Grey, P.V.C.	3 m	CS-B2-02-G-03	95A251450
			5 m	CS-B2-02-G-05	95A251480
			7 m	CS-B2-02-G-07	95A251470
		P.U.R.	5 m	CS-B2-02-R-05	95ACC2110

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TLμ

ALL REGISTRATION MARK DETECTION APPLICATIONS

- Teach-in, Remote settings
- Red/green or white LED emission
- Various interchangeable lenses and fiber-optic models
- Metal housing with orientable optics and connector

APPLICATIONS

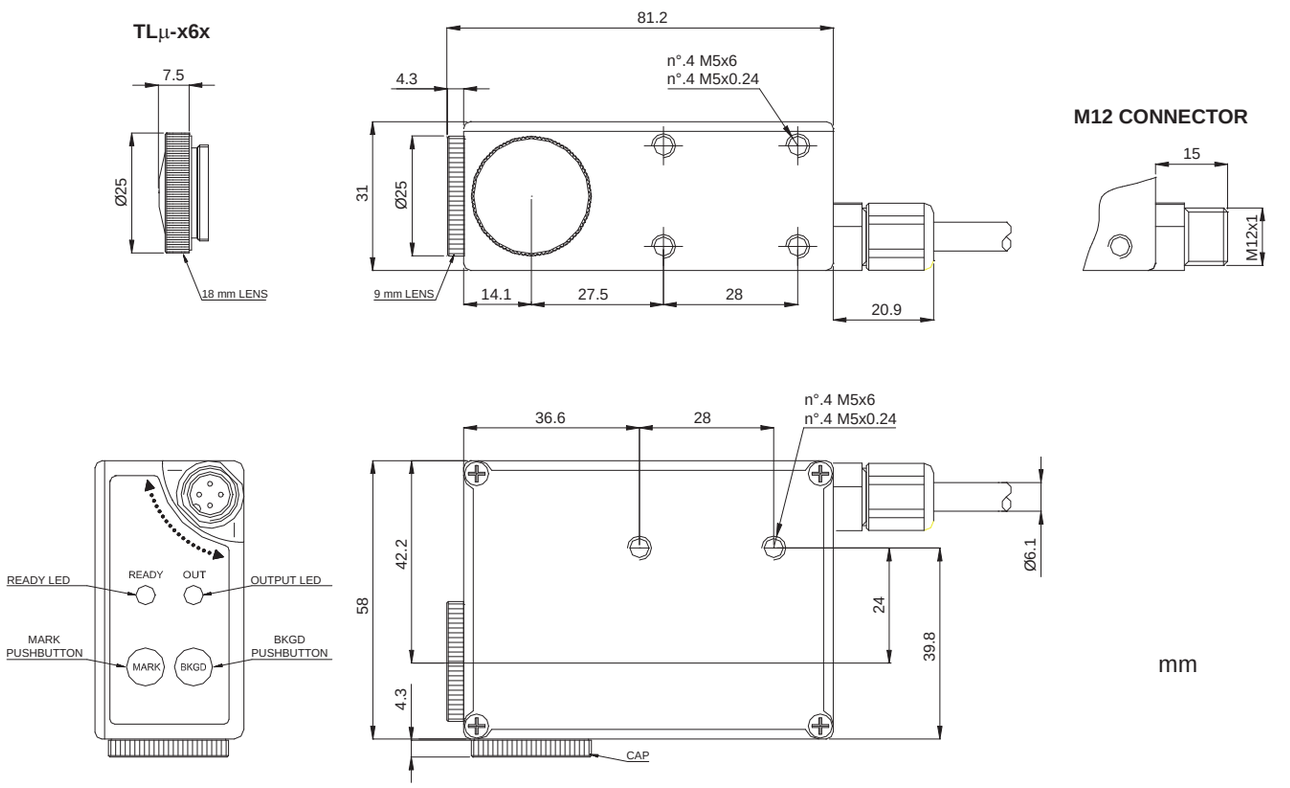
- Packaging and labeling machinery
- Beverage/Food/Cosmetic/Pharmaceutical industries
- Printing machinery

TLμ		
Contrast sensor		6...12 mm (9 mm lens)
		14...22 mm (18 mm lens)
		22...34 mm (28 mm lens)
		40...60 mm (50 mm lens)
Contrast sensor with fiber optic		0...3 mm (proximity)
		0...10 mm (through beam)
Switching frequency		10 kHz
		20 kHz
Light emission		red/green LED
		white LED
Setting		push buttons
		remote
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	0...5 V Analog Output
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		31x81x58
Housing material		Zama
Mechanical protection		IP67

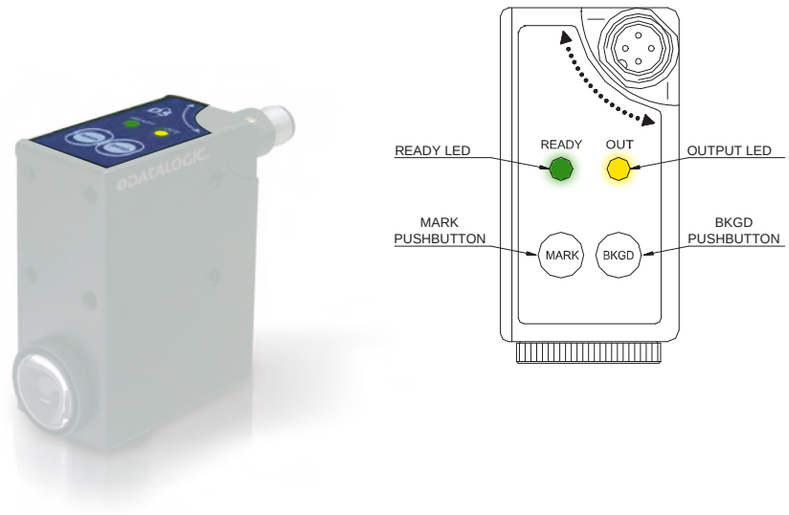
TECHNICAL DATA

Power supply	10 ... 30 Vdc (limit values; reverse polarity protection)
Ripple	2 Vpp max.
Consumption (output current excluded)	80 mA max.
Light emission	green LED 526 nm/red LED 630 nm (mod. TLμ-0/1xx) white LED 400-700 nm (mod. TLμ-4/5xx)
Setting	teach-in push-buttons/remote by 2 wires, 4 settings storage cable version
Operating mode	Light/Dark automatic setting with teach-in procedure
Indicators	red OUTPUT LED green READY LED
Output	PNP or NPN; analog output
Output current	200 mA max.
Saturation voltage	1 V max. NPN vers., 2 V max. PNP vers.
Response time	50 μs max. (mod. TLμ-4xx) 25 μs max. (mod. TLμ-5xx)
Switching frequency	10 kHz max. (mod. TLμ-4xx) 20 kHz max. (mod. TLμ-5xx)
Connection	3 m shielded cable Ø 6.1 mm, M12 4-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 1
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Minimum spot dimension	1,5 x 5 mm (TLμ-x1x), 2 x 7 mm (TLμ-x6x), Ø 3 mm (TLμ-4xx/5xx)
Depth of field	± 3 mm (TLμ-x1x/4xx/5xx) / ± 4 mm (TLμ-x6x)
Housing material	ZAMA
Lens material	glass
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Weight	450 g max. cable vers., 310 g max. connector vers.

DIMENSIONS

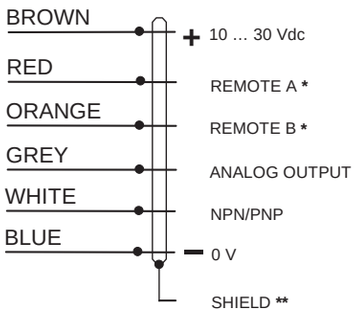


INDICATORS AND SETTINGS



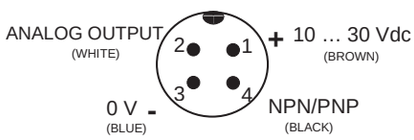
CONNECTIONS

CABLE

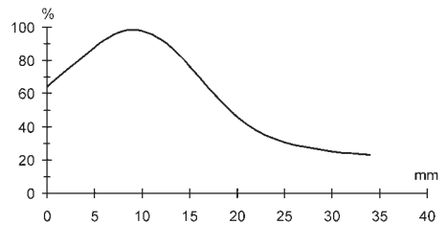


* = Connect the unused REMOTE wires to 0 V.
** = The cable shield is insulated from the sensor housing; it is recommended to connect the shield to 0 V.

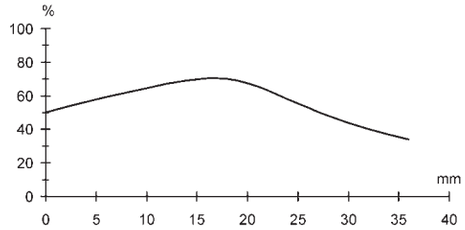
M12 CONNECTOR



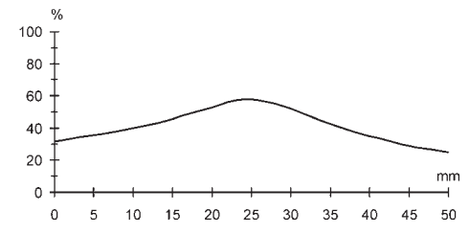
DETECTION DIAGRAMS



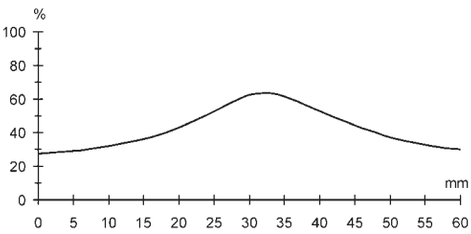
9 mm lens



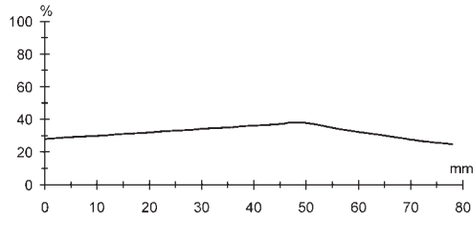
18 mm lens



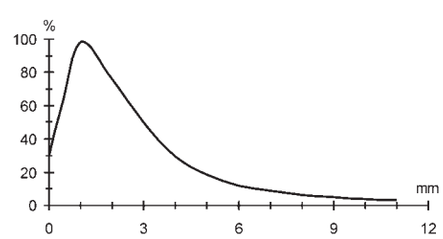
22 mm lens



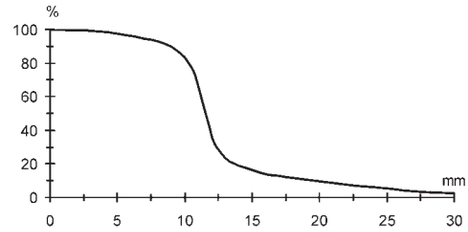
28 mm lens



50 mm lens



Proximity fiber-optics



Through beam fiber-optics

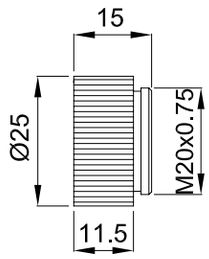
The detection diagrams indicate the typical operating distance.

MODEL SELECTION AND ORDER INFORMATION

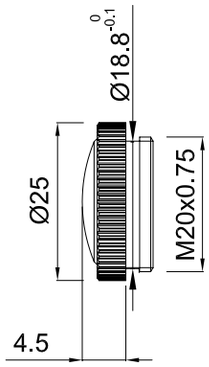
OPTIC FUNCTION	EMISSION	OPTICS	CONNECTION	OUTPUT	MODEL	ORDER No.
Contrast sensor	Red/Green (Vertical spot)	9 mm	3m Cable	NPN	TLμ-011	964401000
				PNP	TLμ-111	964401080
			M12 Connector	NPN	TLμ-015	964401020
				PNP	TLμ-115	964401100
	Red/Green (Horizontal spot)		3m Cable	NPN	TLμ-011L	964401010
				PNP	TLμ-111L	964401090
			M12 Connector	NPN	TLμ-015L	964401030
				PNP	TLμ-115L	964401110
	Red/Green (Vertical spot)	18 mm	M12 Connector	NPN	TLμ-065	964401060
				PNP	TLμ-165	964401140
	White (Circular spot)	9 mm	M12 Connector	NPN	TLμ-415C	954151330
				PNP	TLμ-515C	954151360
			3m Cable	NPN	TLμ-411C	954151410
				PNP	TLμ-511C	954151420
Fiber optic contrast sensor	White	Fiber optics	M12 Connector	PNP	TLμ-545	954151380
				NPN	TLμ-445	954151350

ACCESSORIES

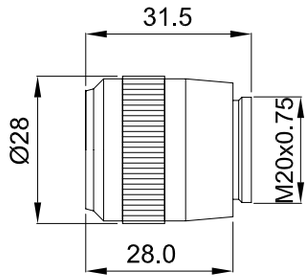
HI-RES LENS



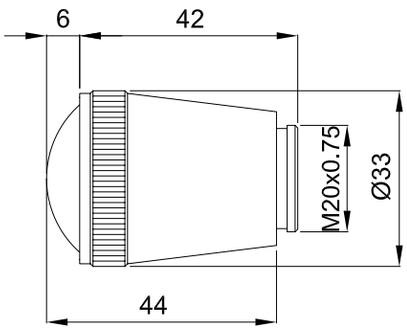
18 mm LENS



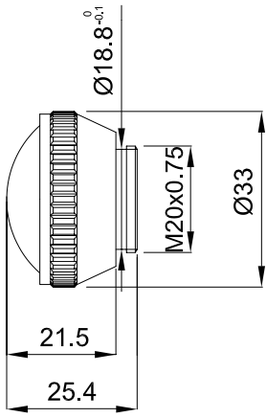
22 mm LENS



28 mm LENS



40 mm LENS



MODEL	DESCRIPTION	ORDER No.
Lens Hi-Res	additional focussing glass lens with 9 mm focus (*)	95ACC1050
Lens No.18	glass lens with 18 mm focus	95ACC2680
Lens No.22	glass lens with 22 mm focus	95ACC1100
Lens No.28	glass lens with 28 mm focus	890000194
Lens No.40	glass lens with 40 mm focus	95ACC2740
Lens No.50	glass lens with 50 mm focus	S73030511
OF -30-5	plastic fiber-optic L 50 cm - point-shaped spot proximity	96B001070
OF -31-10	glass fiber-optic L 100 cm - point-shaped spot proximity	96B201000
OF -32-10	glass fiber-optic L 100 cm - rectangular spot proximity	96B211000
OF -33-10	glass fiber-optic L 100 cm - through beam	96B221000
OF -34-10	glass fiber-optic L 100 cm - horizontal spot 90° proximity	96B231000
OF -35-10	glass fiber-optic L 100 cm - vertical spot 90° proximity	96B24100

* focussing lens to screw between the sensor and the normal 9 mm lens

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		7 m	CS-A1-02-G-07	95A251280
		10 m	CS-A1-02-G-10	95A251390
	4-pole, P.U.R.	2 m	CS-A1-02-R-02	95A251540
		5 m	CS-A1-02-R-05	95A251560
Radial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A2-02-G-03	95A251360
		5 m	CS-A2-02-G-05	95A251240
		7 m	CS-A2-02-G-07	95A251245
		10 m	CS-A2-02-G-10	95A251260
	4-pole, P.U.R.	2 m	CS-A2-02-R-02	95A251550
		5 m	CS-A2-02-R-05	95A251570
Axial M12 Connector	4-pole, shielded, black, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
		5 m	CV-A1-22-B-05	95ACC1490
		10 m	CV-A1-22-B-10	95ACC1500
		15 m	CV-A1-22-B-15	95ACC2070
		25 m	CV-A1-22-B-25	95ACC2090
Radial M12 Connector		3 m	CV-A2-22-B-03	95ACC1540
		5 m	CV-A2-22-B-05	95ACC1550
		10 m	CV-A2-22-B-10	95ACC1560
Axial M12 Connector	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	4-pole, black	Connector- not cabled	CS-A1-02-B-NC	G5085002
Radial M12 Connector		Connector- not cabled	CS-A2-02-B-NC	G5085003

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TL46

(*) ATEX II 3DG

HIGH PERFORMANCE CONTRAST SENSOR FOR COLORED REGISTRATION MARK DETECTION

- Fastest and accurate low jitter model (TL46-WJ)
- Color mode enhanced model (TL46-WE)
- Wide-spectrum RGB or white LED emission
- 5 different models: basic, standard, enhanced, low jitter, color mode
- Automatic, manual and dynamic settings
- 10, 15, 20, 30 or 50 kHz switching frequencies
- Very low jitter down to 7µs (TL46-WJ...)
- NPN/PNP and analog outputs
- Standard mounting, M12 connector rotatable to 5 positions

APPLICATIONS

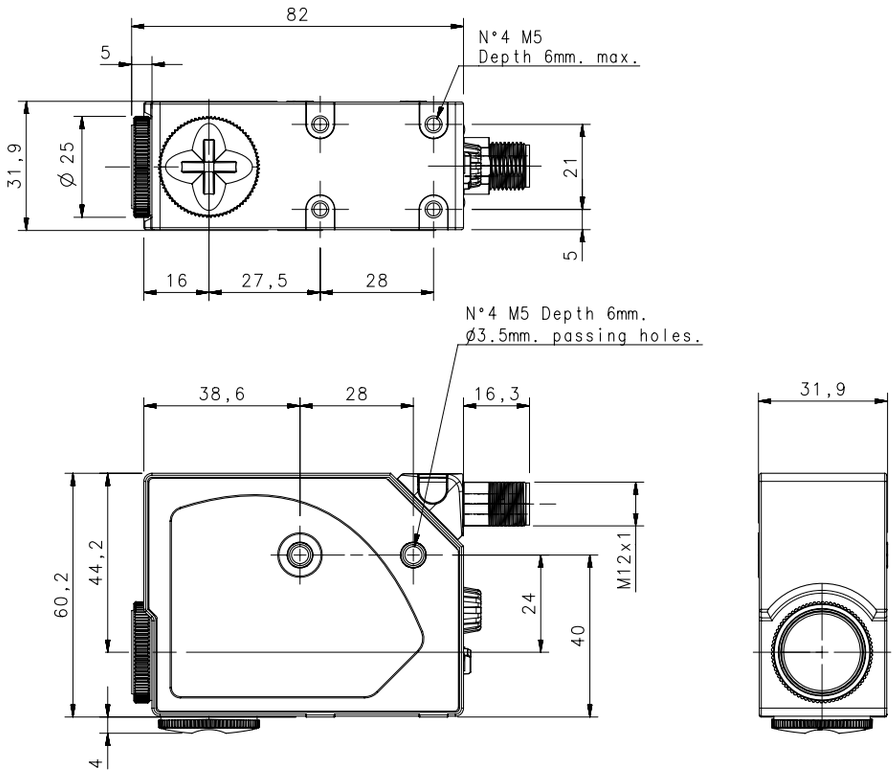
- Packaging and labeling machinery
- Beverage/Food/Cosmetic/Pharmaceutical industries
- Printing machinery
- Flexographic printing machinery

TL46		
Contrast sensor		9 ±3 mm
		18 mm (Lens No.18 glass)
		22 mm (Lens No.22 glass)
		28 mm (Lens No.28 glass)
		40 mm (Lens No.40 glass)
Switching frequency		10 kHz (mod. TL46-WE color mode)
		15 kHz (mod. TL46-W)
		20 kHz (mod. TL46-A/WL)
		30 kHZ (mod. TL46-WLF/WE contrast mode)
		50 kHZ (mod. TL46-WJ)
Jitter		< 7µs (mod. TL46-WJ)
		16µs (mod. TL46-WLF/WE contrast mode)
		>25µs (mod. TL46-W/WL)
Light emission		RGB LED
		white LED
		Red LED
Setting		push buttons
		trimmer
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	•
	relay	
	other	0...5 V Analog Output
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		31x81x58
Housing material		Aluminium
Mechanical protection		IP67

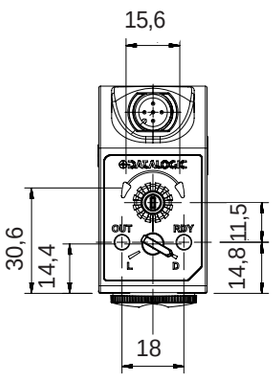
TECHNICAL DATA

Power supply	10 ... 30 Vdc (limit values)
Ripple	2 Vpp max.
Consumption (output current excluded)	40 mA max. at 24 Vdc (mod. TL46-A) 50 mA max. at 24 Vdc (mod. TL46-W/WJ) 85 mA max. at 24 Vdc 24 Vdc with bargraph ON in threshold adjustment mode, 55 mA max at 24 Vdc with bargraph OFF in normal functioning mode (mod. TL46-WL) 35 mA max. at 24 Vdc (mod. TL46-WLF/WE)
Light emission	white LED 400-700 nm (mod. TL46-A-4xx) red LED 630 nm (mod. TL46-A-6xx) blu LED 465nm/green LED 520 nm/red LED 630 nm (mod. TL46-W/WL/WLF/WE/WJ)
Detection Distance	9 ±3 mm 18 mm (Lens No.18 glass) 22 mm (Lens No.22 glass) 28 mm (Lens No.28 glass) 40 mm (Lens No.40 glass)
Minimum spot dimension	1,5 x 5 mm 0,8x4mm (TL46-WJ)
Depth of field	± 3 mm
Response time	100 µs (mod. TL46-WE color mode) 33 µs (mod. TL46-W) 25 µs (mod. TL46-A/WL) 16 µs (mod. TL46-WLF/WE contrast mode) 10 µs (mod. TL46-WJ)
Switching frequency	10 kHz (mod. TL46-WE color mode) 15 kHz (mod. TL46-W) 20 kHz (mod. TL46-A/WL) 30 kHz (mod. TL46-WLF/WE contrast mode) 50 kHz (mod. TL46-WJ)
Jitter	< 7µs (TL46-WJ) 16µs (TL46-WLF/WE contrast mode) >25µs (TL46-W/WL)
Setting	SET push-buttons (mod. TL46-W/WL/WLF/WE) sensivity trimmer (mod. TL46-A)
Operating mode	DARK/LIGHT selection by switch (mod. TL46-A) automatic DARK/LIGHT selection (mod. TL46-W/WL/WJ) automatic DARK/LIGHT selection in the target/background detection, selectable via wire in the dynamic detection (mod. TL46-WLF/WE)
Indicators	yellow OUTPUT LED green READY LED, orange DELAY LED and KEYLOCK (Mod TL46-W/WJ) green READY LED, 4-digit display/DELAY LED/KEYLOCK LED (mod. TL46-WLF/WE) orange ARROWS (mod. TL46-A), DELAY LED and KEYLOCK LED 5-segment bargraph (mod. TL46-WL)
Dark/light selection	Switch Automatic Automatic/manual; remote/dynamic
Delay	0...20ms selectable via delay input 0...100ms programmed
Auxiliary function	Keylock (not available on TL46-WE) Fine Hysteresis regulation (TL46-WL/WLF/WE)
Output	PNP (mod. TL46-WJ); PNP or NPN; PNP/NPN (mod. TL46-W/WL/WLF/WE by part number); analog output (mod. TL46-A/W/WL)
Output current	100mA
Saturaton Voltage	=<2V
Analogue Out	0,5...5,5V ±10%; 2V on white target 90% 1...3V ±10%(white 90%) ; 5,5V max
Analogue out impedance	2,2 kΩ (short circuit protection)
Connection	M12 5-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2, double insulation
Protection device	Reverse polarity protection, overload and short circuit protection
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Housing material	aluminium
Lens material	mirror (mod. TL46-A), glass (mod. TL46-W/WL/WLF/WJ/WE)
Operating temperature	-10 ... 55 °C
Storage temperature	'-20 ... 70 °C
Weight	170 g max.

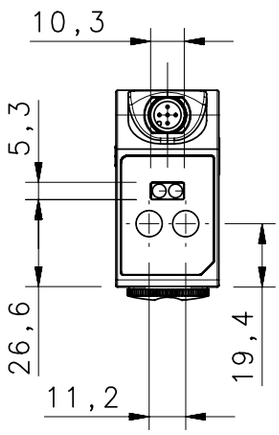
DIMENSIONS



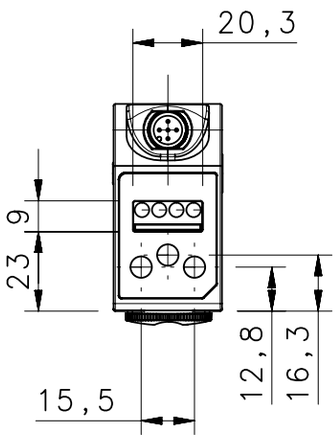
TL46-A



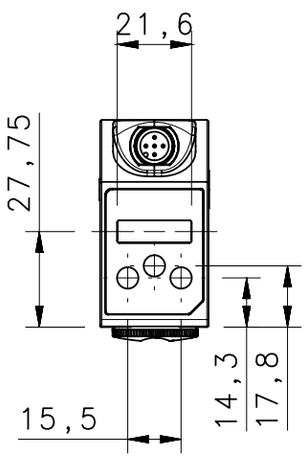
TL46-W/TL46-WJ



TL46-WL

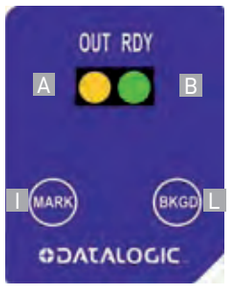


TL46-WLF/WE



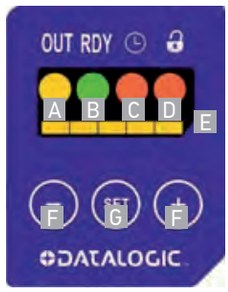
INDICATORS AND SETTINGS

TL46-A TRIMMER

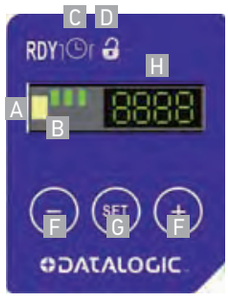


TL46-W BASE

TL46-WJ LOW JITTER



TL46-WL STANDARD



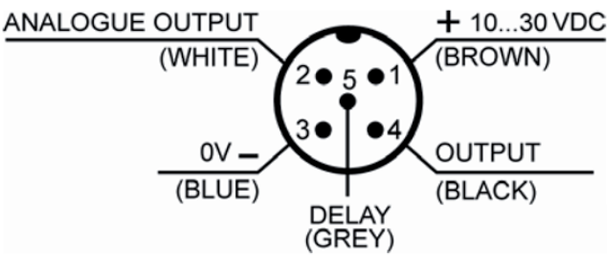
TL46-WLF ENHANCED

TL46-WE COLOR ENHANCED

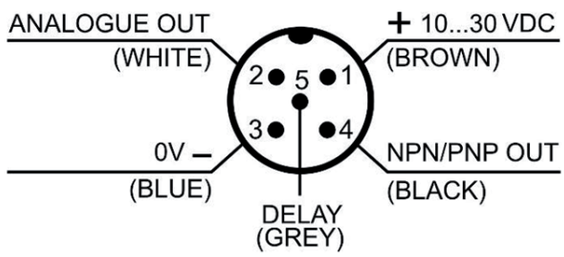
- A yellow OUTPUT LED
- B green READY LED
- C orange DELAY LED
- E orange KEYLOCK LED
- D Bargraph
- F +/- push-buttons
- G SET push-button
- H Display
- I MARK push-button
- L BKGD push-button
- M Light/Dark Switch
- N Orange Indicators Arrows
- O Sensitivity Adjustment Knob

CONNECTIONS

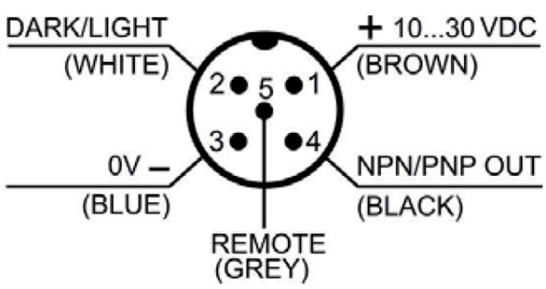
TL46-A



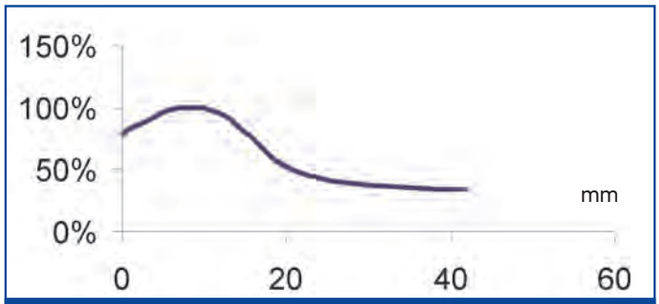
TL46-W/WL



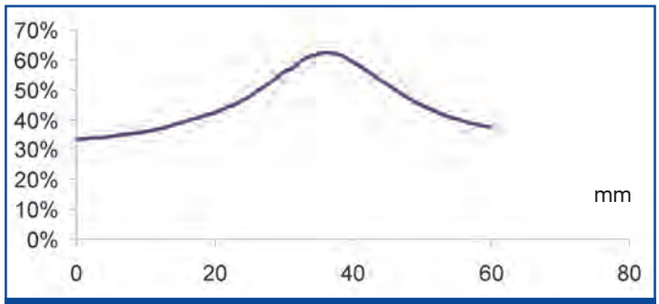
TL46-WLF/WE/WJ



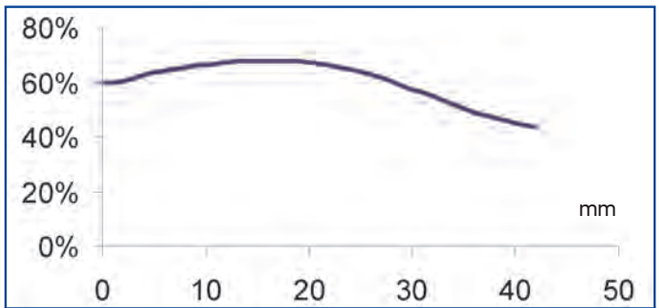
READING DIAGRAMS



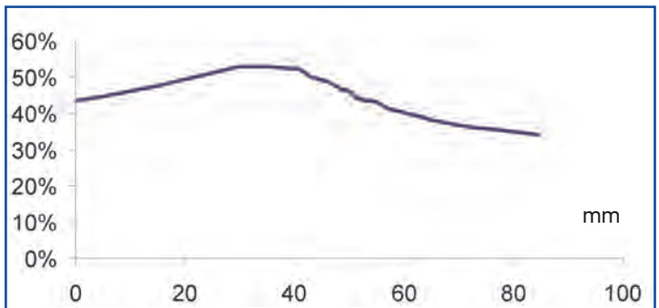
Standard 9 mm lens
(1.5 x 5 mm spot on focal point)



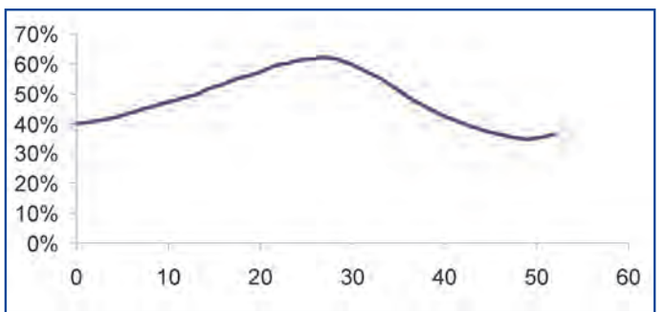
Accessory 28 mm lens
(2 x 9 mm spot on focal point)



Accessory 18 mm lens
(2 x 7 mm spot on focal point)



Accessory 40 mm lens
(2.5 x 11 mm spot on focal point)



Accessory 22 mm lens
(2 x 8 mm spot on focal point)

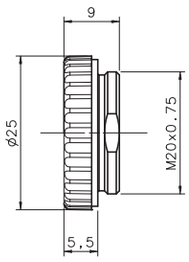
Horizontal spot is present in the TL46 models with final '-L' suffix

MODEL SELECTION AND ORDER INFORMATION

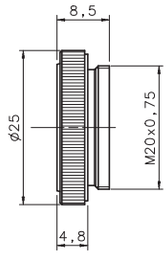
OPTIC FUNCTION	SETTING & INDICATORS	OUTPUT	EMISSION	MODEL	ORDER No.
Contrast sensor	Trimmer 2 LEDs	PNP	WHITE vertical spot	TL46-A-415	954601070
		NPN	WHITE vertical spot	TL46-A-425	954601080
		PNP	RED vertical spot	TL46-A-615	954601090
		NPN	RED vertical spot	TL46-A-625	954601100
	Push-buttons 2 LEDs	PNP/NPN	R.G.B. vertical spot	TL46-W-815	954601000
			R.G.B. horizontal spot	TL46-W-815L	954601010
	Push buttons 4 LEDs bargraph		R.G.B. vertical spot	TL46-WL-815	954601020
			R.G.B. horizontal spot	TL46-WL-815L	954601030
	Push buttons 4 LEDs display		R.G.B. vertical spot	TL46-WLF-815	954601040
			R.G.B. horizontal spot	TL46-WLF-815L	954601050
Contrast low jitter sensor		PNP	R.G.B. vertical spot	TL46-WJ-815	954601110
			R.G.B. horizontal spot	TL46-WJ-815L	954601120
Color contrast sensor			R.G.B. vertical spot	TL46-WE-815	954601130
		NPN	R.G.B. vertical spot	TL46-WE-825	954601140

ACCESSORIES

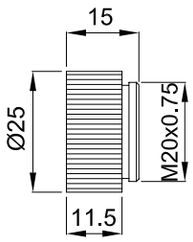
9 mm PMMA



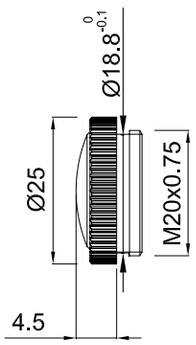
9 mm



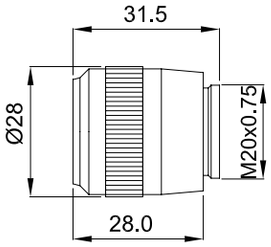
HI-RES LENS



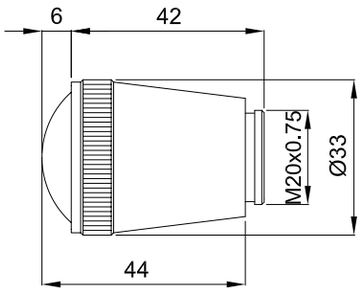
18 mm LENS



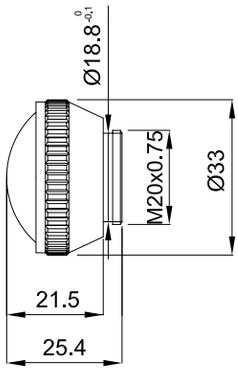
22 mm LENS



28 mm LENS



40 mm LENS



MODEL	DESCRIPTION	ORDER No.
Lens No.9	glass lens with 9 mm focus	95ACC2670
Lens No.9 PMMA	plastic lens with 9 mm focus	95ACC2540
Lens Hi-Res	additional focussing glass lens with 9 mm focus (*)	95ACC1050
Lens No.18	glass lens with 18 mm focus	95ACC2680
Lens No.22	glass lens with 22 mm focus	95ACC1100
Lens No.28	glass lens with 28 mm focus	890000194
Lens No.40	glass lens with 40 mm focus	95ACC2740

* focussing lens to screw between the sensor and the normal 9 mm lens

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190
		15 m	CS-A1-03-U-15	95ASE1200
		25 m	CS-A1-03-U-25	95ASE1210
		50 m	CS-A1-03-U-50	95A252700

LD46

LUMINESCENCE SENSOR LINE IN STANDARD METAL HOUSING

- UV high power LED emission
- High sensitivity on fluorescent marks
- 10 - 50 mm detection distance
- 2 kHz switching frequency
- NPN/PNP and 0-5 V analog outputs

APPLICATIONS

- Packaging and labeling machinery
- Food, Cosmetic and Pharmaceutical
- Ceramic tiles selection and sorting

(*) ATEX II 3DG

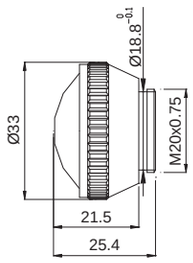
LD46		
Luminescence sensor		10...20 mm (LD46-UL-715)
		20...40 mm (LD46-UL-755)
		30...50 mm (LD46-UL-735)
Spot dimension		2x8 mm at 10 mm
		3x11 mm at 24 mm
		4x15 mm at 50 mm
Switching frequency		2 kHz
Response Time		250 µs
Light emission		UV-HP LED
Setting		push buttons
Power supply	Vdc	15...30 V
	Vac	
	Vac/dc	
Output	PNP	
	NPN	
	NPN/PNP	•
	relay	
	other	0...5 V Analog output
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		31x81x58
Housing material		aluminium
Mechanical protection		IP67

TECHNICAL DATA

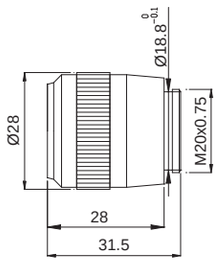
Power supply	15 ... 30 Vdc (limit values)
Ripple	2 Vpp max.
Consumption (output current excluded)	50 mA max. at 24 Vdc
Light emission	UV LED 375 nm
Setting	SET push-buttons
Indicators	yellow OUTPUT LED green READY LED orange DELAY LED and KEYLOCK LED 5-segment bargraph
Output	PNP/NPN; analog output
Output current	100 mA max.
Saturation voltage	2 V max.
Response time	250 µs
Switching frequency	2 kHz
Connection	M12 5-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2, double insulation
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Minimum spot dimension	2 x 8 mm at 10 mm (mod. LD46-UL-715) 3x11 mm at 24 mm (mod. LD46-UL-755) 4x15 mm at 50 mm (mod. LD46-UL-735)
Housing material	aluminium
Lens material	glass
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Weight	180 g max.

DIMENSIONS

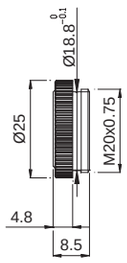
LD46-UL-735 (40mm LENS)

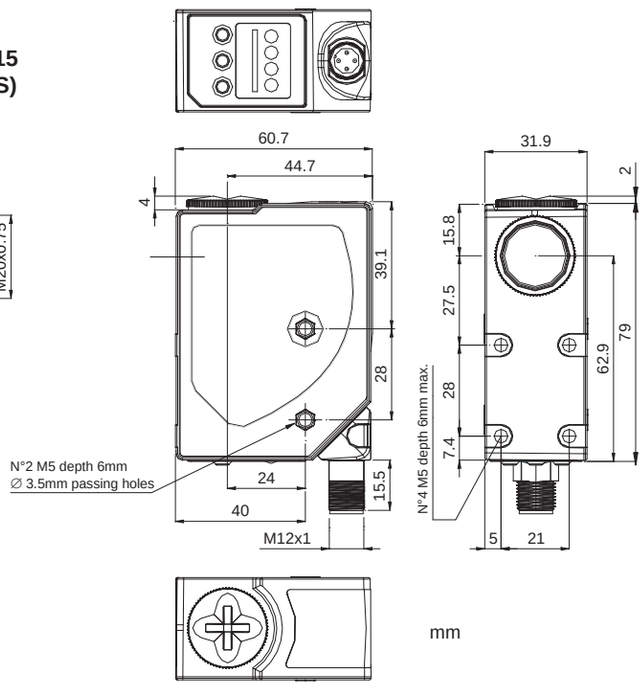


LD46-UL-755 (22mm LENS)

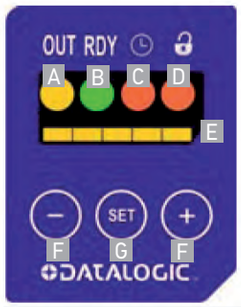


LD46-UL-715 (9mm LENS)





INDICATORS AND SETTINGS

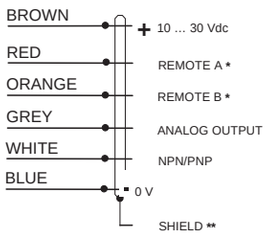


LD46-UL

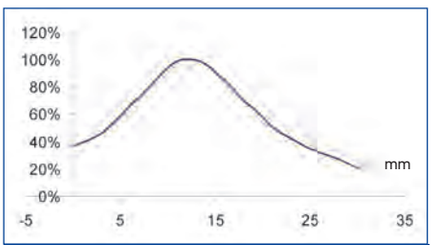
- A yellow OUTPUT LED
- B green READY LED
- C orange DELAY LED
- D orange KEYLOCK LED
- E Bargraph
- F +/- push-buttons
- G SET push-button

CONNECTIONS

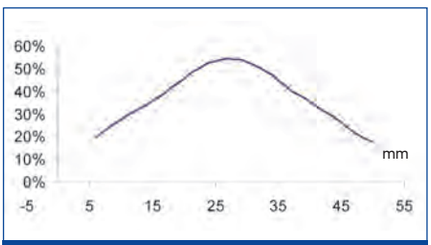
M12 CONNECTOR



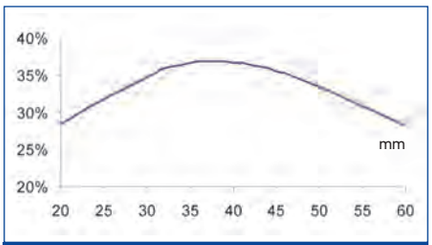
DETECTION DIAGRAMS



Standard 9 mm lens
(2 x 8 mm spot at 10 mm)



Standard 22 mm lens
(3 x 11 mm spot at 24 mm)



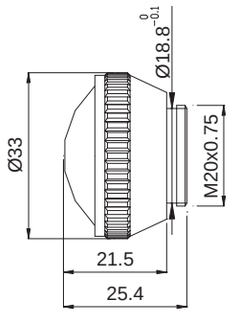
Standard 40 mm lens
(4 x 15 mm spot at 50 mm)

MODEL SELECTION AND ORDER INFORMATION

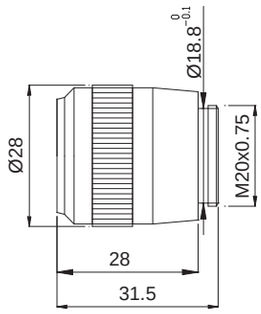
OPTIC FUNCTION	EMISSION	CONNECTION	OUTPUT	MODEL	ORDER No.
Luminescence sensor	10-20 mm Vertical spot	M12 Connector	NPN/PNP	LD46-UL-715	955201000
	20-40 mm Vertical spot			LD46-UL-755	955201010
	30-50 mm Vertical spot			LD46-UL-735	955201020

ACCESSORIES

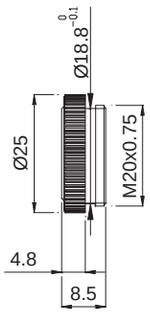
40 mm LENS
(LD46-UL-735)



22 mm LENS
(LD46-UL-755)



9 mm LENS
(LD46-UL-715)



MODEL	DESCRIPTION	ORDER No.
Lens No.9	glass lens with 9 mm focus	95ACC2670
Lens No.22	glass lens with 22 mm focus	95ACC1100
Lens No.40	glass lens with 40 mm focus	95ACC2740

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190
		15 m	CS-A1-03-U-15	95ASE1200
		25 m	CS-A1-03-U-25	95ASE1210
		50 m	CS-A1-03-U-50	95A252700

Rev. 03, 04/2019

S65

ADVANCED COLOR AND CONTRAST SENSORS IN COMPACT CASE

Color S65-V:

- 3 independent NPN or PNP outputs and RS 485 serial interface
- 3 channel color sensor with 10 tolerance levels
- Wide spectrum white light LED emission and RGB photo-receiver
- 2 push button setting with 4 digit display indicator

Contrast S65-W:

- High 12 bit resolution and 30 kHz switching frequency
- PNP or NPN output and RS 485 serial interface

APPLICATIONS

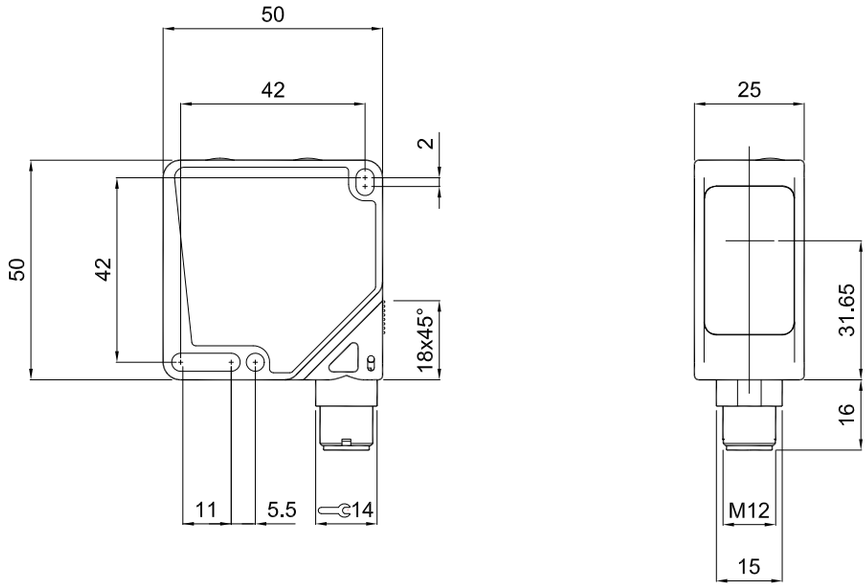
- Packaging lines
- Contrast reading
- Automatic machine

S65		
Contrast sensor		12...20 mm (S65-W)
Color sensor		5...45 mm (S65-V)
Switching frequency		30 kHz (S65-W)
		500 Hz (S65-V19 vers.)
		1,5 kHz (S65-V09 vers.)
Light emission		white LED
Serial interface		RS485
Setting		push-buttons
Power supply	Vdc	10...30 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	0...5 V Analog output (S65-W)
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		50x50x25
Housing material		ABS
Mechanical protection		IP67

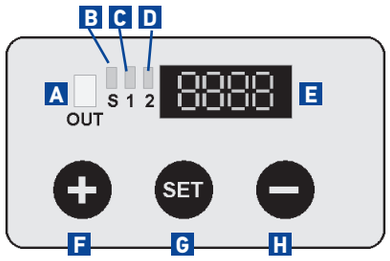
TECHNICAL DATA

Power supply	10 ... 30 Vdc (limit values)
Ripple	2 Vpp max.
Consumption (output current excluded)	50 mA max. at 24 Vdc (mod. S65-W) 60 mA max. at 24 Vdc (mod. S65-V)
Light emission	white LED 400-700 nm
Setting	SET push-buttons SEL push-buttons (mod. S65-V)
Indicators	yellow OUTPUT LED green 4-digit display, 3 OUTPUT STATUS LEDs (S65-V), STABILITY and 2 OUTPUT DELAY LEDs (mod. S65-W)
Output	1 PNP or NPN; analog output (mod. S65-W) 3 PNP or NPN; RS485 serial interface (mod. S65-V)
Output current	100 mA max.
Saturation voltage	2 V max.
Response time	5 ms (norm) and 1 ms (fast) (mod. S65-V19) 335 µs (mod. S65-V09) 16 µs (mod. S65-W)
Switching frequency	100 Hz (norm) and 500 Hz (fast) (mod. S65-V19) 1,5 kHz (mod. S65-V09) 30 kHz (mod. S65-W)
Connection	M12 5-pole connector (mod. S65-W standard vers.), M12 8-pole connector (mod. S65-W vers. with RS485 serial interface) M12 8-pole connector (mod. S65-V)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2
Mechanical protection	IP67
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 shock for every axis (EN60068-2-27)
Minimum spot dimension	3x1 mm at 19 mm (mod. S65-W) Ø 4 mm (mod. S65-V)
Depth of field	± 2 mm (mod. S65-W)
Housing material	ABS
Lens material	window and lenses in glass
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Weight	100 g max.

DIMENSIONS

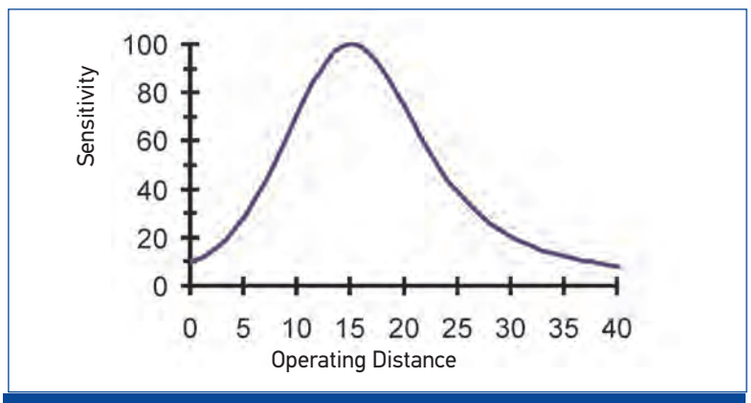


S65-W
INDICATORS AND SETTINGS S65-W



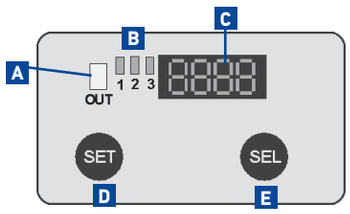
- A Output status LED
- B Stability LED
- C Delay ON LED
- D Delay OFF LED
- E 4-digit display
- F +/- push-buttons
- G SET push-button
- H M12 connector output, orientable on two positions

DETECTION DIAGRAMS S65-W



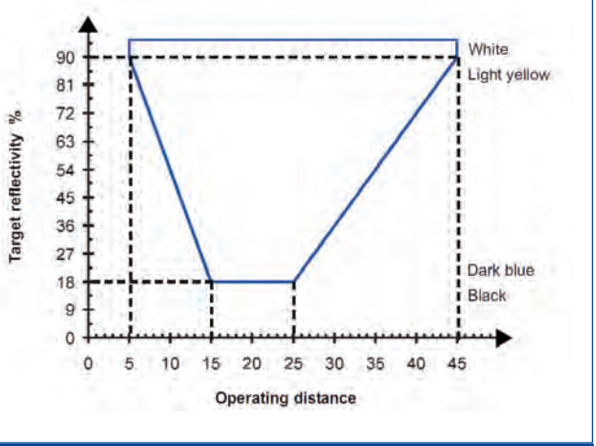
Sensitivity according to operating distance

S65-V
INDICATORS AND SETTINGS S65-W

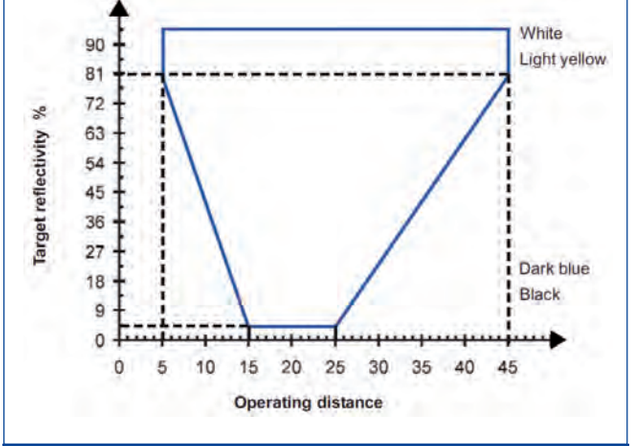


- A Output 'OR' function LED
- B Output status LEDs
- C 4 digit display
- D SET push-button
- E SEL push-button
- F +/- selection push-buttons
- G M12 connector output, orientable on two positions

DETECTION DIAGRAMS S65-W

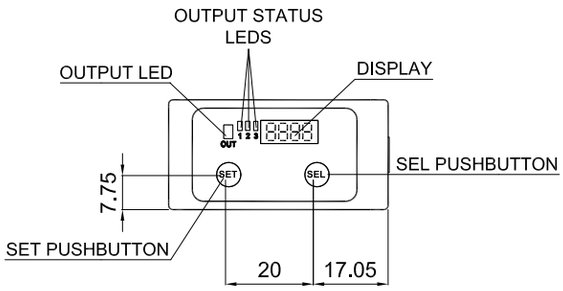


S65-V0: operating distance according to target reflectivity degree

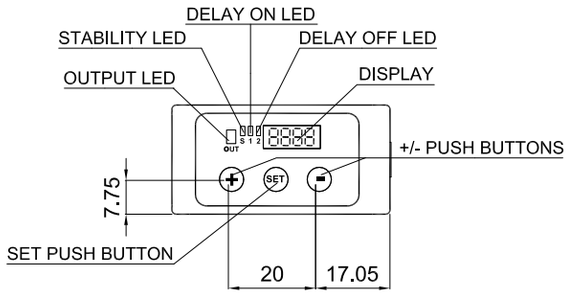


S65-V1: operating distance according to target reflectivity degree

Color sensor S65-V



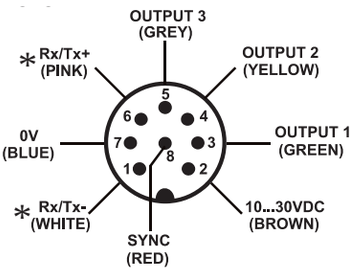
Contrast sensor S65-W



mm

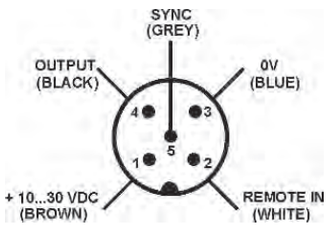
CONNECTIONS

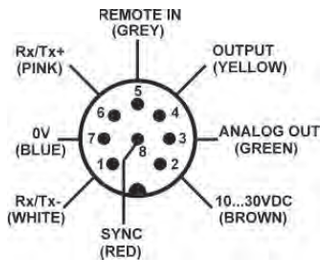
M12 CONNECTOR - COLOR SENSOR S65-V



* Available only for version with RS485 serial connection (S65-PA-5-V09-xxx**Z**).

M12 CONNECTOR - CONTRAST SENSOR S65-W



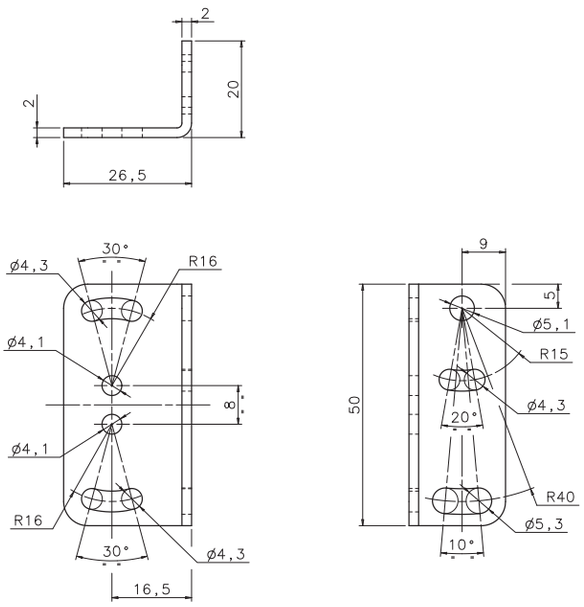


MODEL SELECTION AND ORDER INFORMATION

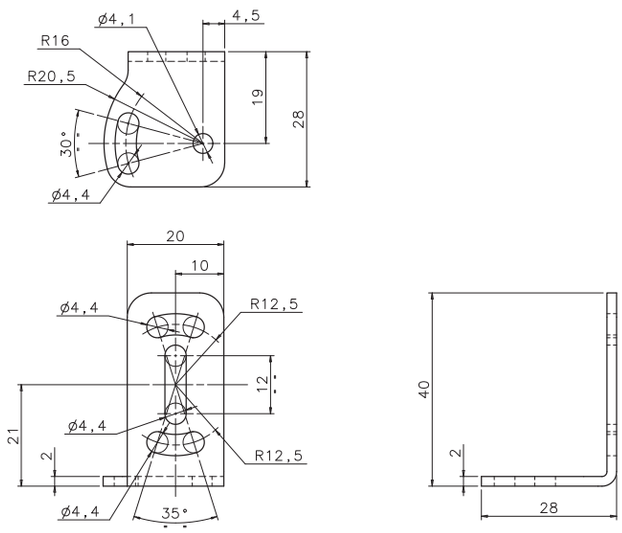
OPTIC FUNCTION	HOUSING	CONNECTION	OUTPUT	MODEL	ORDER No.
Color sensor	335 µs	M12 8-pole Connector	PNP, RS485	S65-PA-5-V09-PPPZ	956251000
			NPN, RS485	S65-PA-5-V09-NNNZ	956251010
			PNP	S65-PA-5-V09-PPP	956251020
			NPN	S65-PA-5-V09-NNN	956251030
	5 ms (norm) or 1 ms (fast)		PNP, RS485	S65-PA-5-V19-PPPZ	956251080
			NPN, RS485	S65-PA-5-V19-NNNZ	956251090
			PNP	S65-PA-5-V19-PPP	956251100
			NPN	S65-PA-5-V19-NNN	956251110
Contrast sensor	16 µs	M12 5-pole Connector	NPN	S65-PA-5-W09-NH	954201000
		M12 8-pole Connector	NPN, RS485	S65-PA-5-W09-NHZ	954201010
		M12 5-pole Connector	PNP	S65-PA-5-W09-PH	954201020
		M12 8-pole Connector	PNP, RS485	S65-PA-5-W09-PHZ	954201030

ACCESSORIES

ST-5020



ST-5021



MODEL	DESCRIPTION	ORDER No.
ST-5020	mounting bracket 50 x 27 x 20 mm	95ACC5330
ST-5021	mounting bracket 20 x 40 x 28 mm	95ACC5340

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 connector	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190
		15 m	CS-A1-03-U-15	95ASE1200
		25 m	CS-A1-03-U-25	95ASE1210
		50 m	CS-A1-03-U-50	95A252700
	8-pole, black, P.V.C.	3 m	CS-A1-06-B-03	95ACC2260
		5 m	CS-A1-06-B-05	95ACC2270
		10 m	CS-A1-06-B-10	95ACC2280
Radial M12 Connector	8-pole, shielded, black, P.V.C.	3 m	CV-A2-26-B-03	95ACC1600
		5 m	CV-A2-26-B-05	95ACC1610
		10 m	CV-A2-26-B-10	95ACC1620
Axial M12 Connector		3 m	CV-A1-26-B-03	95ACC1510
		5 m	CV-A1-26-B-05	95ACC1520
		10 m	CV-A1-26-B-10	95ACC1530
		15 m	CV-A1-26-B-15	95ACC2080
		25 m	CV-A1-26-B-25	95ACC2100
	8-pole, U.L., black, P.V.C.	3 m	CS-A1-06-U-03	95ASE1220
		5 m	CS-A1-06-U-05	95ASE1230
		10 m	CS-A1-06-U-10	95ASE1240
		15 m	CS-A1-06-U-15	95ASE1250
		25 m	CS-A1-06-U-25	95ASE1260
		50 m	CS-A1-06-U-50	95A252710
	8-pole, black	Connector-not cabled	CS-A1-06-B-NC	95ACC2550

Rev. 03, 04/2019

AS1

AREASCAN™ HIGH-RESOLUTION DETECTION PHOTOELECTRIC LIGHT GRIDS

- Crossed beam area sensors
- 100mm controlled height
- Adjustment trimmer
- Optical or wire synchronism
- Scan Mode input

APPLICATIONS

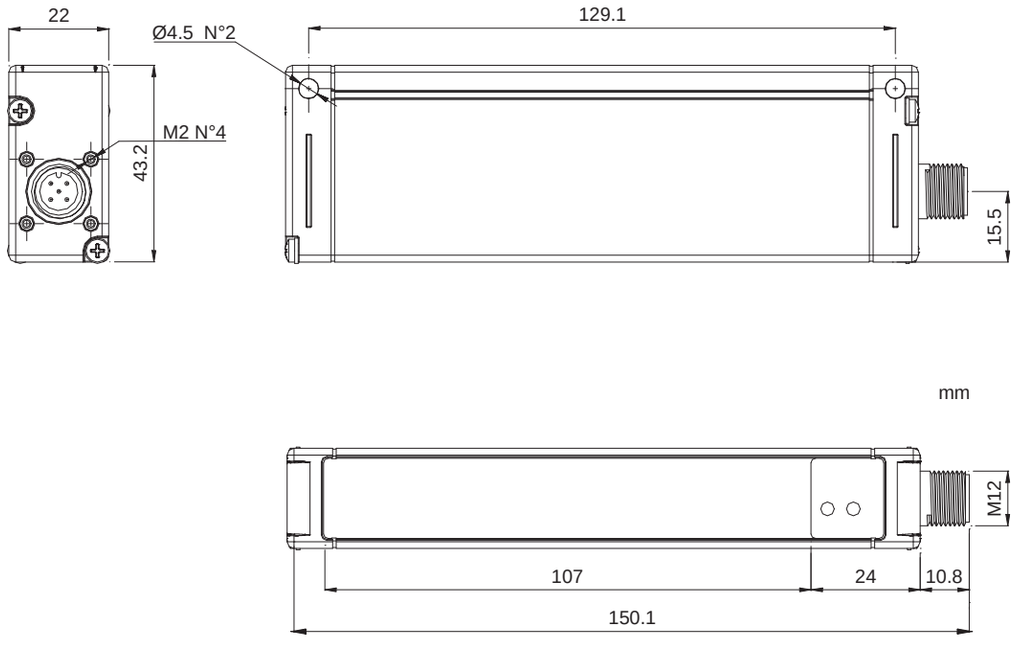
- Processing lines
- Food, Cosmetic and Pharmaceutical
- Electronics and mechanical assembling
- Conveyor lines and sorting systems

AS1		
Area sensing		100 mm
Operating Distance		0,3...2,1 m (AS1-LD)
		0,8...3 m (AS1-HD)
Resolution		Flat: 0,2x75mm Cylindrical: Ø 6mm (AS1-HR)
		Flat: 0,2x200mm Cylindrical: Ø18mm (AS1-SR)
Response Time		1,75 ms (AS1-SR)
		2,75...8 ms (AS1-HR)
Light emission		IR LED
Power supply	Vdc	24 V
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	
	NPN/PNP	
	relay	
	other	
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		22x43x150
Housing material		aluminium
Mechanical protection		IP65

TECHNICAL DATA

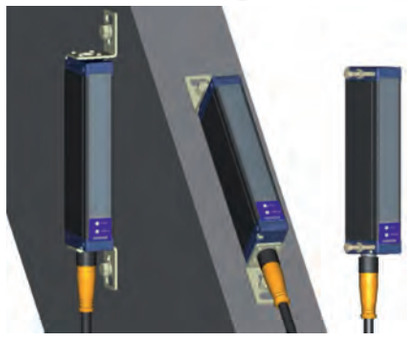
Power supply	24 Vdc ± 15%
Consumption on emitter unit (TX)	150 mA max.
Consumption on receiver unit (RX)	40 mA max. load excluded
Light emission	IR LED 880 nm
Setting	adjustment trimmer (mod. AS1...P)
Indicators	yellow OUTPUT LED green POWER ON LED
Output	PNP
Output current	100 mA max.
Saturation voltage	1,5 V max.
Response time	2,75 - 8 ms (mod. AS1-HR) 1,75 ms (mod. AS1-SR)
Connection	M12 4-pole connector (TX), M12 5-pole connector (RX)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Mechanical protection	IP65 (EN 60529)
Vibrations	0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	black electro-painted aluminium
Lens material	PMMA
Operating temperature	0 ... 50 °C
Storage temperature	-25 ... 70 °C
Weight	300 g

DIMENSIONS

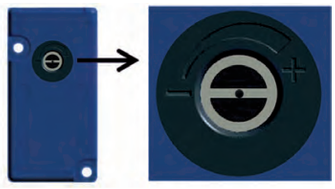


INDICATORS AND SETTINGS

Two different models are available: high resolution (AS1-HR) or standard resolution (AS1-SR). In the first case the light array has 16 beams, while in the second case the beams are reduced to 6. In the AS1-HR model, the selection inputs of the SCAN MODE, can configure 4 different crossed-beam scanning modes. These different modes allow to vary the detection performances, in particular the resolution can be increased to 0.2mm thickness, or the response time up to less than 3ms.



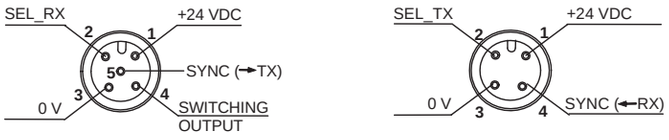
INDICATORS AND SETTINGS (TRIMMER VERSION)



Emitter is equipped with a manual regulation which lets the user change the emission power by means of a screwdriver.
The emission power reduction can be particularlly useful to lower passive reflections when maximum operating distance it is not required.

CONNECTIONS

M12 CONNECTOR



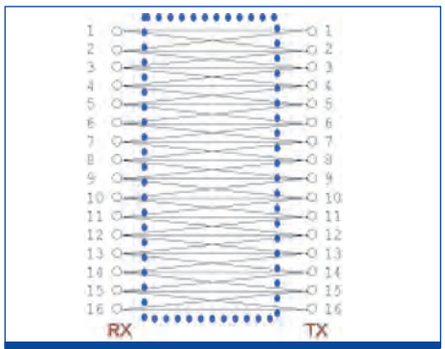
		AS1-HR	AS1-SR
RECEIVER (RX): M12 5-pole connector	1 – brown:	+24 VDC	+24 VDC
	2 – white:	SEL_RX	Not used
	3 – blue:	0 V	0 V
	4 – black:	Switching output	Switching output
	5 – grey:	SYNC *	SYNC *

		AS1-HR	AS1-SR
EMITTER (TX): M12 4-pole connector	1 – brown:	+24 VDC	+24 VDC
	2 – white:	SEL_TX	Not used
	3 – blue:	0 V	0 V
	4 – black:	SYNC **	SYNC *

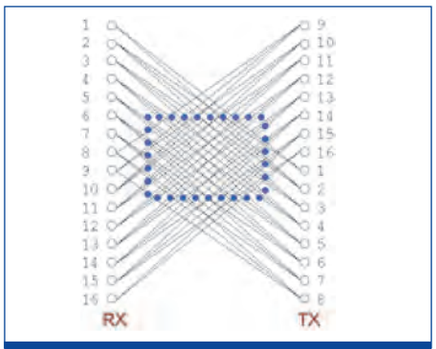
* not used in trimmer version
** SEL_TX2 in trimmer version

HIGH RESOLUTION SCANNING MODE

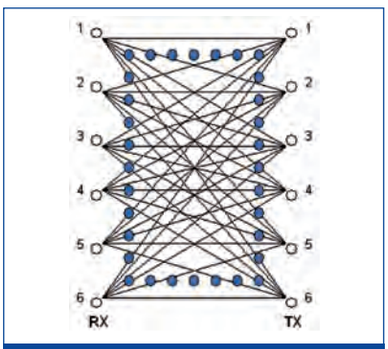
PROG. N°	SEL_RX	SEL_TX	RESOLUTION	RESPONSE TIME (msec)
1	0 Vdc or FLOAT	0 Vdc or FLOAT	LOW	2.75
2	0 Vdc or FLOAT	24 Vdc	M/L	3
3	24 Vdc	0Vdc or FLOAT	M/H	7.75
4	24 Vdc	24 Vdc	HIGH	8



Scan mode 1:
high speed / low resolution
Minimum object detection
Flat = 0.4 (thickness) x 100 (width) mm
Cylindrical objects = Ø 6 mm

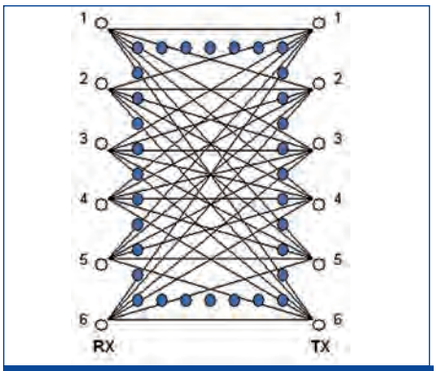


Scan mode 2:
high speed / mid resol. central area
Minimum object detection
Flat = 0.4 (thickness) x 90 (width) mm
Cylindrical objects = Ø 6 mm



Scan mode 3-4:
low speed / high resolution
Minimum object detection
Flat = 0.2 (thickness) x 75 (width) mm
Cylindrical objects = Ø 6 mm

STANDARD RESOLUTION SCANNING MODE



Minimum object detection
Flat = 0.2 (thickness) x 200 (width) mm
Cylindrical objects = Ø 18 mm

Note: the scan mode is fixed in the standard resolution version.

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	OPERATING DISTANCE	RESOLUTION	SETTING	MODEL	ORDER No.
Area sensor	2 m	High	n/a	AS1-LD-HR-010-J	958101000
			Adjustment Trimmer	AS1-LD-HR-010-P	958101040
		Standard	n/a	AS1-LD-SR-010-J	958101010
			Adjustment Trimmer	AS1-LD-SR-010-P	958101050
	3 m	High	n/a	AS1-HD-HR-010-J	958101020
		Standard		AS1-HD-SR-010-J	958101030

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		10 m	CS-A1-02-G-10	95A251390
	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190
		15 m	CS-A1-03-U-15	95ASE1200
		25 m	CS-A1-03-U-25	95ASE1210
		50 m	CS-A1-03-U-50	95A252700

Rev. 03, 04/2019

DS1

AREASCAN™ DETECTION AND MEASUREMENT LIGHT GRIDS WITH ANALOG OUTPUT

- 4 mm resolution and 1 ms response time
- 100 to 300 mm controlled height
- Operating distance up to 4 m
- PNP digital and 0-10 V analog outputs
- Adjustment trimmer

APPLICATIONS

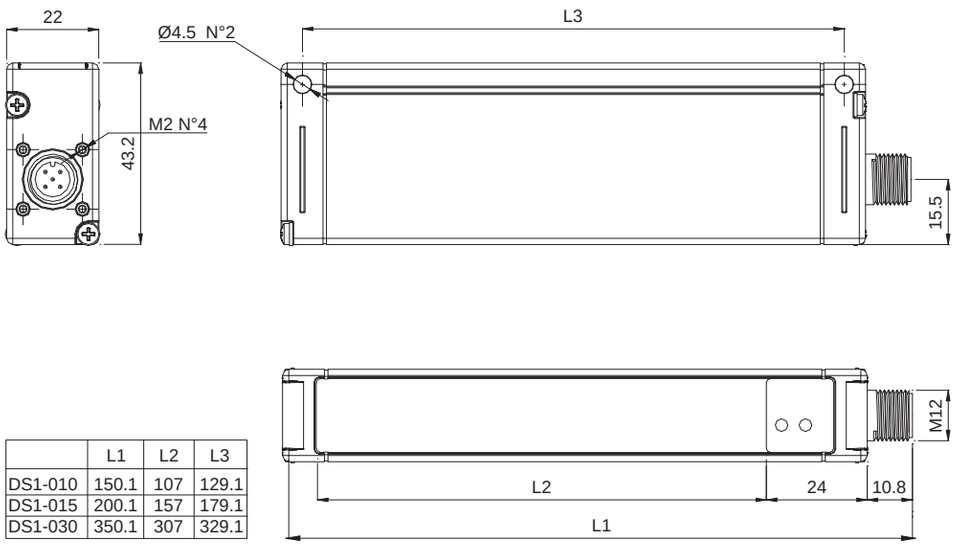
- Processing and Packaging machinery
- Food, Cosmetic, Pharmaceutical
- Electronics and mechanical assembling
- Conveyor lines and sorting systems

		DS1
Light array (controlled height)		100...300 mm
Resolution		4...7 mm
Number of beams		16...48
Light emission		IR LED
Response time		1...2,75 ms
Setting		Trimmer
Operating distance		0,15...0,8 m (SD)
		0,15...2,1 m (LD)
		0,2...4 m (HD)
Power supply	Vdc	24V +/- 15%
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	
	NPN/PNP	
	relay	
	other	0...10 V Analog output
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		22x43x(150/350)
Housing material		aluminium
Mechanical protection		IP65

TECHNICAL DATA

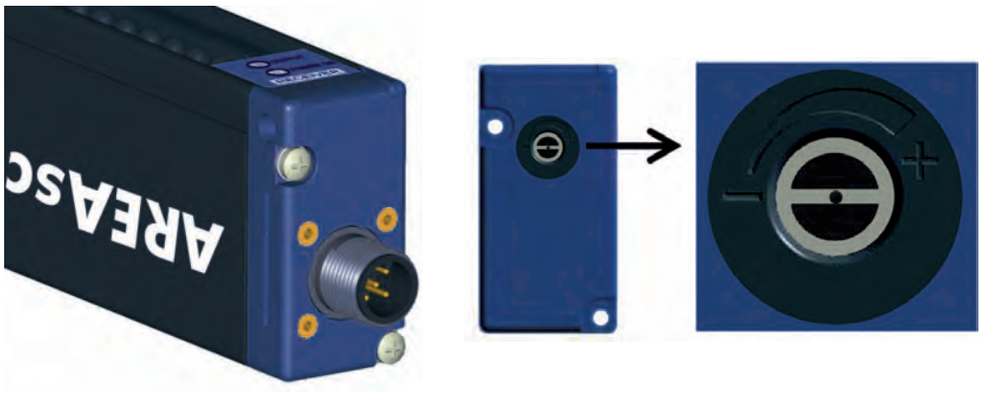
Power supply	24 Vdc ± 15%
Consumption on emitter unit (TX)	150 mA max.
Consumption on receiver unit (RX)	50 mA max. load excluded
Light emission	IR LED 880 nm
Setting	adjustment trimmer (mod. DS1...PV)
Indicators	yellow OUTPUT LED
	green POWER ON LED
Output	PNP; analog output
Output current	100 mA max.
Saturation voltage	1,5 V max.
Response time	1 - 2,75 ms
Connection	M12 4-pole connector (TX), M12 5-pole connector (RX)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Mechanical protection	IP65 (EN 60529)
Vibrations	0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	black electro-painted aluminium
Lens material	PMMA
Operating temperature	0 ... 50 °C
Storage temperature	-25 ... 70 °C
Weight	300 g (mod. DS1...010)
	400 g (mod. DS1...015)
	600 g (mod. DS1...030)

DIMENSIONS



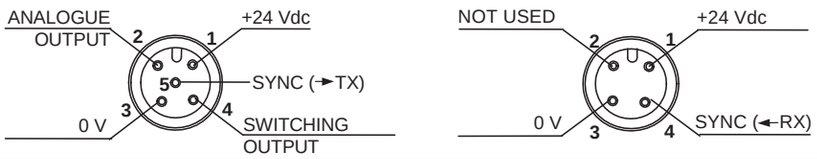
	L1	L2	L3
DS1-010	150.1	107	129.1
DS1-015	200.1	157	179.1
DS1-030	350.1	307	329.1

INDICATORS AND SETTINGS (TRIMMER VERSION)



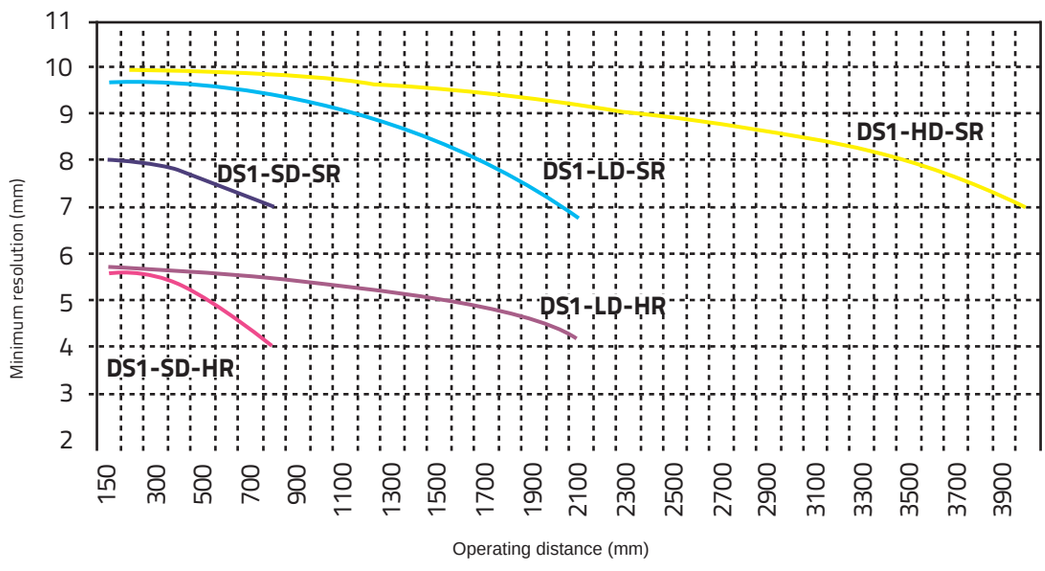
CONNECTIONS

M12 CONNECTOR



RECEIVER (RX): M12 5-pole connector	1 – brown:	+24 Vdc	***EMITTER (TX):*** M12 4-pole connector	1 – brown:	+24 Vdc
	2 – white:	Analogue output		2 – white:	Not used
	3 – blue:	0 V		3 – blue:	0 V
	4 –black:	Switching output		4 – black:	SYNC
	5 – grey:	SYNC			

DETECTION DIAGRAMS



Variation of the minimum resolution according to the operating distance between the emitting and receiving units.

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	OPERATING DISTANCE	SETTING	CONTROLLED HEIGHT & RESOLUTION	MODEL	ORDER NO
Measurement light curtain	0,8 m	n/a	100 mm (res.: 7 mm)	DS1-SD-SR-010-JV	957701170
			100 mm (res.: 4 mm)	DS1-SD-HR-010-JV	957701200
			150 mm (res.: 7 mm)	DS1-SD-SR-015-JV	957701180
			150 mm (res.: 4 mm)	DS1-SD-HR-015-JV	957701210
			300 mm (res.: 7 mm)	DS1-SD-SR-030-JV	957701190
	2 m		100 mm (res.: 7 mm)	DS1-LD-SR-010-JV	957701130
			100 mm (res.: 4 mm)	DS1-LD-HR-010-JV	957701120
			150 mm (res.: 7 mm)	DS1-LD-SR-015-JV	957701150
			150 mm (res.: 4 mm)	DS1-LD-HR-015-JV	957701140
			300 mm (res.: 7 mm)	DS1-LD-SR-030-JV	957701160
		Adjustment trimmer	100 mm (res.: 7 mm)	DS1-LD-SR-010-PV	957701250
			150 mm (res.: 7 mm)	DS1-LD-SR-015-PV	957701260
			300 mm (res.: 7 mm)	DS1-LD-SR-030-PV	957701270
	4 m	n/a	100 mm (res.: 7 mm)	DS1-HD-SR-010-JV	957701220
			150 mm (res.: 7 mm)	DS1-HD-SR-015-JV	957701230
			300 mm (res.: 7 mm)	DS1-HD-SR-030-JV	957701240

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		10 m	CS-A1-02-G-10	95A251390
	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190
		15 m	CS-A1-03-U-15	95ASE1200
		25 m	CS-A1-03-U-25	95ASE1210
		50 m	CS-A1-03-U-50	95A252700

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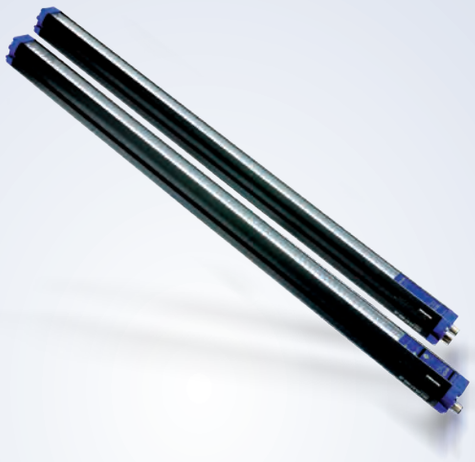
DS2



AREASCAN™ DETECTION AND MEASUREMENT LIGHT GRIDS WITH SERIAL OR ETHERNET INTERFACE

- 6 or 25 mm resolution
- Relative measurement precision ± 6 mm or ± 22.5 mm
- 150 - 1650 mm controlled heights
- Operating distance up to 10 m
- PNP and 0-10 V Analog output and RS485 or Ethernet interface

APPLICATIONS

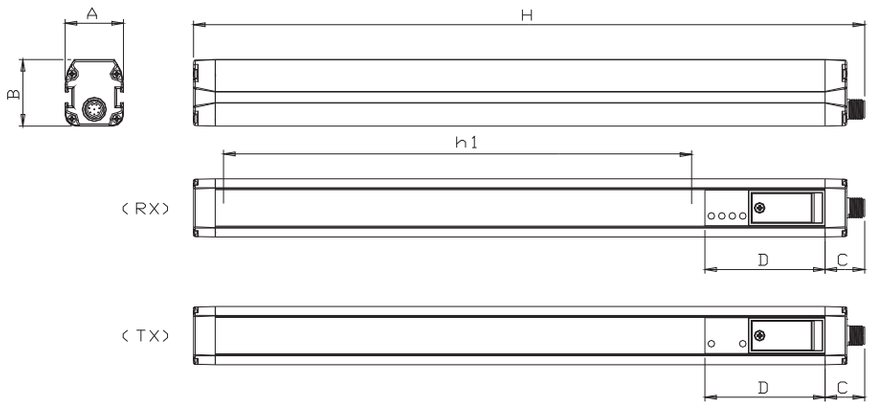
- Processing and Packaging machinery
- Food, Cosmetic, Pharmaceutical
- Electronics and mechanical assembling
- Conveyor lines and sorting systems

DS2		
Light array (controlled height)		150...1650 mm
Resolution		6...25 mm
Number of beams		21...231 (res= 6mm)
		6...66 (res= 25mm)
Light emission		IR LED
Response time		5...90 ms
Interface		serial RS485 or Ethernet
Setting		Dip-switches
		Graphic interface
Operating distance		0,3...5 m (res= 6mm)
		0,3...10 m (res=25mm)
Power supply	Vdc	24V +/- 20%
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	
	NPN/PNP	
	relay	
	other	0...10 V Analog output
Connection	cable	
	connector	•
	pig-tail	
Approximate dimensions (mm)		35x40x(256...1726)
Housing material		aluminium
Mechanical protection		IP65

TECHNICAL DATA

Power supply	24 Vdc ± 20%
Consumption on emitter unit (TX)	250 mA max. load excluded
Light emission	IR LED 880 nm
Output	PNP; analog output
Output current	100 mA
Saturation voltage	1,5 V max.
Connection	M12 4-pole connector (TX), M12 8-pole and M12 4-pole type "D" connector (RX)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class I
Mechanical protection	IP65 (EN 60529)
Vibrations	0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	painted aluminium (Pulverit 5121/0085 Black)
Lens material	PMMA
Operating temperature	0 ... 50 °C
Storage temperature	-25...70°C
Weight	1,9 - 4,6 kg

DIMENSIONS

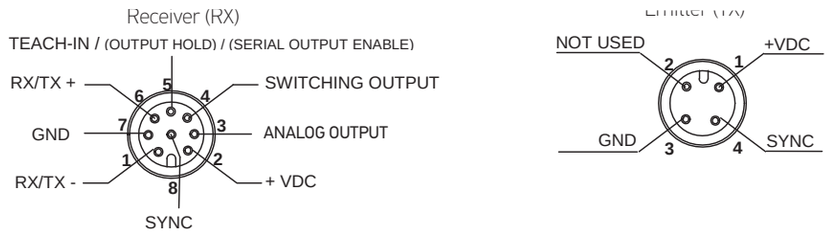


MODEL	A x B (mm)	H (mm)	C (mm)	D (mm)
DS2-05-07-015-XX	35 x 40	256	23.8	72.5
DS2-05-07-030-XX	35 x 40	403	23.8	72.5
DS2-05-07-045-XX	35 x 40	550	23.8	72.5
DS2-05-07-060-XX	35 x 40	697	23.8	72.5
DS2-05-07-075-XX	35 x 40	844	23.8	72.5
DS2-05-07-090-XX	35 x 40	991	23.8	72.5
DS2-05-07-105-XX	35 x 40	1138	23.8	72.5
DS2-05-07-120-XX	35 x 40	1285	23.8	72.5
DS2-05-07-135-XX	35 x 40	1432	23.8	72.5
DS2-05-07-150-XX	35 x 40	1579	23.8	72.5
DS2-05-07-165-XX	35 x 40	1726	23.8	72.5
DS2-05-07-045-XX	35 x 40	562	23.8	72.5
DS2-05-07-060-XX	35 x 40	713	23.8	72.5
DS2-05-07-075-XX	35 x 40	864	23.8	72.5
DS2-05-07-090-XX	35 x 40	1015	23.8	72.5

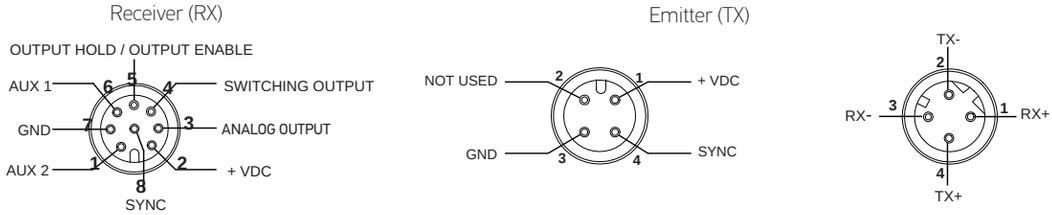
XX: JV for serial models or JE for ETHERNET models

CONNECTIONS

M12 CONNECTOR - SERIAL VERSION

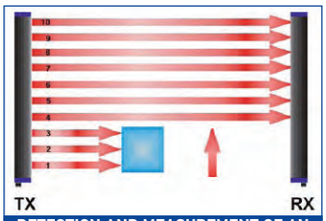


M12 CONNECTOR - ETHERNET VERSION

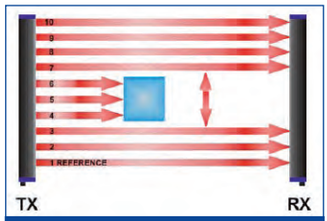


INDICATORS AND SETTINGS

DETECTION MODE EXAMPLES



DETECTION AND MEASUREMENT OF AN OBJECT'S HEIGHT OR PROFILE



DETECTION MODE (TEACH-IN)

And more applications:
- Object height measurement (vertical mounting);
- Object width measurement (horizontal mounting);
- Object distance measurement (horizontal mounting);
- Object volume measurement (vertical and horizontal combination);
- Single or multiple object presence and/or position detection in a given area;
- Missing label detection on multiple lanes;
- Vertical warehouse drawers positioning;
- Box or other objects profiling on conveyors;
- Web edges or center guiding;
- Cartoners, stackers and palletizers.

RESPONSE TIME - SERIAL AND ETHERNET VERSION

	Tmin (msec)							Tmax (msec)
		T2	T3	T4	T5	T6	T7	
MODEL RS485	**CONFIGURATION**							
	Top beam				**Complete beams status**			
	Binary	**Binary**	**ASCII**	**ASCII**	**Binary**	**Binary**	**ASCII**	**ASCII**
	57600 baud	9600 baud	57600 baud	9600 baud	57600 baud	9600 baud	57600 baud	9600 baud
DS2-05-07-015-JV	5.5	12.5	5.05	13	5.5	15	6.5	10
DS2-05-07-030-JV	7	14	7	14.5	7	18	8.5	21
DS2-05-07-045-JV	8.5	15.5	8.5	16	8.5	21	10	24
DS2-05-07-060-JV	10	17	10	18	10	26	12	38
DS2-05-07-075-JV	11.5	18.5	11.5	19	11.5	31	15	44
DS2-05-07-090-JV	13	20	13	20	13	36	17	54
DS2-05-07-105-JV	14.5	21.5	14.5	22	14.5	40	19	62
DS2-05-07-120-JV	17	24	17	24	17	44	21	70
DS2-05-07-135-JV	18.5	25	19	26	19	48	23	80
DS2-05-07-150-JV	20	26.5	21	28	21	53	25	84
DS2-05-07-165-JV	22	28	23	30	23	56	28	91
DS2-05-07-045-JV	5	11	5	11	5	13	6	18
DS2-05-07-060-JV	5.5	12	5.5	12.5	5.5	14.5	6.5	19.5
DS2-05-07-075-JV	6	13	6	13.5	6	16	7	21
DS2-05-07-090-JV	6.5	13.5	6.5	14.5	6.5	17.5	7.5	22.5

MODEL ETHERNET	**CONFIGURATION**			
	Top beam		**Complete beams status**	
	Binary	**ASCII**	**Binary**	**ASCII**
DS2-05-07-060-JE	10	10	10	12
DS2-05-07-075-JE	11.5	11.5	11.5	15
DS2-05-07-090-JE	13	13	13	17
DS2-05-07-120-JE	17	17	17	21
DS2-05-07-150-JE	20	21	21	25
DS2-05-07-165-JE	22	23	23	28

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	CONTROLLED AREA (mm)	OPTICS INTERAXIS (mm)	OUTPUT	MODEL	ORDER No.
Measurement light curtain	147	6.75	Voltage Analog and RS485	DS2-05-07-015-JV	957501040
	294			DS2-05-07-030-JV	957501050
	441			DS2-05-07-045-JV	957501060
	588			DS2-05-07-060-JV	957501000
	735			DS2-05-07-075-JV	957501070
	882			DS2-05-07-090-JV	957501010
	1029			DS2-05-07-105-JV	957501080
	1176			DS2-05-07-120-JV	957501020
	1323			DS2-05-07-135-JV	957501090
	1470			DS2-05-07-150-JV	957501100
	1617			DS2-05-07-165-JV	957501030
	453	25		DS2-05-25-045-JV	957501110
	604			DS2-05-25-060-JV	957501140
	755			DS2-05-25-075-JV	957501120
	912			DS2-05-25-090-JV	957501130
	588	6.75	Voltage Analog and Ethernet	DS2-05-07-060-JE	957501150
	735			DS2-05-07-075-JE	957501160
	882			DS2-05-07-090-JE	957501170
	1176			DS2-05-07-120-JE	957501180
	1470			DS2-05-07-150-JE	957501190
	1617			DS2-05-07-165-JE	957501200

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	4-pole, grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
		5 m	CS-A1-02-G-05	95A251270
		10 m	CS-A1-02-G-10	95A251390
	4-pole, P.U.R.	2 m	CS-A1-02-R-02	95A251540
		5 m	CS-A1-02-R-05	95A251560
	8-pole, black, P.V.C.	3 m	CS-A1-06-B-03	95ACC2230
		5 m	CS-A1-06-B-05	95ACC2240
		10 m	CS-A1-06-B-10	95ACC2250
	4-pole, shielded, grey, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
		5 m	CV-A1-22-B-05	95ACC1490
		10 m	CV-A1-22-B-10	95ACC1500
	8-pole, shielded, black, P.V.C.	3 m	CV-A1-26-B-03	95ACC1510
		5 m	CV-A1-26-B-05	95ACC1520
		10 m	CV-A1-26-B-10	95ACC1530
		15 m	CV-A1-26-B-15	95ACC2080
		25 m	CV-A1-26-B-25	95ACC2100
	4-pole, U.L., black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
		5 m	CS-A1-02-U-05	95ASE1130
		10 m	CS-A1-02-U-10	95ASE1140
		15 m	CS-A1-02-U-15	95ASE1150
		25 m	CS-A1-02-U-25	95ASE1160
	8-pole, U.L., black, P.V.C.	3 m	CS-A1-06-U-03	95ASE1220
		5 m	CS-A1-06-U-05	95ASE1230
		10 m	CS-A1-06-U-10	95ASE1240
		15 m	CS-A1-06-U-15	95ASE1250
		25 m	CS-A1-06-U-25	95ASE1260
		50 m	CS-A1-06-U-50	95A252710
	4-pole, black	Connector-not cabled	CS-A1-02-B-NC	G5085002
	8-pole, black	Connector-not cabled	CS-A1-06-B-NC	95ACC2550
Ethernet cable M12/RJ45	4-pole	3m straight D coded	DATAVS-CV-RJ45D-03	95A901350

Rev. 03, 04/2019

S65-M

TIME OF FLIGHT LONG RANGE BACKGROUND SUPPRESSOR

- Long Range background suppression detection up to 5m
- Cost effective solution for precise and reliable detection
- Risk-free Infrared LED emission and embedded green LED pointer
- Two independent fully programmable outputs
- NPN/PNP or IO-Link connection models
- Rugged plastic housing in compact 50x50x24 mm format

APPLICATIONS

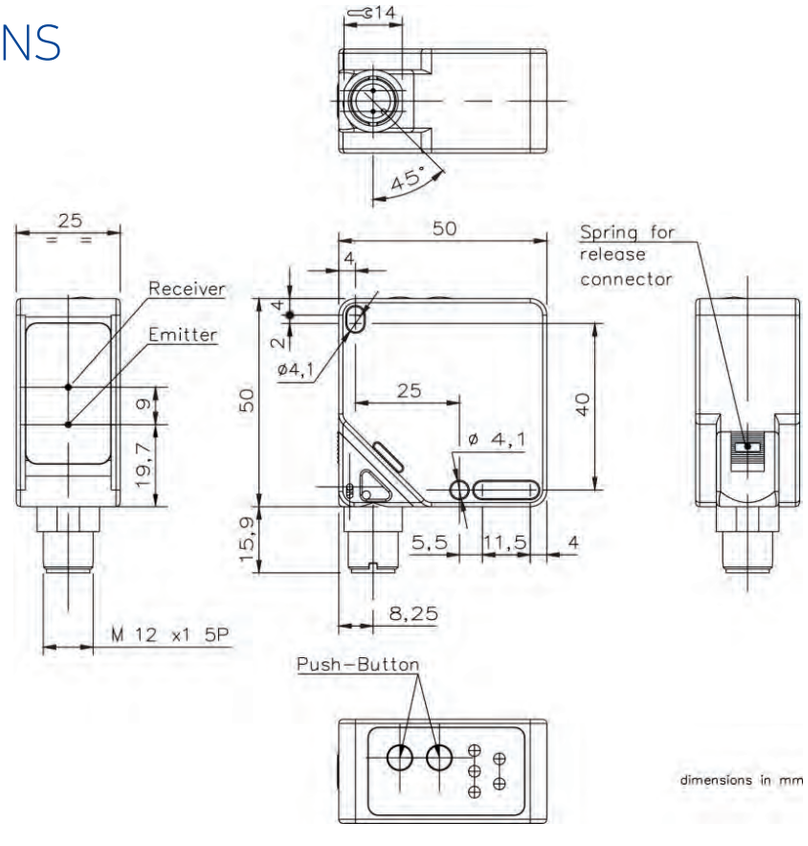
- Presence of all medium and large sized objects on conveyors
- Critical object detection in front of problematic background
- Positioning tasks in palletizing
- Position limiter for deck and robot in automotive manufacturing
- Collision prevention limit switch for AGV applications
- Checking filling level for liquid and objects

S65-M		
Operating Distance		0.3..5 m (90% white) / 0.3..4 m (18% grey) / 0.3..2.5 m (6 % black)
Hysteresis		20mm / 50mm / 80mm
Difference White 90%/Grey 18% and White 90%/Black 6%		see chart (value Typ, 1σ, T=25°C, ambient light <1Klux)
Repeatability error		20mm for distance > 750mm / 40mm for distance <= 750mm (1σ, T=25°C)
Response time		8.5 msec max.T=25°C
Operating Frequency		<65Hz
Setting		Teach-in buttons SET1, SET2
Teach-in Input		Active High (+24V) 1 sec < t < 3 sec teach Q1 / > 3 sec teach Q2
Supply voltage	Vdc	24 VDC ± 20%
	Vac	
	Vac/dc	
Switching output	PNP	
	NPN	
	NPN/PNP	Can be set up (PNP NPN / Light Dark) 100mA max.
	relay	
	other	IO-Link V1.1
Connections	cable	
	connector	M12 - 5 poles
	pig-tail	
Exposed material		Body ABS / Display POLYESTER
Front side material		PMMA
Dimensions		50 x 50 x 25 mm
Mechanical protection		IP67
Weight		50 g.max.
UL (requirements)		Class 2 power supply according to UL 508

TECHNICAL DATA

Supply voltage	24 VDC ± 20%
Consumption	< 2.2 W (excluding any loads)
Operating Distance	0.3..5 m (90% white) / 0.3..4 m (18% grey) / 0.3..2.5 m (6 % black)
Hysteresis	20mm / 50mm / 80mm
Response time	8.5 msec max.
Difference White 90%/Grey 18% and White 90%/Black 6%	see chart (value Typ, 1σ, T=25°C, ambient light <1Klux)
Repeatability error	20mm for distance > 750mm / 40mm for distance <= 750mm (1σ, T=25°C)
Thermal compensation error	1.5 mm /°C (T ≠ 25°C)
Switching output	Can be set up (PNP NPN / Light Dark) 100mA max.
Teach-in Input	Active High (+24V) 1 sec < t < 3 sec teach Q1 / > 3 sec teach Q2
Warming-up time	20 min typ
Warnings	Q1 (YELLOW) / Q2 (YELLOW) / ON PWR (GREEN) - PNP / NPN (GREEN)
Operating temperature	-15°... +55 °C (with device ON)
Storage temperature	-25 ... +70 °C
Electrical strength	500 VAC, 1 min between electronics and case
Insulation resistance	> 20 M , 500 VDC between electronics and case
Reading spot size	typ 200x200 mm @ 4m
Pointer spot size (green)	typ 250x250 mm @ 4m
Max. deviation of pointer/reading spot axes origin	+/- 40 mm
Emission and Wavelength	LED / 850 nm
Ambient light rejection	according to EN 60947-5-2,
Vibrations	width 0.5 mm, frequency 10 ... 55Hz, per axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shocks for each axis (EN60068-2-27)
Humidity	< 90% no condensation
Exposed material	Body ABS / Display POLYESTER
Front side material	PMMA
Mechanical protection	IP67
Connections	M12 - 5 poles
(Overall) Dimensions	50 x 50 x 25 mm
Weight	50 g.max.
I/O LINK Connection	NO (See parameter table on www.datalogic.com)
UL (requirements)	Class 2 power supply according to UL 508

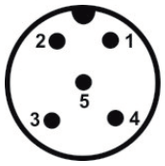
DIMENSIONS



CONNECTIONS

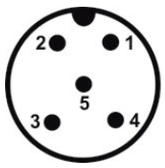
M12 CONNECTOR

S65-PA-5-M13-OO



1 (BROWN) :	+24 V ±20%
2 (WHITE) :	Q2 100mA max.
3 (BLUE) :	0 V
4 (BLACK) :	Q1 100mA max.
5 (GREY) :	REMOTE TEACH-IN

S65-PA-5-M13-OOZ



1 (BROWN) :	+24 V ±20%
2 (WHITE) :	Q2 100mA max.
3 (BLUE) :	0 V
4 (BLACK) :	C/Q1 (I/O LINK)
5 (GREY) :	REMOTE TEACH-IN

NOTE: Wire colour refers to European standard.

INDICATORS AND SETTINGS

OUTPUT LED (yellow)

Yellow LEDs on, numbered as 1 and 2, indicate activation of Q1 and Q2 outputs.

LEDs blink at the same time if measurement is out of range or not available due to the presence of environmental contamination.

POWER LED (green)

Green PWR LED on indicates that the device is switched on and operating.

ACTIVE SETUP LED (green)

Green PNP/NPN LEDs on indicate that the device is in the selected setup.

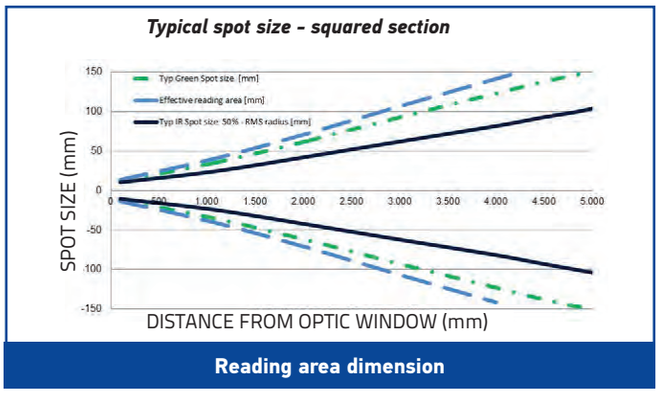
SET1 Push Button

Teach-in push buttonfor Q1 and setting parameter menu

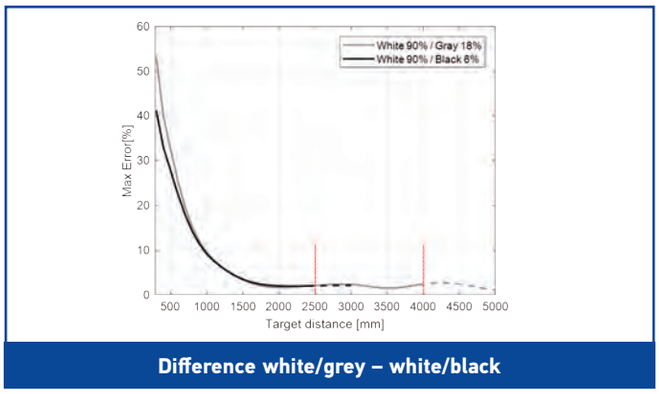
SET2 Push Button

Teach-in push buttonfor Q2 and setting parameter menu

DETECTION DIAGRAMS



Reading area dimension



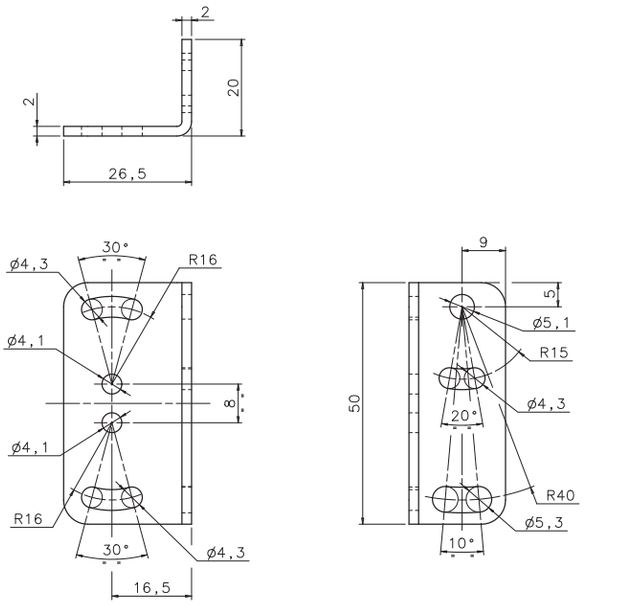
Difference white/grey – white/black

MODEL SELECTION AND ORDER INFORMATION

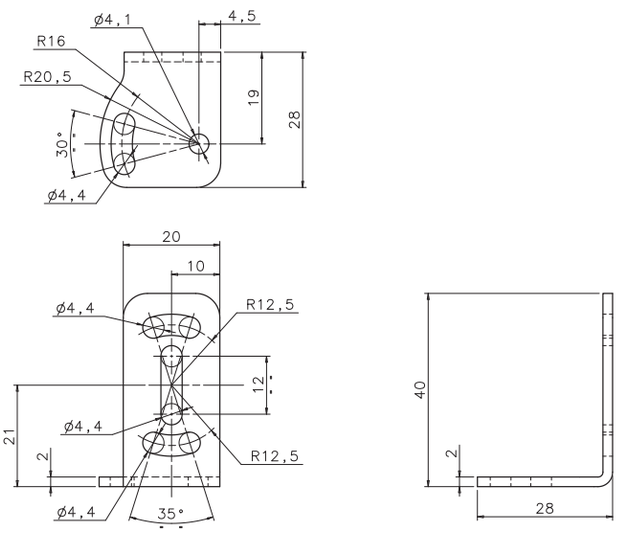
OPTIC FUNCTION	CONNECTION	OUTPUT	MODEL	ORDER No.
Background Suppression long range IR	M12 5 poles	NPN/PNP	S65-PA-5-M13-00	956251160
	M12 5 poles	IO-LINK	S65-PA-5-M13-00Z	956251170

ACCESSORIES

ST-5020



ST-5021



MODEL	DESCRIPTION	ORDER No.
ST-5020	mounting bracket 50 x 27 x 20 mm	95ACC5330
ST-5021	mounting bracket 20 x 40 x 28 mm	95ACC5340

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	M12 5-pole conn. with 3 m unshielded cable	3 m	CS-A1-03-G-03	95ACC2110
	M12 5-pole conn. with 5 m unshielded cable	5 m	CS-A1-03-G-05	95ACC2120
	M12 5-pole conn. with 10 m unshielded cable	10 m	CS-A1-03-G-10	95ACC2140
	5-pole, L coded power cable	3 m	CS-M1-02-B-03	95ACC0007
Axial M12 F/M8 M Connector	4-pole, double headed	3 m	CS-H1-02-B-03	95ACC0008
Axial M12 F/M12 M Connector	4-pole, double headed	3 m	CS-I1-02-B-03	95ACC0009

S67

ACCURATE AND PRECISE LASER DISTANCE SENSOR WITH SUBMILLIMETRIC RESOLUTION

- Sturdy metal Die-cast zinc IP67 housing.
- Resolution of 10um@50mm. distance on white 90% remission.
- Response time less than 0,9ms (short range models)
- Linearity error of +/-0,03mm@50mm range.
- Analog Voltage models with 0V-10V protected output.
- Analog Current models with 4-20mA protected output.
- Soiling indicator and Alarm Output.
- Robust light interference suppression.

APPLICATIONS

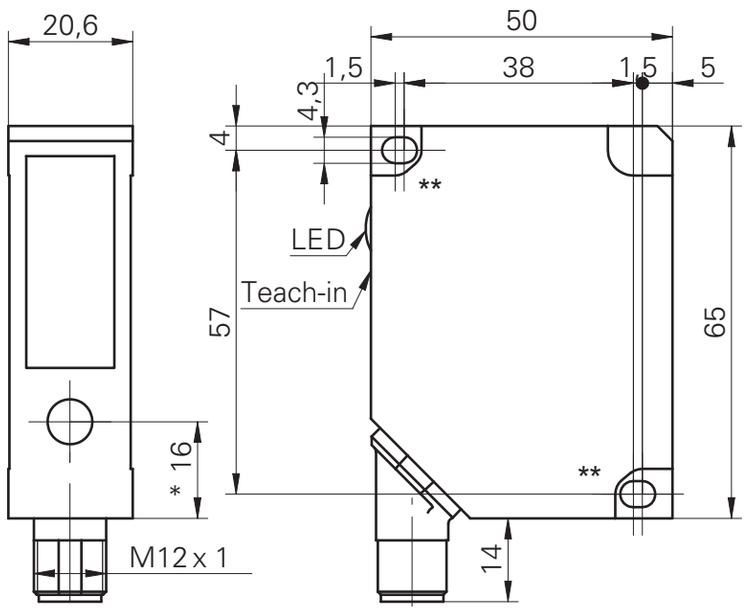
- Automotive Industries
- Textile and Paper Industries
- Wood Industries
- General Packaging Industries
- Metal tooling
- Assembly lines
- Mechanical engineering and Special machinery

S67		
Distance sensor (90% White target)		50...300 mm (Y03)
		100...600 mm (Y13)
Linearity error:		±0.03...±1.0 mm (Y03)
		±0.05...±2.0 mm (Y13)
Resolution:		0.01...0.33 mm (Y03)
		0.015...0.67 mm (Y13)
Laser class emission:		RED Laser Diode CLASS 2 According to IEC 60825-1 (2014)
Response time:		< 900 µs long range
Setting		Red LED Alarm/Soiled lens indicator
		Green LED Power indicator
		Push Button Teach in
Power supply:	Vdc	12 –28 VDC +/- 10%
	PNP	-
	NPN	-
	Push pull	-
	other	Analog output: 4...20 mA (-I) 0...10 V (-V)
Connection	connector	Rotatable M12 5poles
Approximate dimensions (mm)		Rectangular 20,6mm x 65mm x 50mm
Housing material		die-cast zinc
Mechanical protection		IP67

TECHNICAL DATA

Power supply	12 –28 VDC +/- 10%
Consumption (output current excluded)	100 mA
Light emission	650 nm Pulsed RED Laser Diode CLASS 2 According to IEC 60825-1 (2014) Complies with 21 CFR 1040.10 and 1040.11
Laser Spot	2 mm Point
Setting	Push Button Teach in
Operating Distance (90% White target)	50...300 mm (Y03) 100...600 mm (Y13)
Linearity error (90% White target)	±0.03...±1.0 mm (Y03) ±0.05...±2.0 mm (Y13)
Resolution (90% White target)	0.01...0.33 mm (Y03) 0.015...0.67 mm (Y13)
Teach-in Range min.	>5mm (Y03) >10mm (Y13)
Indicators	Red LED Alarm/Soiled lens indicator Green LED Power indicator Push Button Teach in
Analog output	Analog Current Output : load resistance (analog I) < (+Vs - 6 V) / 0,02 (-I) Analog Voltage Output : load resistance > 100 kOhm (-V)
Response time	< 900 µs long range
Connection	Rotatable M12 5poles
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Mechanical protection	IP67
Ambient light rejection	< 8k Lux (Y03) < 10k Lux (Y13)
Vibrations	0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	die-cast zinc
Lens material	Glass
Typ. Temperature Drift	± 0.03% of Full Scale Measuring Range / °C
Operating temperature	0...50°C
Storage temperature	-25 ... 70 °C
Tightening torque	1.0 Nm
Weight	180g. max.

DIMENSIONS



* emitter axis

**Apply tighten torque...<1.0 Nm

CONNECTIONS

S67-MH-5-Y03-I / S67-MH-5-Y13-I

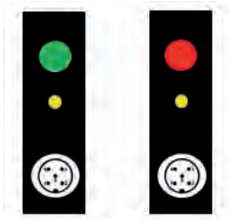
1. (BROWN): +12...28 VDC
2. (WHITE): ANALOGUE OUTPUT- I(4...20mA)
3. (BLUE): 0V
4. (BLACK): NOT USED
5. (GREY): TEACH IN

S67-MH-5-Y03-V / S67-MH-5-Y13-V

1. (BROWN): +12...28 VDC
2. (WHITE): ANALOGUE OUTPUT- V(0...10V)
3. (BLUE): 0V
4. (BLACK): NOT USED
5. (GREY): TEACH IN

Note: If external Teach-In option is not used, the Teach-In wire must be attached to GND.
Note: Shielded cable is suggested for critical cabling.
Note: Color of wires are referred to European standard.

INDICATORS AND SETTINGS



LEDS

RED LED may indicate ALARM or dirty lens surface.

GREEN LED is the POWER indicator.

TEACH IN BUTTON

The yellow button allows the user to teach a new range by optimizing the resolution. It can be used to reset the factory settings.

The S67Y distance sensor is factory set to the maximum measuring range. In order to optimize the resolution and linearity, its Teach-In feature is designed to select a smaller range within the nominal range. If a new range is chosen the Output current, voltage and alarm output will adapt to it.

The sensor must be taught with two specific positions:

- First Teach-In: aligns the position with 0 V (or 4 mA)
- Second Teach-In: aligns the position with 10 V (or 20 mA)

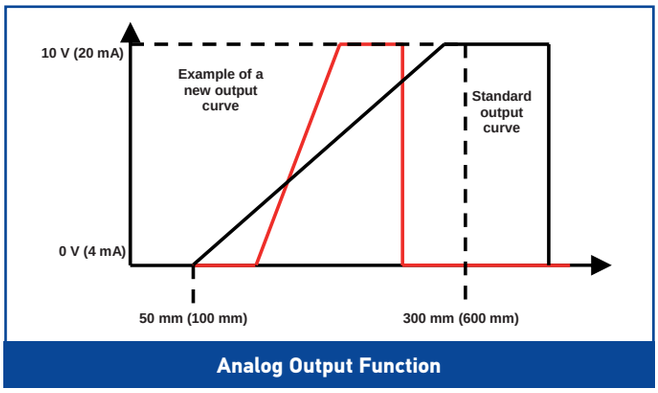
Note: The two positions are always at the border of the new range (within the measuring range).

The red LED gives feedback during a Teach-In session. The red LED located on the back of the sensor, indicates “Run” mode if it detects an object in the measuring range. The S67Y can be set in two different ways: one with Teach-In button and the other one through the external teach input.

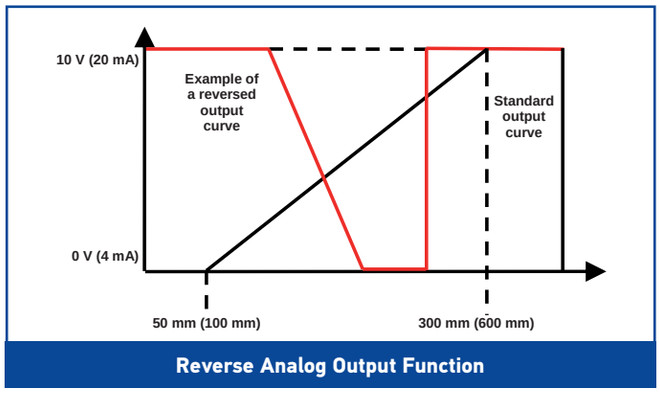
The device can be taught more than 10.000 times in its lifetime. The S67Y may be always reset to factory setup.

TEACHING NEW MEASURE	RESET
Seven steps to teaching a new measuring range: 1. Press (and hold) the button. The red LED will turn on, if the sensor can be taught. 2. Hold down the button for 5 more sec. The LED will start to blink. 3. Release the button. 4. Place a target at the first new position of the measuring range. This is the position that will later produce 0 V (or 4 mA). 5. Briefly press the button again. The LED will stop blinking and will stay on for about 3 sec to indicate that the first position has been stored. Then the LED will blink again. 6. Now place the target at the second position (the other end of the new range), which will produce 10 V (or 20 mA). 7. Briefly press the button again. The LED will stop blinking and will stay on for about 3 sec to indicate that the second position has been stored. The LED will then turn off and blink once more. Now the sensor is ready to measure. The new, smaller operating range is now set. The red LED now indicates whether an object is within the new range (LED OFF) or not (LED ON). If one of the new borders of the range was outside the standard range or the two positions were too close to each other, then the new settings are not valid. The sensor will respond with an extended blinking at the end of the teach procedure. The previous settings are still valid and the new settings are lost	1. Push the button. The red LED will turn on, if the sensor can be taught. 2. Hold down the button further 5 sec. The LED will start to blink. Do not release the button now. Wait another 10 sec until the LED is ON without blinking. Factory settings have been restored to the sensor. 3. Release the button. Note: If there are missed measurements (up to 30 cycles) these will be suppressed. During this time the analog output stays on hold. Note: For objects with a reflectivity < 7 % (S67-MR-5-Y13...), the response/release time is increased automatically up to max. 2.8 ms.

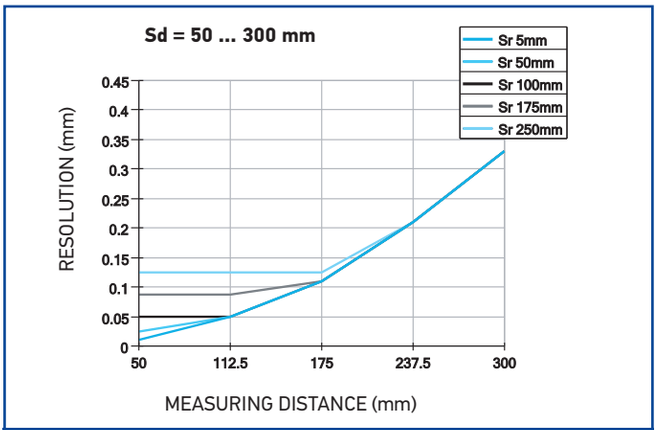
DETECTION DIAGRAMS



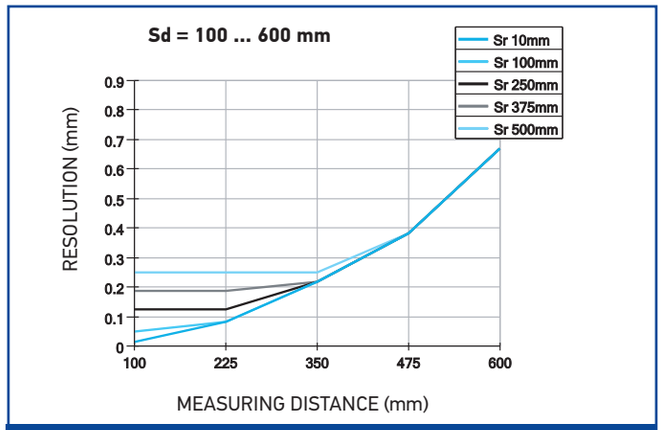
Analog Output Function



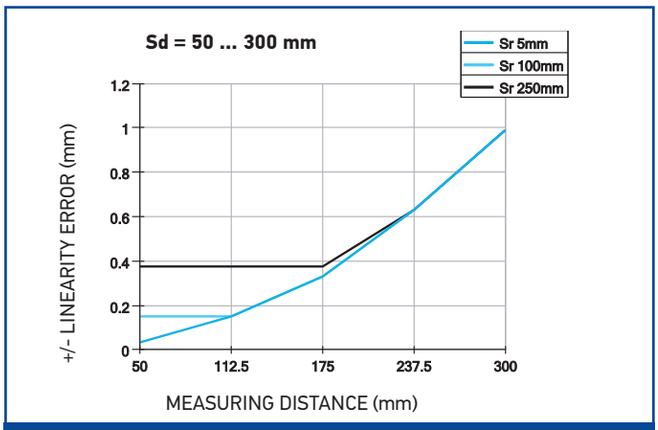
Reverse Analog Output Function



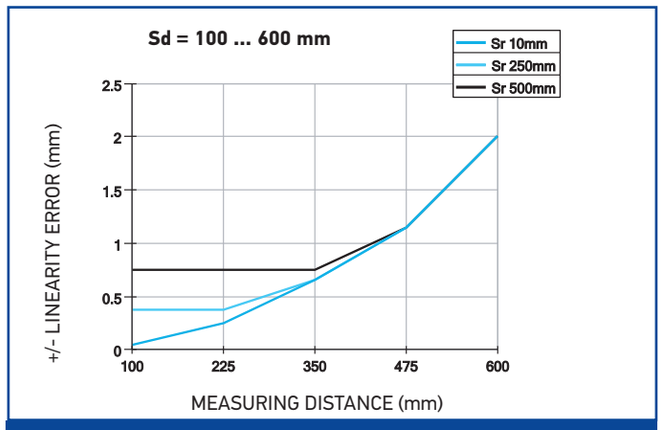
Typical Resolution (Short Range)



Typical Resolution (Long Range)



Typical Linearity Error (Short Range)



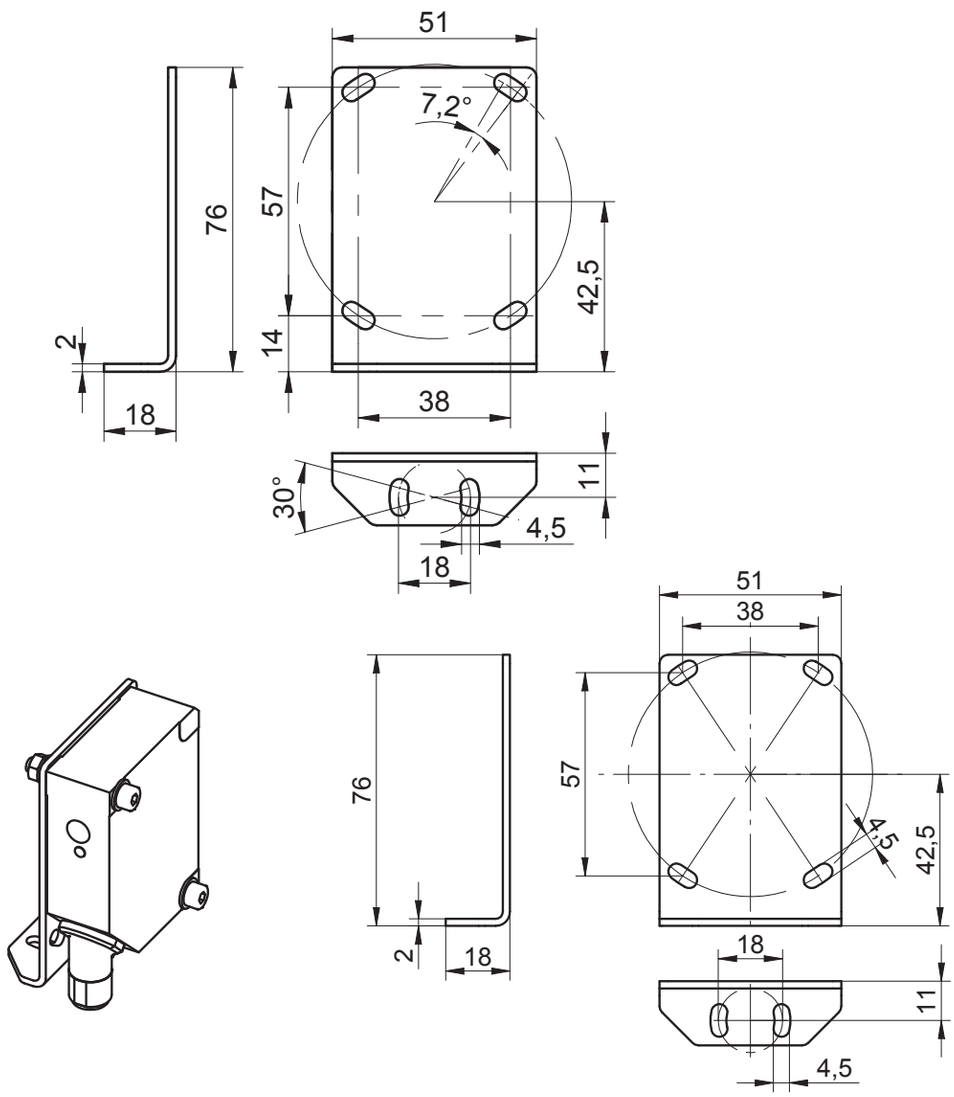
Typical Linearity Error (Long Range)

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	OPERATING DISTANCE	CONNECTION	OUTPUT & INPUT	MODELS	ORDER No.
Long range Laser Distance Sensor	100...600 mm	M12 5-poles connector	Analog output: 0...10 V (-V)	S67-MH-5-Y13-V	956271030
			Analog output: 4...20 mA (-I)	S67-MH-5-Y13-I	956271010
Short range Laser Distance Sensor	50...300 mm	M12 5-poles connector	Analog output: 0...10 V (-V)	S67-MH-5-Y03-V	956271020
			Analog output: 4...20 mA (-I)	S67-MH-5-Y03-I	956271000

ACCESSORIES

S67Y mounting kit



MODEL	DESCRIPTION	ORDER No.
ST-S67Y	S67Y mounting kit	95ACC8160

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 connector	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190

Rev. 03, 04/2019

S85

LASER DISTANCE SENSOR FOR PRECISE MEASUREMENT UP TO 20 M WITH A MILLIMETER OF RESOLUTION AND REPEATABILITY THROUGH THE TIME OF FLIGHT TECHNOLOGY

- Time of Flight technology
- Class 2 visible red LASER for an easy alignment with the target
- Measuring range up to 10m or 20m in the advanced model
- 1 mm resolution, 7 mm accuracy, 1 mm repeatability
- 4-20 mA or 0-10 V scalable analog output and 2 digital outputs
- RS485 serial interface in the advanced model
- Standard M12 connector
- IP67 Industrial metal housing

APPLICATIONS

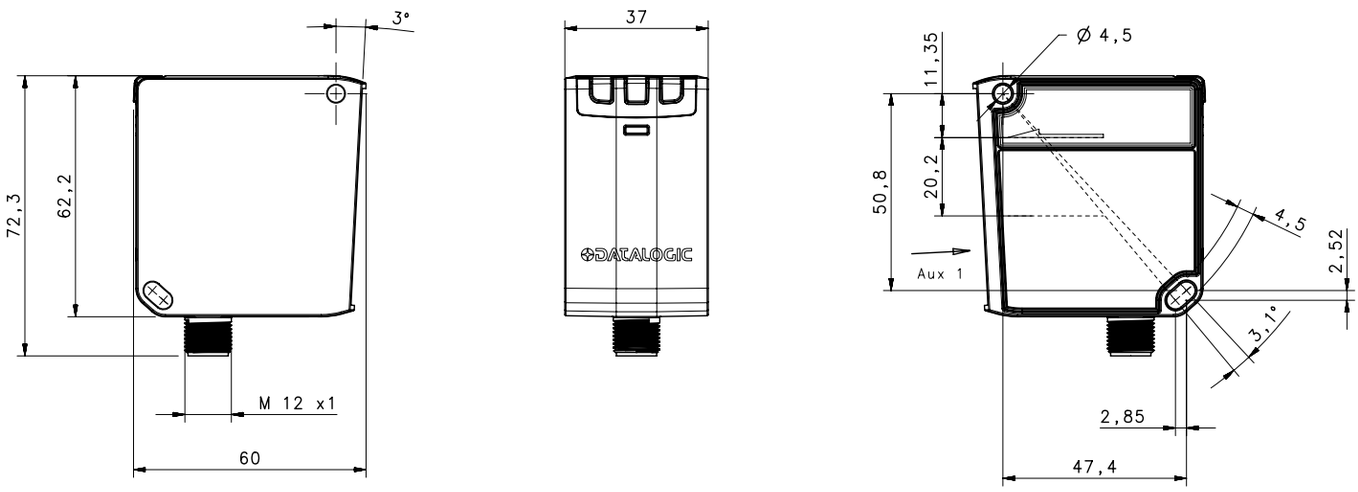
- Automated warehousing
- Processing and Packaging machinery
- Industrial vehicles
- Automotive

S85		
Distance sensor (90% White target)		0,2...20 m (S85...Y13)
		0,2...10 m (S85...Y03)
Repeatability		1...2 mm
Accuracy		7...10 mm
Resolution		1 mm
Light emission		red LASER (class 2)
Response time		30 ms (S85...Y03)
		15...30 ms (S85...Y13)
Serial interface		RS485 (S85...Y13)
Setting		Display (S85...Y13)
		push-buttons (S85...Y03)
Power supply	Vdc	24 Vdc +/- 20%
Output	PNP	•
	NPN	•
	Push pull	•
	other	Analog output: 4...20 mA or 0...10 V
Connection	connector	•
Approximate dimensions (mm)		60x72x37
Housing material		Zamak
Mechanical protection		IP67

TECHNICAL DATA

Power supply	24 Vdc ± 20%
Consumption (output current excluded)	2,8 W max. (mod. S85...Y03) 3 W max. (mod. S85...Y13)
Light emission	red Laser 658 nm
Setting	push-buttons (mod. S85...Y03) push-buttons and display (mod. S85...Y13)
Operating distance	90% white target 0,2...10 m (mod. S85...Y03), 0,2...20 m (mod. S85...Y13) 18% grey target 0,2...5 m (mod. S85...Y03), 0,2...8 m (mod. S85...Y13) 6% black target 0,2...3 m (mod. S85...Y03), 0,2...5 m (mod. S85...Y13)
Indicators	yellow Q1 LED, Q2 LED green/red POWER/OUT OF RANGE LED 5-digit multi display (mod. S85...Y13)
Output	push pull/Q (mod. S85...Y03) PNP, NPN, push pull, Q, Qneg (mod. S85...Y13)
Analog output	0-10 V (mod. S85...Y03-OOV) 4-20 mA (mod. S85...Y03-OOI) 0-10 V/4-20 mA (mod. S85...Y13-OOIVY)
Response time	slow 45 ms (mod. S85...Y13) medium 30 ms fast 15 ms (mod. S85...13)
Connection	M12 5-pole connector (mod. S85...Y03), M12 8-pole connector (mod. S85...Y13)
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Mechanical protection	IP67
Ambient light rejection	according to EN 60947-5-2, >40 Klux DC ambient light
Vibrations	0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	ZINC ALLOY ZAMA 13 EN-1774/PC LEXAN 121R display
Lens material	PMMA
Operating temperature	-15 ... 50 °C
Storage temperature	-25 ... 70 °C
Weight	250 g max.

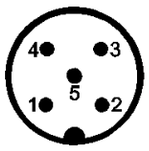
DIMENSIONS



CONNECTIONS

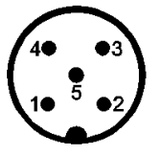
M12 CONNECTOR - STANDARD

S85-Y03-00V
Voltage version



1 (BROWN): +24 V ±20 %
2 (WHITE): Q2 100mA max.
3 (BLUE): 0 V
4 (BLACK): Q1 100mA max.
5 (GREY): ANALOG. OUT 0-10V

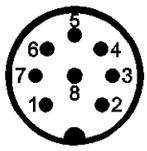
S85-Y03-00I
Current version



1 (BROWN): +24 V ±20 %
2 (WHITE): Q2 100mA max.
3 (BLUE): 0 V
4 (BLACK): Q1 100mA max.
5 (GREY): ANALOG. OUT 4-20mA

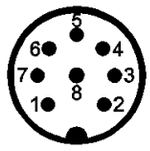
M12 CONNECTOR - ADVANCED

S85-Y13-00IVY
Analog version



1 (WHITE): RS485 -
2 (BROWN): +24 V ±20 %
3 (GREEN): ANALOGUE OUT
4 (YELLOW): Q1 100mA max.
5 (GREY): Q2 100mA max.
6 (PINK): RS485 +
7 (BLUE): 0 V
8 (RED): MULTIFUNC.INPUT

S85-Y13-00Y



1 (WHITE): RS485 -
2 (BROWN): +24 V ±20 %
3 (GREEN): RESERVED
4 (YELLOW): Q1 100mA max.
5 (GREY): Q2 100mA max.
6 (PINK): RS485 +
7 (BLUE): 0 V
8 (RED): MULTIFUNC.INPUT

INDICATORS AND SETTINGS

Without the procedure setting the sensor is configured to measure distances on a white target from a minimum value of 200 mm and a maximum of 20000 mm, with both switching point placed at 500 mm.
The parameters can be changed by the menu on the display pointing the LASER on the target in the different interested points.

INDICATORS

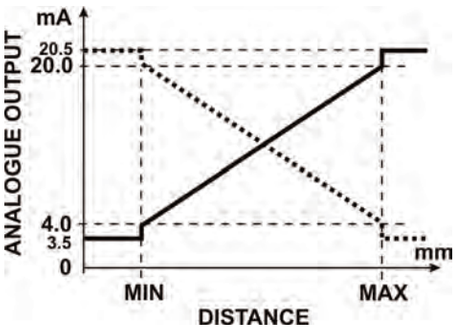
LED 1	Q1 (yellow)
LED 2	Q2 (yellow)
LED 3	POWER ON (green), OUT OF RANGE (red)

DISPLAY	Run/W.UP → Run mode or Warm-up mode
	Q+Q → Digital Output setting → PNP/NPN/Push-Pull
	I/V → Analog Output Setting → Ampere/Volt
	Lock Symbol → Keylock or unlock
	5-digit display → Value corresponds to Distance in mm

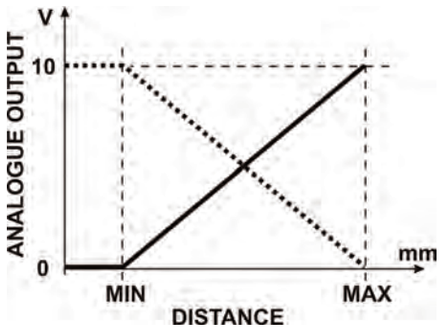
MENU	FUNCTIONS
OUT 1	Switching point1: Light/Dark; Switching point value; PNP, NPN, Push-pull; Alarm
OUT 2	Switching point 2: Light/Dark; Switching point value; PNP, NPN, Push-pull; Alarm
HYSTERESIS	Hysteresis level: 5...1000 mm
ANALOG OUT	Voltage (0...10 V); Current (4...20 mA)
MULTIFUNCTION IN	LASER OFF; Teach IN (Thresholds); RS485 Send Data
AVERAGE	Response time: SLOW; MEDIUM; FAST
RS485	Node N°; Enable; Termination; Output mode; Delay (0...254 ms)
SCALABLE OUT	Analog output range: Reset, MIN and MAX distance
FACTORY RESET	Factory default values
INFO	Software version

DETECTION DIAGRAMS

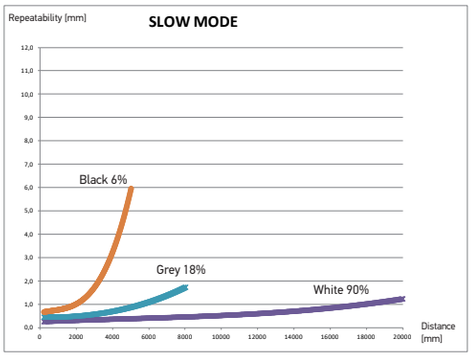
CURRENT ANALOG OUTPUT
MEASUREMENT RANGE (4...20 mA)
OUT OF RANGE (3,95...4 mA; 20...20,5 mA)



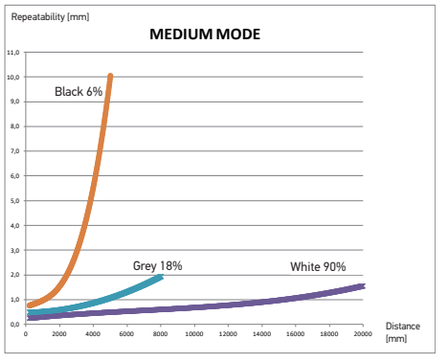
VOLTAGE ANALOG OUTPUT
MEASUREMENT RANGE (0...10 V)



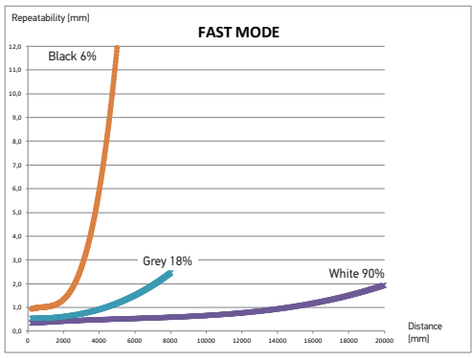
S85-...-Y13 ADVANCED
REPEATABILITY (SLOW MODE)
[WHITE 90%; GREY 18%; BLACK 6%]



S85-...-Y13 ADVANCED
REPEATABILITY (MEDIUM MODE)
[WHITE 90%; GREY 18%; BLACK 6%]



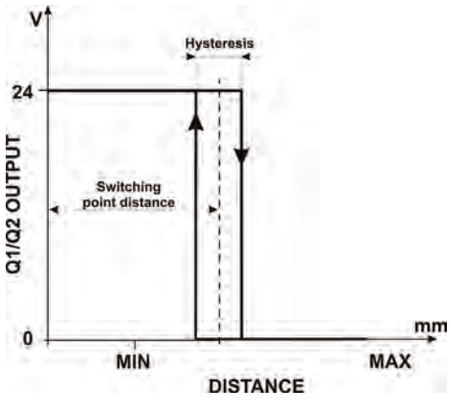
S85-...-Y13 ADVANCED
REPEATABILITY (FAST MODE)
[WHITE 90%; GREY 18%; BLACK 6%]



S85-...-Y13 ADVANCED
REPEATABILITY/RESPONSE TIME
(90% WHITE TARGET @ 20 m)

Mode	Response time	Repeatability
Slow	45 ms	< 1,5 mm
Medium	30 ms	1,5 mm
Fast	15 ms	< 2 mm

HYSTERESIS

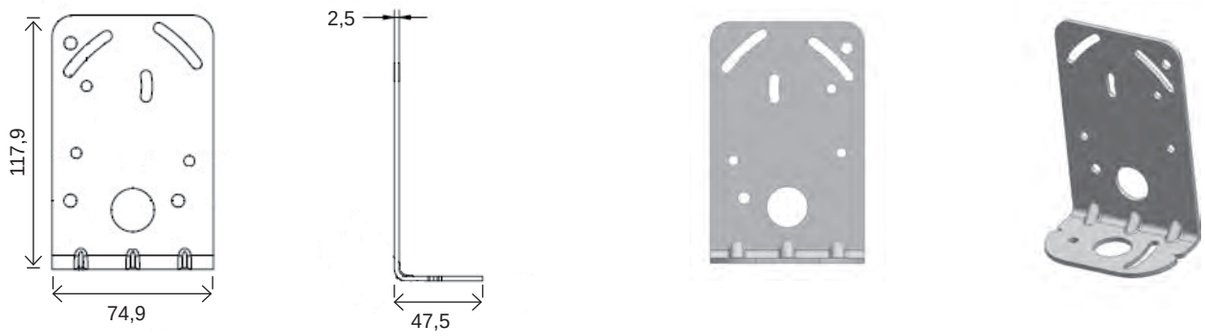


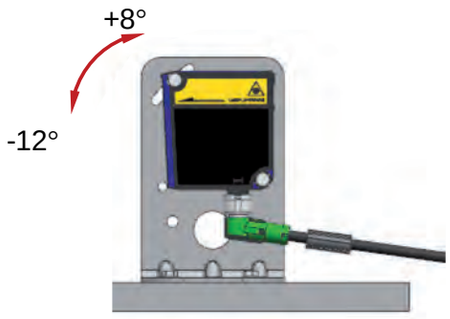
MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	OPERATING DISTANCE	CONNECTION	OUTPUT & INPUT	MODELS	ORDER No.
Distance sensor (Standard)	10 m	M12 5-pole connector	2 Digital outputs; Analog output: Voltage (0...10 V)	S85-MH-5-Y03-00V	951511010
			2 Digital outputs; Analog output: Current (4... 20mA)	S85-MH-5-Y03-00I	951511030
Distance sensor (Advanced)	20 m	M12 8-pole connector	2 Digital outputs; Analog output: Current (4... 20mA) or Voltage (0...10 V); RS485; Multifunction input	S85-MH-5-Y13-00IVY	951511020
			2 Digital outputs; RS485; Multifunction input	S85-MH-5-Y13-00Y	951511040

ACCESSORIES

ST-S85-STD





MODEL	DESCRIPTION	ORDER No.
ST-S85-STD	mounting bracket	95ACC7840

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 connector	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190
		15 m	CS-A1-03-U-15	95ASE1200
		25 m	CS-A1-03-U-25	95ASE1210
		50 m	CS-A1-03-U-50	95A252700
Axial M12 Connector	8-pole, black, P.V.C.	3 m	CS-A1-06-B-03	95ACC2230
		5 m	CS-A1-06-B-05	95ACC2240
		10 m	CS-A1-06-B-10	95ACC2250
Radial M12 Connector	8-pole, shielded, black, P.V.C.	3 m	CV-A2-26-B-03	95ACC1600
		5 m	CV-A2-26-B-05	95ACC1610
		10 m	CV-A2-26-B-10	95ACC1620
Axial M12 Connector		3 m	CV-A1-26-B-03	95ACC1510
		5 m	CV-A1-26-B-05	95ACC1520
		10 m	CV-A1-26-B-10	95ACC1530
		15 m	CV-A1-26-B-15	95ACC2080
		25 m	CV-A1-26-B-25	95ACC2100
	8-pole, U.L., black, P.V.C.	3 m	CS-A1-06-U-03	95ASE1220
		5 m	CS-A1-06-U-05	95ASE1230
		10 m	CS-A1-06-U-10	95ASE1240
		15 m	CS-A1-06-U-15	95ASE1250
		25 m	CS-A1-06-U-25	95ASE1260
		50 m	CS-A1-06-U-50	95A252710
	8-pole, black	Connector-not cabled	CS-A1-06-B-NC	95ACC2550

OF/OFA SERIES

COMPLETE RANGE OF OPTIC FIBERS: UNIVERSAL OR ADVANCED MODELS

- Flexible models
- High temperature models (up to 125 °C)
- Fiber array with parallel beams for proximity or through beam detection
- Fixed focus proximity with axial, radial or lateral optics
- Proximity with 90° optics self-contained
- Focusing, collimating and deviating lenses

APPLICATIONS

- Processing and Packaging machinery
- Electronics assembling
- Pharmaceutical industry
- Cosmetic and bottling industries

	OF/OFA
Through beam	Mechanical characteristics, length, diameter of the optic fiber, as well as the switching frequencies, light emitted and resolution of the optic fiber amplifier, affect the operating distances. Refer to the manuals to find the proper operating distance.
Diffuse proximity	
Fixed focus	
OF diameter	M3, M4, M6
OFA number of emitted beams	1, 16, 32
Cable lengths	1, 2 m
Operating temperature	-40...+60 °C (OF)
	-40...125 °C (OF-...-HT)
	-30...+70 °C (OFA)
Core material	PMMA plastic
Sheath material	PE plastic
Terminal material	Nickel-plated brass (OF), Stainless steel, Aluminium, ABS (OFA)
Mechanical protection	IP67

OF SERIES					
OPTIC FUNCTION	FIBER TYPE	LENGTH	TERMINAL	MODEL	ORDER No.
Through beam	standard	1 m	M4x0.7 mm	OF-19-ST-10	S76021901
	standard	2 m	M4x0.7 mm *	OF-23-ST-20	S76022300
	thin (Ø 1 mm)	1 m	M2x0.4 mm	OF-25-TN-10	S76022500
	standard	2 m	M4x0.7 mm	OF-43-ST-20	95A201350
	high-temperature	2 m	M4x0.7 mm	OF-43-HT-20	95A201280
	ultra-flexible	2 m	M4x0.7 mm	OF-43-UF-20	95A201290
	high-efficiency	2 m	M4x0.7 mm	OF-43-HP-20	95A201300
Proximity	standard	1 m	M6x1 mm	OF-18-ST-10	S76021801
	standard	2 m	M6x1 mm *	OF-22-ST-20	S76022200
	standard	2 m	M4x0.7 mm	OF-24-ST-20	S76022400
	thin (Ø 1 mm)	1 m	M3x0.5 mm	OF-26-TN-10	S76022600
	thin (Ø 1 mm)	1 m	M3x0.5 mm *	OF-28-TN-10	S76022800
	standard	2 m	ø 3x15 mm	OF-38-ST-20	95A201070
	standard	2 m	M6x0.75 mm	OF-42-ST-20	95A201340
	high-temperature	2 m	M6x0.75 mm	OF-42-HT-20	95A201250
	ultra-flexible	2 m	M6x0.75 mm	OF-42-UF-20	95A201260
	high-efficiency	2 m	M6x0.75 mm	OF-42-HP-20	95A201270
Coaxial proximity	standard	2 m	M6x1 mm	OF-36-ST-20	95A201000
	extra-flexible	2 m	M6x1 mm	OF-36-XF-20	95A201330
	standard	2 m	M4x0.7 mm	OF-44-ST-20	95A201310
	extra-flexible	2 m	M4x0.7 mm	OF-44-XF-20	95A201320

* a bendable stainless steel extension 90mm long protrudes from the threaded optic head

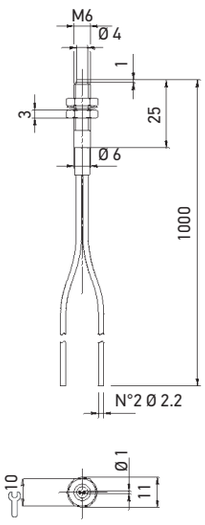
OFA SERIES					
OPTIC FUNCTION	FIBER TYPE	LENGTH	TERMINAL	MODEL	ORDER No.
Through beam	axial, 16 beam array	2 m	15x15 mm	OFA-1-AE-20	95A201170
	radial, 16 beam array	2 m	15x15 mm	OFA-1-AS-20	95A201180
Proximity	axial, 32 beam array	2 m	20x20 mm	OFA-2-AE-20	95A201150
	radial, 32 beam array	2 m	20x20 mm	OFA-2-AS-20	95A201160
	radial	2 m	5x65 mm	OFA-6-RA-20	95A201140
Fixed focus proximity	axial	2 m	15x20 mm	OFA-4-FE-20	95A201200
	lateral	2 m	15x20 mm	OFA-4-FF-20	95A201210
	radial	2 m	15x20 mm	OFA-4-FS-20	95A201190

OF ACCESSORIES			
DESCRIPTION	SUITABLE FiberS	MODEL	CODE N°
2 pcs 90° deviating lenses	OF-43-XX	AF-1	95ACC2690
2 pcs long distance collimating lenses (x 4)	OF-43-XX	AF-2	95ACC2700
1 pc focusing lens with 4 mm resolution	OF-44-XX	AF-3	95ACC2710
1 pc focusing lens with 0.4 mm resolution	OF-44-XX	AF-4	95ACC2720
2 pcs adapters Ø 2.2 mm for thin Fibers	OF-XX-TN	AF-5	95ACC2730
1 pc metal sheath for m6 x 0.75 Fibers	OF-42-XX	AF-7	95ACC2750
1 pc metal sheath for m4 x 07 Fibers	OF-43-XX (*)	AF-9	95ACC2770
Fiber-cutting tool with Ø 2.2 mm and Ø 1.1 mm holes	ALL	AF-11	95ACC2780

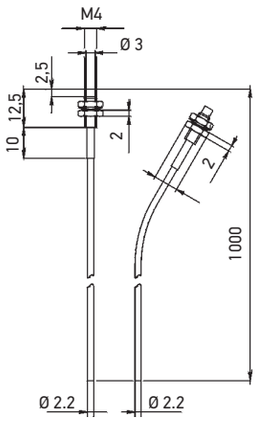
* 2 sheaths have to be ordered for both the emitter-receiver sections

DIMENSIONS OF SERIES

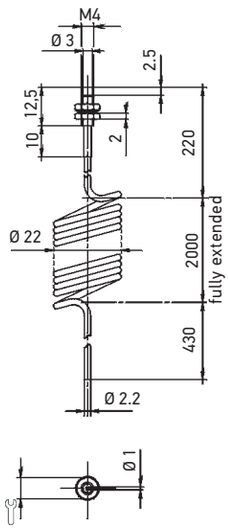
OF-18



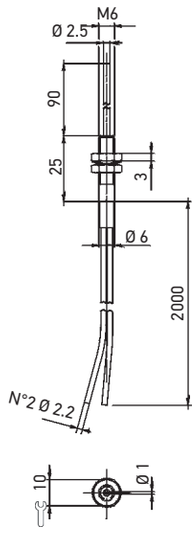
OF-19



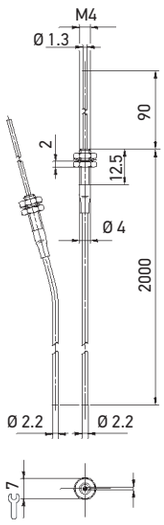
OF-21



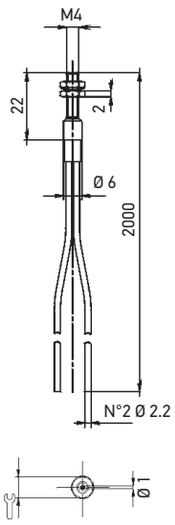
OF-22



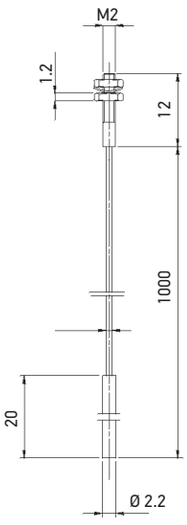
OF-23



OF-24



OF-25



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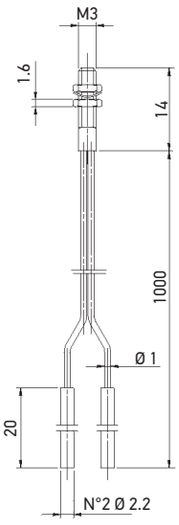

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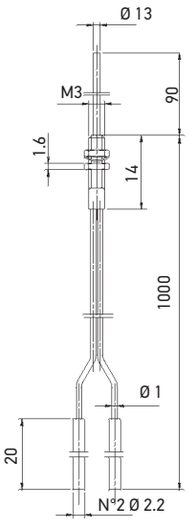

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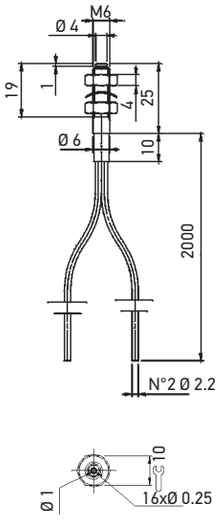

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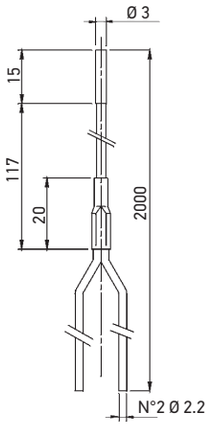

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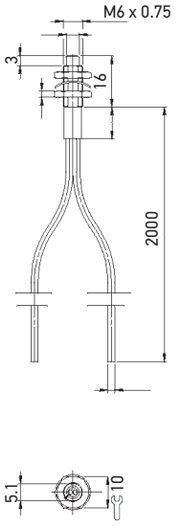

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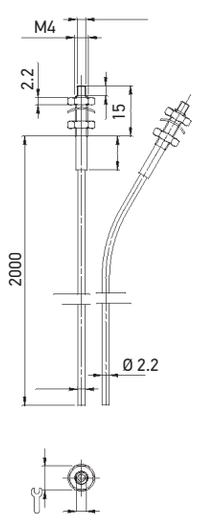

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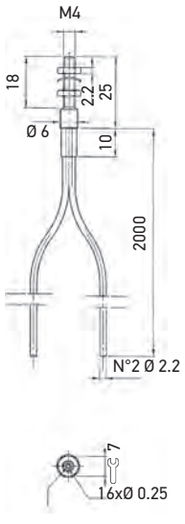
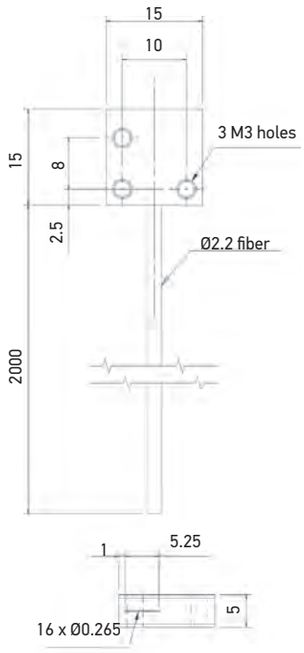


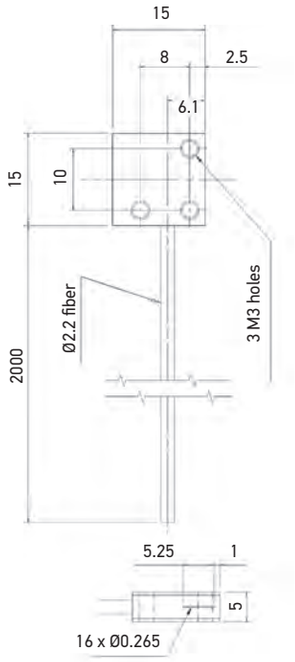
mm

DIMENSIONS OF SERIES

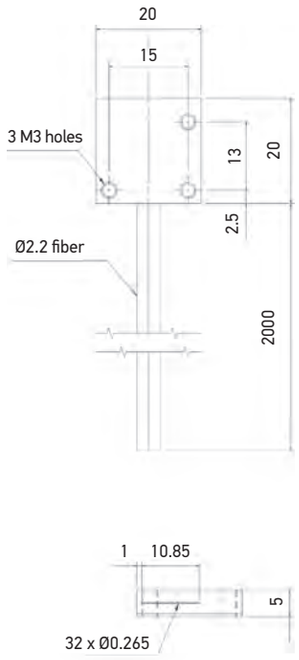
OFA-1-AE-20



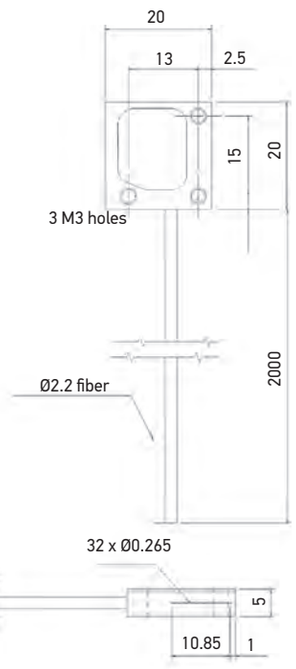
OFA-1-AS-20



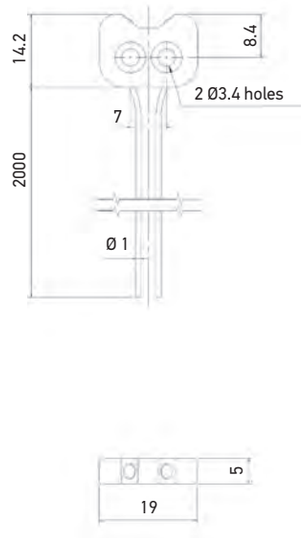
OFA-2-AE-20



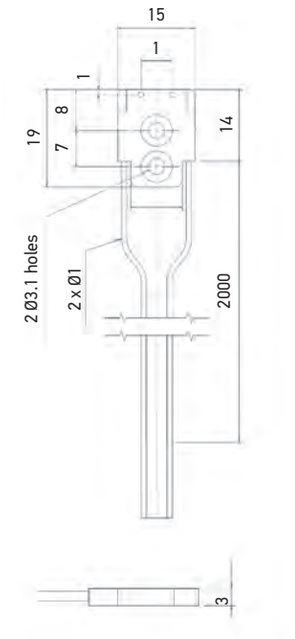
OFA-2-AS-20



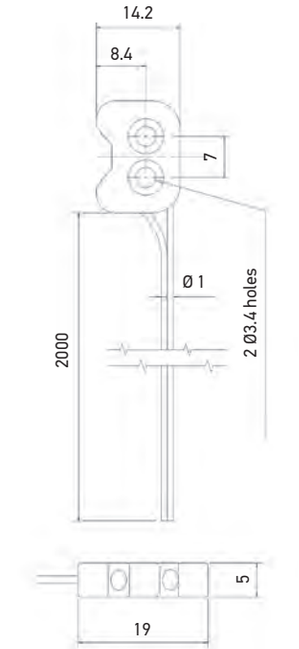
OFA-4-FE-20



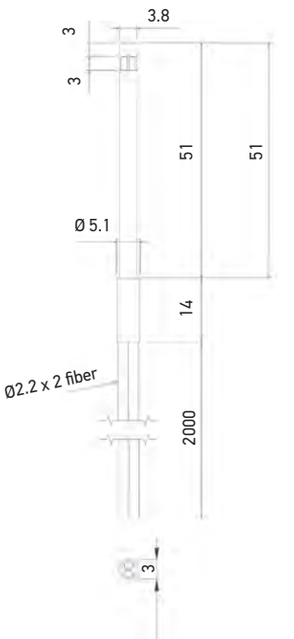
OFA-4-FF-20



OFA-4-FS-20

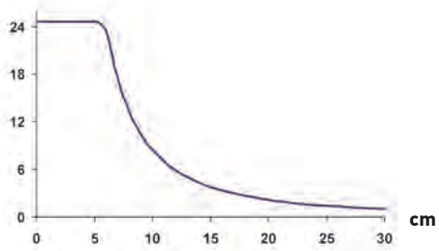


OFA-6-RA-20

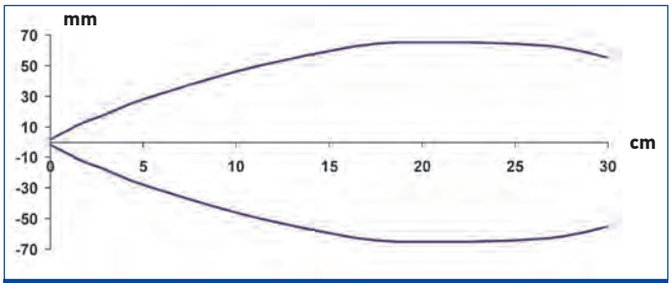


mm

DETECTION DIAGRAMS

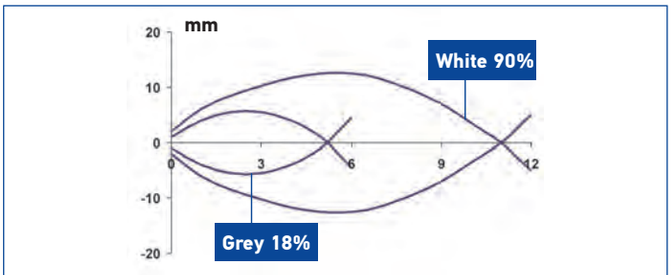


OFA-1-AS-20 - Excess gain

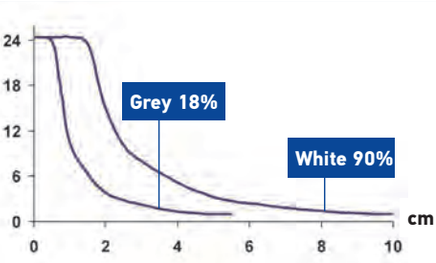


OFA-1-AS-20 - Detection area

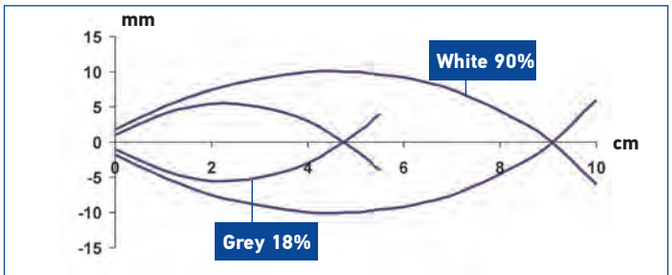
OFA-2-AE-20 - Excess gain



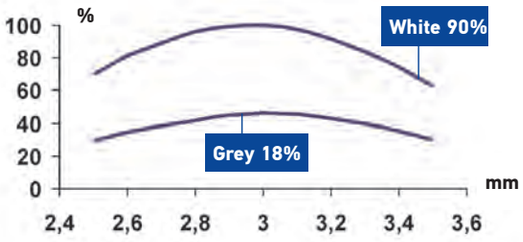
OFA-2-AE-20 - Detection area



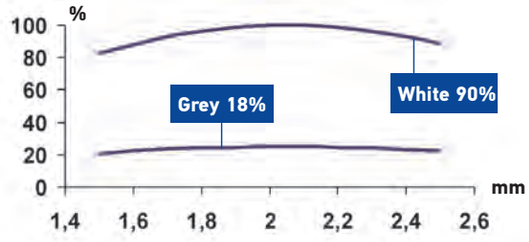
OFA-2-AS-20 - Excess gain



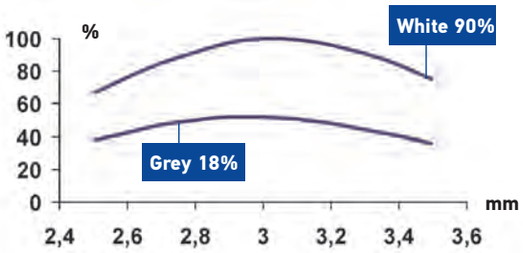
OFA-2-AS-20 - Detection area



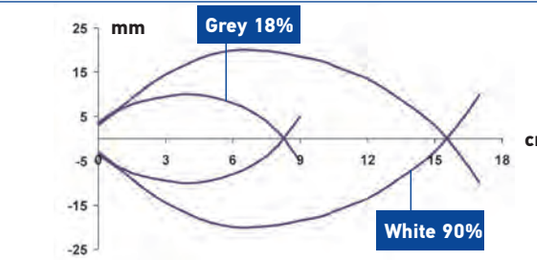
OFA-4-FE-20 - Received signal gain



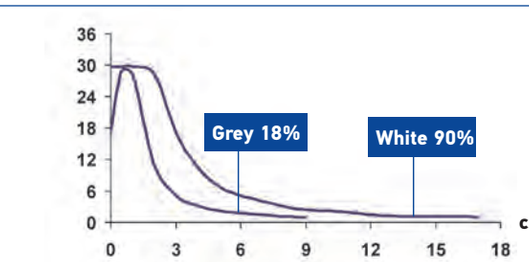
OFA-4-FF-20 - Received signal gain



OFA-4-FS-20 - Received signal gain



OFA-6-RA-20 - Detection area *



OFA-6-RA-20 - Excess gain

Rev. 03, 04/2019

IO-Link Master

IO-Link

CBX-8IOL-XXXX

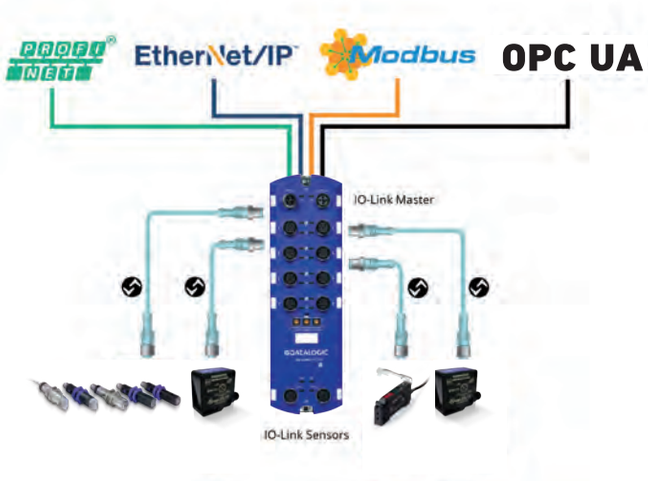
- Eight M12 IO-Link ports to PROFINET or Ethernet IP, which allows up to eight sensor or actuator connections on a single master
- L-Coded power connectors
- Rugged IP67 housing design for harsh environments
- Dual Ethernet ports
- Additional digital input on every port
- Power port sharing capability
- PLC access to IO-Link ISDU blocks without complex programming
- Supports the IOL_CALL function
- OPC-UA based technology
- Web server

APPLICATIONS

- Processing and Packaging machinery
- Conveyor lines, material handling
- Ceramics intralogistics
- Automated warehousing
- Industry 4.0 based applications

CE FC c UL US LISTED

GENERAL VIEW



CBX-8IOL Master

The IO-Link Master is a very versatlie industrial standard device.
It provides the best solution about IO-Link gateway systems the embedded OPC-UA based technology.
This new device series combines all the IO-Link standard technology benefits with OPC-UA and Field busses like Ethernet-IP, Profinet and Modbus all together in one family with two different devices to select the appropriate bus technology.
The IO-Link Master is able to run simultaneously different technologies allowing the use of OPC-UA without the need of a PLC included in the system saving hardware and software cost. The IO-link data can be sent by an IO-Link sensor directly up to any SCADA or HMI software system.
The unique and integrated WEB server Technology allows to get connected with your sensor bank just with a ethernet based device and using any commercial internet browser, setting and reading sensor parameters in the most efficient and easy way.

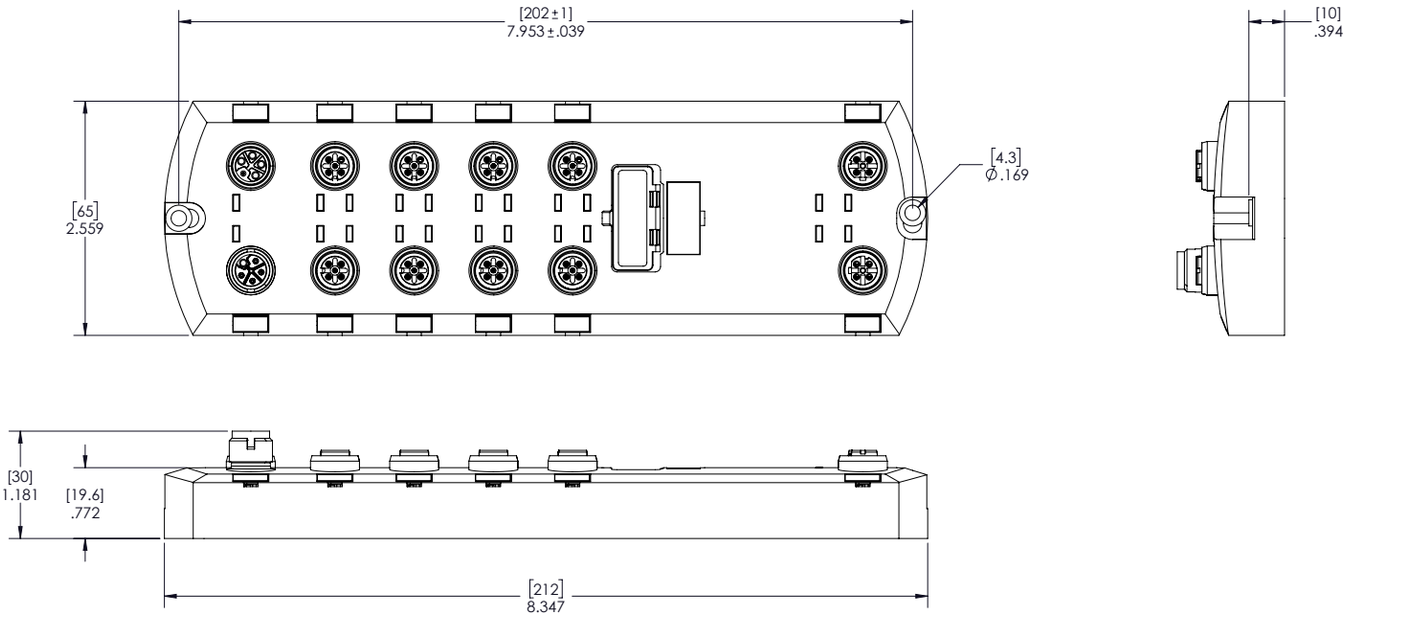
TECHNICAL DATA

SPECIFICATION	PROFINET	EIP
Hardware		
Network Interface	10/100BASE-TX	
Enclosure	Molded Polyamide 66 (potted)	
Ingress Protection Rating	IP67	
Installation and Grounding Method	Machine or panel mount Two-hole M4 or #8	
Network Protocols	PROFINET IO, Modbus/TCP (slave)	EtherNet/IP™, Modbus/TCP (slave)
Channels	8 x IO-Link / Digital I/O (configurable)	
	8 x Digital Input DI	
	2 x Ethernet	
LED Indicators	Power, Module Status, Network Status, IO-Link, DI and Ethernet Port Status	
Dimensions	212 x 65 x 30 mm (8.35 x 2.56 x 1.18)	
Product Weight	454g (1.0 lb)	
Electrical Specifications		
Power Connectors	1 x Power Input	
	1 x Power Output	
Connector type	M12, L-coded, 4 + FE	
Power Connector Pin-Out	Pin 1 – US+ (Master electronics & sensor supply)	
	Pin 2 – UA- (Actuator supply)	
	Pin 3 – US- (Master electronics & sensor supply)	
	Pin 4 – UA- (Actuator supply)	
	Pin 5 – FE	
DC Input Voltage Range	20 VDC – 30 VDC	
Power Supply In		
Module electronics and sensor (Us)	16A (max.)	
Actuator supply (UA)	16A (max.)	
Power Consumption (module electronics)	120mA @ 24VDC	
Power Supply Out		
US	16A (max.) *	
UA	16A (max.) **	
**** US output available is determined by subtracting the following from the available input current:***	Module electronics Total C/Q current for all IO-Link ports Total sensor supply current	
***** UA output available is the same as the available***	UA input current	
Environmental Specifications		
Operating Temperature	-25°C to +60°C	
Storage Temperature	-40°C to +70°C	
Operating Humidity (Non-Condensing)	10% to 95%	
Storage Humidity (Non-Condensing)	10% to 95%	
Ingress Protection	IP67 (EN / IEC 60529)	
Shock / Vibrations	EN60068-2-6	
	EN60068-2-27	
Environmental / Mechanical Approvals	IEC 61131-2	
Ethernet Interface Ports		
Number of Ports	2	
Connector Type	M12 D-coded, 4-pin	
Ethernet Specification	10/100BASE-TX	
Standards	IEEE 802.3: 10BASE-T	
	IEEE 802.3u: 100BASE-TX	
Auto-MD/MDI-X	Yes	
Auto-Negotiation	Yes	
Link Distance	100 m	
Cable Types	---	Unshielded or Shielded twisted pair (Cat 5 or higher)
IPv4 Addressing	---	Yes
IO-Link Ports Specifications		
IO-Link Version	Supports V1.0 and V1.1	
Connectors	8 (PORT 1 – 8)	
Connector type	M12, A-coded Female, 5-position	
Channels	8 x IO-Link / Digital I/O (configurable)	
	8 x DI	
Port Pinout	Pin 1 = L+	
	Pin 2 = DI	
	Pin 3 = L-	
	Pin 4 = C/Q	
	Pin 5 = no connect	

SPECIFICATION	PROFINET	
IO-Link Ports Specifications		
Configurations per Port		
Pin 4 (configurable):	DI (SIO mode)	
	DO (SIO mode)	
Pin 3	DI	
Output Current L+/L- (sensor)	1.6 A (Port 1)	
	1.0 A (Port 3)	
	500 mA (Port 2, 4 – 8; each)	
Output Current C/Q	200 mA	
Output Current per Master (C/Q & L+/L-)	6.7 A (max.)	
IO-Link Mode Transfer Rates	4.8K (COM1)	
	38.4K (COM2)	
	230.4K (COM3)	
Baud Rate Recognition	Automatic	
Cable Length	20 m (max.)	
Protection	Overload and short circuit protection (Self recovers)	
Cable Length (Maximum)	20 m	
IO-Link Ports – Digital Input SIO Mode (Port Pin 4)		
Input Characteristics	IEC 61131-2 Type 1 and Type 3 Compliant	
Input Threshold	High: 10.5 – 13.0V	
	Low: 8.0 – 11.5V	
Typical Input Current	3 mA	
Cable length (max.)	30 m	
IO-Link Ports – Digital Output SIO Mode (Port Pin 4)		
Typical Output Voltage	24 VDC	
Output Current (max.)	200 mA	
Output Current per Master	1.6 A (max.)	
Lamp Load (max.)	4W	
Protection	Overload and short circuit protection	
Output Function	PNP/NPN (Push-Pull)	
Cable length (maximum)	30 m	
IO-Link Ports – Digital Input (Port Pin 3; dedicated)		
Input Characteristics	IEC 61131-2 Type 1 and Type 3 Compliant	
Typical Input Current	3 mA	
Input Threshold	High: 6.8 – 8.0V Low: 5.2 – 6.4V	
Reverse Polarity Protected	Yes (-40V to +40V)	
Cable length (maximum)	30 m	
PROFINET IO Specifications		
Web Page Configuration	PROFINET IO Device Name	---
	IOL_CALL Function Block Timeout (1-20)	---
Diagnostics	Yes	---
GSD Files	Yes	---
Diagnostics	Yes	---
EtherNet/IP Interface Specifications		
Supported PLCs		
Including but not limited to:	Control Logix	---
	Compact Logix	---
	RSLogix	---
	SLC 500	---
	PLC5	---
	MicroLogix	---
Other Class 1 or Class 3 EtherNet/IP PLCs may be supported		
ISDU Read & Writes	---	Up to 40 individual commands in one EtherNet/IP message
ISDU Commands	---	Selectable byte swapping (none, 16-bit, or 32-bit)
	---	Selectable payload sizes (4 to 232 bytes)
	---	ISDU block index
	---	ISDU sub-index
	---	Length of read or write
	---	Data payload
Web Page Configuration	Port configuration for ISDU Data, Process Data, Transfer Mode, Read/Write, Write PDI to Tag/File, Read PDO from Tag/File.	
	---	EtherNet/IP configuration
	---	Time to Live (TTL) Network Value
	---	Multicast IP Address Allocation Control
	---	User-Defined Number of Multicast IP Addresses
	---	User-Defined Multicast Starting IP Address
	---	Session Encapsulation Timeout
Diagnostics	---	Yes
Electronic Data Sheet (EDS)	---	Yes
Sample PLC Programs	---	Yes

SPECIFICATION	PROFINET
Modbus TCP	
Supported Controllers (Modbus TCP Masters)	PLC
	HMI
	SCADA
	OPC Server
Supported Clients	Any Modbus TCP Client
	Applications on phones/tables
Web Page Configuration	Port configuration for ISDU Response Timeout, Process Data, and Transfer Mode.
Diagnostics	Yes
IO-Link Master Features	
Configuration	Embedded web interface, IO-Link, EtherNet/IP, and Modbus TCP
Data Storage	Automatic or Manual - Upload and/or Download
Device Validation	Yes
Data Validation	Yes
Diagnostics	IO-Link, EtherNet/IP, and Modbus TCP
Powerful Web Interface	**Provides the following capabilities:**
	Password protected with Admin, Operator, and User accounts
	ISDU batch handling
	Load IODD files to configure the IO-Link device
	IODD Handler parses xml files making them readable and configurable
	Log files
Remote Parameterization	Yes
Export Information	
Packaged Shipping Weight	1.2 lb, 544.3 g
Package Dimensions (L x W x H)	10.5 x 4.5 x 1.5 ; 267 x 114 x 38mm
UPC Code	7-56727-99609-5
Country of Origin	USA
ECCN	5A992
Schedule B Number	8517.62.0050
Regulatory Approvals	
Immunity	European Standard EN 61000-6-2
	International Standard IEC 61000-6-2
EN/IEC 61131-2 and EN/IEC 61131-9	IEC 1000-4-2/EN 61000-4-2: Electrostatic Discharge (ESD)
	IEC 1000-4-3/EN 61000-4-3: Radiated, Radio-Frequency (RF)
	IEC 1000-4-4/EN 61000-4-4: Fast Transient/Burst
	IEC 1000-4-5/EN 61000-4-5: Surge
	IEC 1000-4-6/EN 61000-4-6: Conducted disturbance
	IEC 1000-4-8/EN 61000-4-8: Magnetic field
	IEC 1000-4-11/EN 61000-4-11: Dips and Voltage Variations
Emission	European Standard EN 61000-6-4
	International Standard IEC 61000-6-4
	AS/NZS CISPR-11
FCC Part15 Subpart B	Class A limit
	Canadian EMC requirements ICES-001
Safety	CSA C22.2 No. 61010-1-12 / CSA C22.2 No. 61010-1-201
	UL 61010-1 / UL 61010-1-201
	UL File # E360395
Vibration	EN 60068-2-6/ IEC 60068-2-6
Mechanical Shock	EN 60068-2-27/ IEC 60068-2-27
Environmental / Mechanical Test Approvals	IEC 61131-2
Other	The components of this product comply with the requirements of the EMC/EMI Directive 2014/30/EU, Directive 2011/65/EU on the Restriction of the use of certain Hazardous Substances (RoHS2).
Regulatory Approval Symbols	CE FC cULus LISTED

DIMENSION



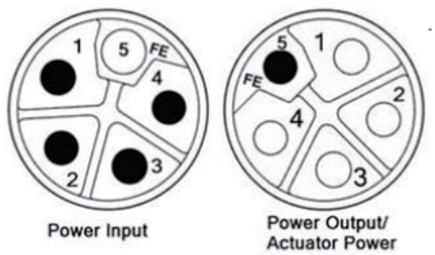
CONNECTIONS

CONNECTING THE POWER

The CBX-IOL-8-PNIO provides M12 (5-poles) L-coded input and output power connectors. Use a 24VDC power supply capable of the total output current required.

Note: Power connectors must have an approved cable or protective cover attached to the port for IP67 compliance.

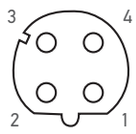
PIN	POWER INPUT (MALE)	POWER OUTPUT OR ACTUATOR POWER (FEMALE)	DESCRIPTION
1	US+	US+ or +V	IO-Link Master's system electronics and IO-Link devices
2	UA-	UA- or 0V	Actuator supply
3	US-	US- or 0V	IO-Link Master's system electronics and IO-Link devices
4	UA+	UA+ or +V	Actuator supply
5	FE		



CONNECTING THE NETWORK

The IOLM provides two Fast Ethernet (10/100BASE-TX) M12, 4-pin female D-coded connectors.

PIN	SIGNAL
1	Tx+
2	Rx+
3	Tx-
4	Tx-



You can use this procedure to connect the IOLM to the network.

1. Securely connect one end of a shielded twisted-pair (Cat 5 or higher) M12 Ethernet cable to either Ethernet port.
2. Connect the other end of the cable to the network.
3. Optionally, use the other Ethernet port to daisy-chain to another Ethernet device.
4. If you did not connect both Ethernet ports, make sure that the unused port is covered with a connector cap to keep dust and liquids from getting in the connector.

Note: Ethernet ports must have an approved cable or protective cover attached to the connector to guarantee IP67 integrity.

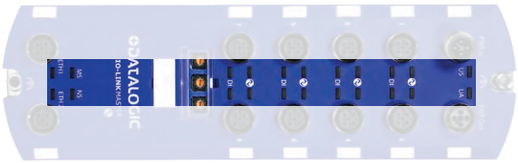
INDICATORS AND SETTINGS

SETTINGS

Follow these steps to change the default rotary switch settings:

1. Gently open the window using a small flathead screwdriver.
2. Gently swing open the switch window from the top to the bottom, allowing it to pivot on the hinge on the bottom of the window.
3. Turn each dial to the appropriate position using a small flathead screwdriver.
The default setting is 000 as shown above. The arrow points to the switch location. 0 is located at the 9:00 position.
Turn the dial clockwise to the appropriate setting.
4. Close the window and make sure that it snaps shut tightly.
Failure to close the configuration window properly may compromise IP67 integrity.

INDICATORS



CBX-IOL-8-xxx LEDs

The CBX-IOL-8-EIP (8-port IP67 model with an L-coded power connector) provides these LEDs.

LED Activity During Power On Sequence - CBX-IOL-8-xxx LEDs

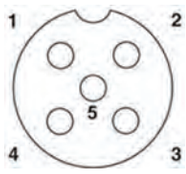
1. The **US** LED lights.
2. The **ETH1/ETH2** LED lights on the connected port.
3. The **MOD** and **NET** LEDs are lit.
4. The IO-Link LEDs flash (if no IO-Link device attached) or are lit if an IO-Link device is attached. The **MOD** LED is solid green, the IO-Link Master is ready for operation.

CBX-IOL-8-EIP LEDs	
US	The **US** LED provides the following information: ▪ Green solid = The IO-Link Master is powered ▪ Red solid = Power input voltage below 18VDC
UA	The **UA** LED provides the following information: ▪ Green solid = The IO-Link Master is powered ▪ Red solid = Power input voltage below 18VDC
MOD (Module Status)	The **MOD** LED provides the following information: ▪ Off = No module status ▪ Green and red flashing = Self-test ▪ Green flashing = Standby – not configured ▪ Green solid = Operational ▪ Red flashing = Minor recoverable fault - check the **EtherNet/IP Diagnostics** page to locate the issue ▪ Red solid = Major unrecoverable fault
NET (Network)	The **NET** LED provides the following information: ▪ Off = No IP address ▪ Green and red flashing = Self-test ▪ Green flashing = An IP address is configured, but no CIP connections are established, and an Exclusive Owner connection has not timed out ▪ Green solid= Active EtherNet/IP or Modbus connection and no EtherNet/IP connection time-outs ▪ Red flashing = One or more EtherNet/IP connection time-outs ▪ Red solid = Duplicate IP address on network
1-8	This LED provides the following information about the IO-Link port ▪ Off = SIO mode - signal is low or disabled ▪ Yellow = SIO mode - signal is high ▪ Red flashing = Hardware fault - make sure that configured IO-Link settings on the port do not conflict with the device that is attached: - **Automatic Upload** and/or **Download** is enabled and it is not the same device - **Device Validation Mode** is enabled and it is not the correct device - **Data Validation Mode** is enabled but there is an error ▪ Red solid = PDI of the attached IO-Link device is invalid ▪ Green solid = An IO-Link device is connected and communicating ▪ Green flashing = Searching for IO-Link devices
Port 1-4 DI	The **DI** LED indicates digital input on DI (Pin 2) ▪ Off = DI signal is low or disconnected ▪ Yellow = DI signal is high
ETH1/ETH2	The **ETH1/ETH2** LEDs provide the following information: ▪ Green solid = Link ▪ Green flashing = Activity

IO-LINK SETTING AND CONNECTIONS

The CBX-IOL-8-EIP provides eight IO-Link ports with M12, 5-pin female/A coded connectors. Each port has robust over-current protection and short circuit protection on its L+/L- power output and C/Q IO-Link signal. The pin-out for each IO-Link port is per the IO-Link standard and is provided in the following table:
This table provides signal information for the IO-Link connectors.

PIN	SIGNAL	DESCRIPTION
1	L+	IO-Link device power supply (+24V)
2	DI	Digital input
3	L-	IO-Link device power supply (0V)
4	C/Q	Communication signal, which supports SDCI (IO- Link) or SIO (standard input/output) digital I/O
5	FE	Functional Earth (electronics wiring)



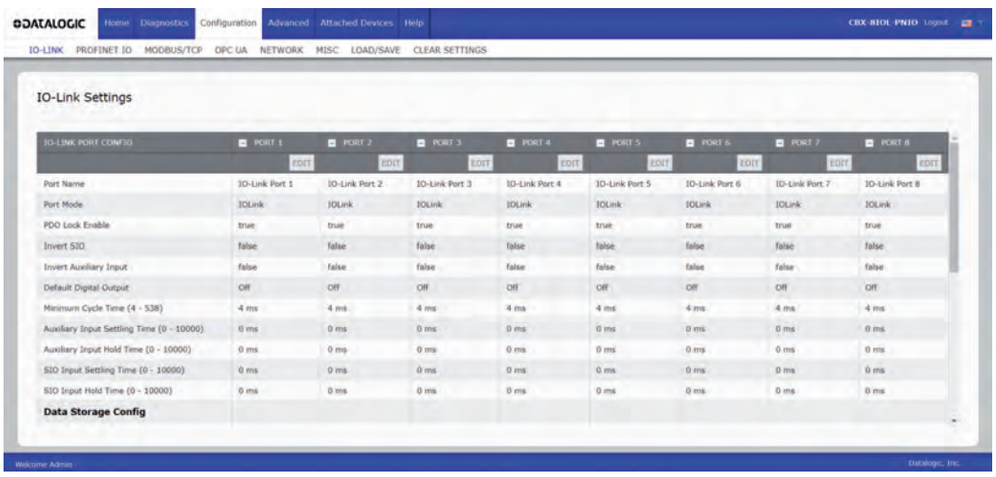
The standard SDCI (IO-Link) transmission rates are supported:

- COM1 at 4.8Kbps
- COM2 at 38.4Kbps
- COM3 at 230.4Kbps

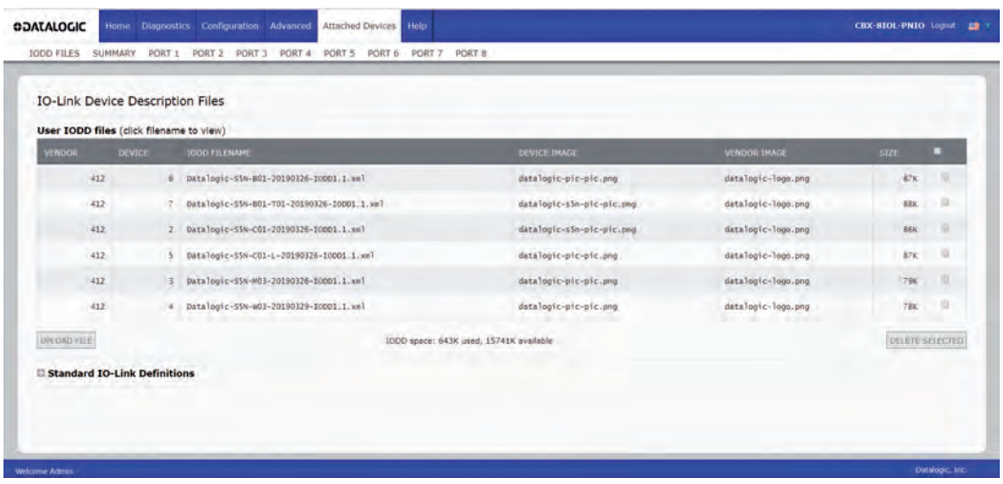
There are active over-current limiter electronics for each port in the CBX-IOL-8-EIP that detects the overload/short-circuit condition within a few milliseconds and shuts off the output power to protect the port and the devices connected to it. The port's power output self-recovers and restores to normal immediately after the overload or short-circuit condition is removed.
When a port is affected by overload/short-circuit condition, it does not affect the operation of the other ports. All other ports will continue to operate normally without any glitch or interruption. The current output capacity, cutoff current, and power sharing/budgeting for L+/L- and C/Q signal for the ports on the CBX-IOL-8-EIP are as follows.

WEB SERVER GUI

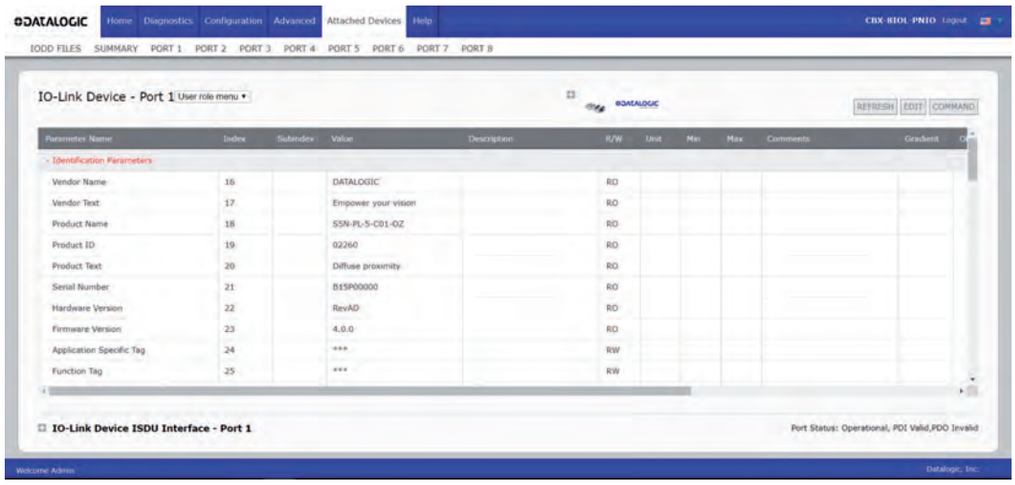
1 • Home



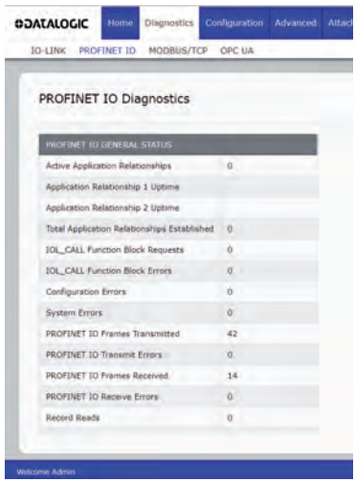
2 • IO-Link Settings

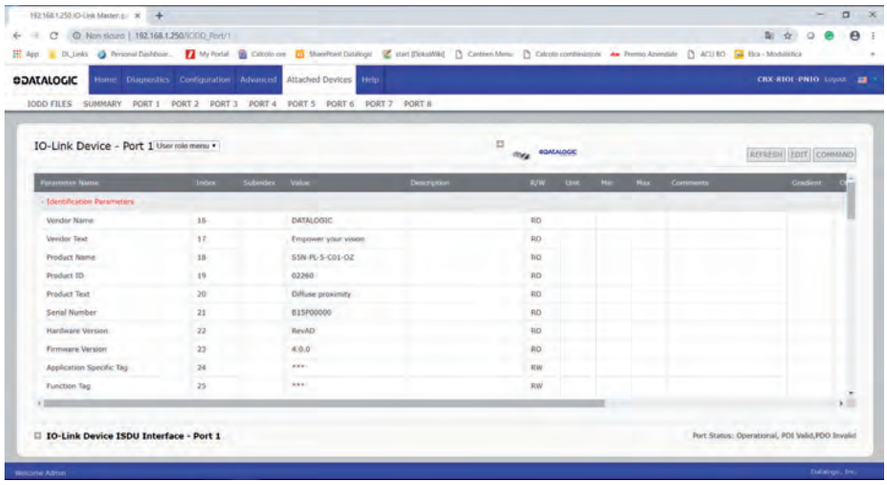


3 • IO-Link Device Description Files



4 • IO-Link Device - Port 1





5 • PROFINET IO Diagnostics

MODEL SELECTION AND ORDER INFORMATION

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	STYLES	LENGTH	MODEL	ORDER No.
M12 L-coded Axial	5-poles	PVC Grey	3m	CS-M1-02-B-03	95ACC0007
M12 Male/M8 Female double headed axial	4-poles	PVC Black	3m	CS-H1-02-B-03	95ACC0008
M12 Male/M12 Female double headed axial	4-poles	PVC Black	3m	CS-I1-02-B-03	95ACC0009

Rev. 00, 07/2019

CS SERIES - CABLES & CONNECTORS

THE RIGHT CONNECTION FOR YOUR PHOTOELECTRIC SENSORS FOR INDUSTRIAL ENVIRONMENT 24VDC OR 10-30VDC POWER SUPPLY

- M8 and M12, axial or radial female connectors
- Standard length cables: 2, 3, 5, 7, 10, 15, 25 or 50m
- 3, 4, 5, 8 or 12 poles
- Shielded or unshielded models
- P.U.R. coated models for use in harsh environments
- P.V.C. coated models for standard use
- Standard M12 4 pole non-cabled connectors
- The cable jacket maybe marked 300V only as insulation voltage between wires, the operational voltage is 24Vdc or 10-30Vdc, less than 80 V required by CCC-China

CS	
Connectors	M8 axial or radial(90°) 3 poles
	M12 axial or radial(90°) 3 poles
	M8 axial or radial(90°) 4 poles
	M12 axial or radial(90°) 4 poles
	M12 axial 5 poles
	M12 axial 8 poles
Cable lengths	3, 5, 7, 10, 15, 25 m
Conductor diameter	42 x 0.10 mm - 0.35 mm≈ (m12 3-pole)
	32 x 0.10 mm - 0.25 mm≈ (m12 4-pole)
	32 x 0.10 mm - 0.25 mm≈ (m8 4-pole)
Conductor material	annealed non-tinned electrolytic copper
Flammability class	CEI 20-22, IEC 332/3
	flame-retardant and non-propagate
Housing material	P.U.R., P.V.C.
Mechanical protection	IP67, with locked ring

CONNECTOR & DIRECTION	POLES	STYLE	CABLE LENGTH	MODEL	ORDER No.
M12 Connector (Axial)	3-pole	Grey, P.V.C.	3 m	CS-A1-01-G-03	95A251290
			5 m	CS-A1-01-G-05	95A251300
			7 m	CS-A1-01-G-07	95A251320
			10 m	CS-A1-01-G-10	95A251340
	4-pole	Grey, P.V.C.	3 m	CS-A1-02-G-03	95A251380
			5 m	CS-A1-02-G-05	95A251270
			7 m	CS-A1-02-G-07	95A251280
			10 m	CS-A1-02-G-10	95A251390
		P.U.R.	2 m	CS-A1-02-R-02	95A251540
			5 m	CS-A1-02-R-05	95A251560
	5-pole	Grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
			5 m	CS-A1-03-G-05	95ACC2120
			10 m	CS-A1-03-G-10	95ACC2140
	8-pole	Black, P.V.C.	3 m	CS-A1-06-B-03	95ACC2230
			5 m	CS-A1-06-B-05	95ACC2240
			10 m	CS-A1-06-B-10	95ACC2250
M12 Connector (Radial 90°)	3-pole	Grey, P.V.C.	3 m	CS-A2-01-G-03	95A251200
			5 m	CS-A2-01-G-05	95A251210
			7 m	CS-A2-01-G-07	95A251220
			10 m	CS-A2-01-G-10	95A251230
		OIL resistant (CEI 2034-01)	3 m	CS-A2-01-O-03	95A251660
			5 m	CS-A2-01-O-05	95A251670
			10 m	CS-A2-01-O-10	95A251680
	4-pole	Grey, P.V.C.	3 m	CS-A2-02-G-03	95A251360
			5 m	CS-A2-02-G-05	95A251240
			7 m	CS-A2-02-G-07	95A251245
			10 m	CS-A2-02-G-10	95A251260
		P.U.R.	2 m	CS-A2-02-R-02	95A251550
			5 m	CS-A2-02-R-05	95A251570
		OIL resistant (CEI 2034-01)	5 m	CS-A2-02-O-05	95A251690
			10 m	CS-A2-02-O-10	95A251700

M12 Connector with LED (for PNP N.O. sensors) (Radial 90°)	3-pole	Grey, P.V.C.	5 m	CS-A2-11-G-05	95A251310
			10 m	CS-A2-11-G-10	95A251330
	4-pole	Grey, P.V.C.	3 m	CS-A2-12-G-03	95A251400
			5 m	CS-A2-12-G-05	95A251350
			10 m	CS-A2-12-G-10	95A251370
M8 Connector (Axial)	3-pole	Grey, P.V.C.	3 m	CS-B1-01-G-03	95A251490
			5 m	CS-B1-01-G-05	95A251510
		P.U.R.	2 m	CS-B1-01-R-02	95A251580
			5 m	CS-B1-01-R-05	95A251600
	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
		P.U.R.	2 m	CS-B1-02-R-02	95A251620
			5 m	CS-B1-02-R-05	95A251640
		OIL resistant (CEI 2034-01)	5 m	CS-B1-02-O-05	95A251730
			10 m	CS-B1-02-O-10	95A251100
M8 Connector (Radial 90°)	3-pole	Grey, P.V.C.	3 m	CS-B2-01-G-03	95A251500
			5 m	CS-B2-01-G-05	95A251520
		P.U.R.	2 m	CS-B2-01-R-02	95A251590
			5 m	CS-B2-01-R-05	95A251610
	4 pole	Grey, PVC	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
		P.U.R.	2 m	CS-B2-02-R-02	95A251630
			5 m	CS-B2-02-R-05	95A251650
		OIL resistant (CEI 2034-01)	5 m	CS-B2-02-O-05	95A251720
			10 m	CS-B2-02-O-10	95A251110
Shielded M12 Connector (Axial)	3-pole	Grey, P.V.C.	10 m	CV-A1-21-G-10	95ACC2060
	4-pole	Black, P.V.C.	3 m	CV-A1-22-B-03	95ACC1480
			5 m	CV-A1-22-B-05	95ACC1490
			10 m	CV-A1-22-B-10	95ACC1500
			15 m	CV-A1-22-B-15	95ACC2070
			25 m	CV-A1-22-B-25	95ACC2090
	8-pole	Black, P.V.C.	3 m	CV-A1-26-B-03	95ACC1510
			5 m	CV-A1-26-B-05	95ACC1520
			10 m	CV-A1-26-B-10	95ACC1530
			15 m	CV-A1-26-B-15	95ACC2080
			25 m	CV-A1-26-B-25	95ACC2100
Shielded M12 Connector (Radial 90°)	4-pole	Black, P.V.C.	3 m	CV-A2-22-B-03	95ACC1540
			5 m	CV-A2-22-B-05	95ACC1550
			10 m	CV-A2-22-B-10	95ACC1560
	8-pole	Black, P.V.C.	3 m	CV-A2-26-B-03	95ACC1600
			5 m	CV-A2-26-B-05	95ACC1610
			10 m	CV-A2-26-B-10	95ACC1620
M12 Connector (Axial)	4-pole	U.L., Black, P.V.C.	3 m	CS-A1-02-U-03	95ASE1120
			5 m	CS-A1-02-U-05	95ASE1130
			10 m	CS-A1-02-U-10	95ASE1140
			15 m	CS-A1-02-U-15	95ASE1150
			25 m	CS-A1-02-U-25	95ASE1160
	5-pole	U.L., Black, P.V.C.	3 m	CS-A1-03-U-03	95ASE1170
			5 m	CS-A1-03-U-05	95ASE1180
			10 m	CS-A1-03-U-10	95ASE1190
			15 m	CS-A1-03-U-15	95ASE1200
			25 m	CS-A1-03-U-25	95ASE1210
			50 m	CS-A1-03-U-50	95A252700
	8-pole	U.L., Black, P.V.C.	3 m	CS-A1-06-U-03	95ASE1220
			5 m	CS-A1-06-U-05	95ASE1230
			10 m	CS-A1-06-U-10	95ASE1240
			15 m	CS-A1-06-U-15	95ASE1250
			25 m	CS-A1-06-U-25	95ASE1260
			50 m	CS-A1-06-U-50	95A252710
M12 Connector (Axial)	4-pole	Black	Connector- not cabled	CS-A1-02-B-NC	G5085002
	8-pole			CS-A1-06-B-NC	95ACC2550
M12 Connector (Radial 90°)	4-pole	Black	Connector- not cabled	CS-A2-02-B-NC	G5085003
	12-pole		15 m	CS-A1-10-U-15	95A252750
	12-pole		50 m	CS-A1-10-U-50	95A252770
	12-pole		10 m	CS-A1-10-U-10	95A252740
M12 Connector (Axial)	12-pole	SG Extended blank rx	0,2 m	CS-G1-70-B-002	95A252830
M12 Connector (Radial 90°)	12-pole	Black	3 m	CS-A1-10-U-03	95A252720
M12 Connector (Axial)	5-pole	SG extended tx	0,2 m	CS-G1-50-B-002	95A252820
SG Extended Cascade	---	SG extended cascade	0,05 m	CS-F1-80-B-0005	95A252860
M12-SG Extended Muting RX	---	SG extended muting rx	0,2 m	CS-R1-75-B-002	95A252810
M12-Slim Cascade	---	Slim cascade	0,1 m	CS-H1-03-B-001	95A252950
M12 Connector (Axial)	8-pole	Shielded cable	3 m	CV-A1-36-B-03	95A255430
	4-pole		5 m	CS-A1-03-G-03	95A252800
Axial M12 Connector	5-pole, L coded power cable		3 m	CS-M1-02-B-03	95ACC0007
Axial M12 F/M8 M Connector	4-pole, double headed		3 m	CS-H1-02-B-03	95ACC0008
Axial M12 F/M12 M Connector	4-pole, double headed		3 m	CS-I1-02-B-03	95ACC0009

CAB SERIES – CABLES & CONNECTORS

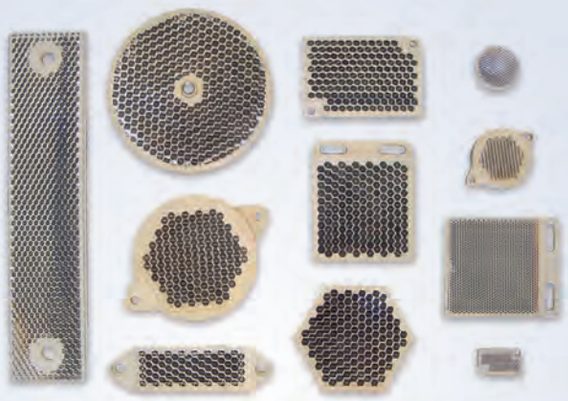
THE RIGHT CONNECTION FOR YOUR IDENTIFICATION PRODUCTS FOR INDUSTRIAL ENVIRONMENT (24VDC)

- The cable jacket maybe marked 300V only as insulation voltage between wires, the operational voltage is 24Vdc, less than 80 V required by CCC-China

DATALOGIC CODE	DESCRIPTION
93A050059	CAB-DS03-S M12-IP67 TO CBX 3M
93A050099	CAB-1011 - M120 M12 MAIN TO CBX 1M
93A051359	CAB-MS03 M16-IP67 CABLE TO CBX 3M
93A051348	CAB-ETH-M05 M12-IP67 ETHERNET CAB. (5M)
606-0677-03	Cable, Gig-E, CAT6, 3 Meter
93A051360	CAB-MS05 M16-IP67 CABLE TO CBX 5M
93A05134	CAB-ETH-M03 M12-IP67 ETHERNET CAB. (3M)
95A906069	CAB-SCS03 Cable, A30/T4x to CBX, 3M
93A051353	CAB-S05 STD CABLE TO CBX 5M
93A050060	CAB-DS05-S M12-IP67 TO CBX 5M
93ACC0081	PWR Cable, AS-I type, 2 Wires, 10 mt
93A050035	CAB-GE03 M12-IP67 TO RJ45 3M
CAB-465	CAB-465 USB TYPE A POT LW 12' 90A051997
93A050036	CAB-GE05 M12-IP67 TO RJ45 5M
93A050048	CBL-1480-0.3 M12/5P MALE/FEM. 0.3M IDNET
93A050073	CAB-AV7-101 M16-IP67 CABLE TO CBX 5M
93A050027	CAB-L003 IP67 LT-020 CABLE TO QL (0,3M)
93A050033	CAB-LP-03 LIGHTING POWER 3M
93A050037	CAB-LP-05 LIGHTING POWER 5M
93A051357	CAB-F05 6K/8K FBUS CABLE TO CBX 5M
93A051364	CAB-9E05 RJ45-IP67 CABLE ETHERNET 5M
93A051346	CAB-ETH-M01 M12-IP67 ETHERNET CAB. (1M)
93A050051	CBL-1480-05 M12/5P MALE/FEMALE 5M IDNET
90A052292	CABLE,USB,TYPEA,EXT PWR,15'
90A051700	CAB-388 RS232/BEETLE 9P M-CONN COIL
93A050058	CAB-DS01-S M12-IP67 TO CBX 1M
93A201203	FOCUS CONTROL 5MT CABLE (M12-FREE WIRES)
93A050084	CAB-MLP-05 MULTI LIGHTING POWER 5M
90A052121	CABLE,RS,ICL PC,15'
93ACC0105	CAB-DS003-S M12-IP67 TO QL 0.3M
606-0677-05	Cable, Gig-E, CAT6, 5 Meter
93A050080	CAB-SE05 M12M TO M12F 5M
93A050100	CAB-1021 - M120 M12 MAIN TO USB 1M
93A051388	CAB-TC1200 TO CBX 10-30 VDC PWR SUPPLY
90A051340	CAB-363 RS232 COILED 25PIN FEM. DCE
93A050067	ETH CABLE M12-M12 5M (STRAIGHT-STRAIGHT)
95A903018	86984-Pwr and I/O cable, 6pin/9Pin ,2M
8-0938-02	CABLE,ROHS,USB,SURE POS,POT,4.6M
606-0674-03	Camera to Term Block Pwr/IO cable,6 pin
93A050044	CAB-LD-102 LT DRIVER NO PWR 0.2M
93A050072	CAB-AV7-100 M16-IP67 CABLE TO CBX 3M
606-0675-1.5	M-Series I/O Cable, DB37 M/M, 1.5 Meter
95A901340	DataVS-CV-RJ45C-03 ethernet cable 3m cro
93A051295	CAB-PWO 03 CABLE PWO TO PWO, 3M
90A052065	CABLE,USB,TYPE A,ENHANCED,STRT,POT,2M
606-0675-.75	M-Series I/O Cable, DB37 M/M, .75 Meter
95A903001	86967-I/O Cable, DB37 M/M, .75 Meter
93A051356	CAB-F02 6K/8K FBUS CABLE TO CBX 2M
93ACC0068	PWR Cable (AS-I to M12 straight)-2mt
93A051337	CAB-SC6013 25p SC6K TO PWO, PWR/NET, 3m
CAB-512	CBL ASY, RS,25P,M,CBX800 POT,COIL,12'
95A906070	CAB-SCS05 Cable, A30/T4x to CBX, 5M
95A903010	86976-Pwr and I/O cbl,6pin, pigtail,2M
93A051338	CAB-SC6003 25P SC6K TO PWO, I/O, 3M
CAB-459	CAB-459 RS232 PWR 9P Female Coiled 3.6m
93A051230	CAB-6102 CABLE M.SLAVE FAM 6K 2M
93A050105	CAB-1005 - M120 M12 MAIN EXTENS 5M
94A051970	CABLE, USB HANDYLINK, CLIENT

8-0863-04	CBL ASY,ROHS,USB,TYPE A,TEC,E/P,1M
93A050032	CAB-LD-002 LT DRIVER +PWR 0.2M
606-0674-02	Camera to Term Block Pwr/IO cable,6 pin
93A051352	CAB-S02 STD CABLE TO CBX 2M
606-0686-15	Cable, Ethernet,SVS Camera, 15 Meter
93A051225	CAB-6115 M/S (NO POWER) FAM 6K 5M
93ACC1855	BA600 M12 5P F. PANEL CONN. (ID-NET OUT)
93A050104	CAB-1002 - M120 M12 MAIN EXTENS 2M
93A051294	CAB-SC6103 9p CAB SC6000 TO PWR, 3m
606-0677-M1-02	Cable, Gig-E, CAT6, Horizontal Mold, 2 M
95A903002 86968-I/O	Cable, DB37 M/M, 1.5 Meter
606-0673-10	Camera to Term Block Pwr/IO cable,12 pin
606-0685-10	Cable, Power and I/O for SVS Cam
93A050050	CBL-1480-02 M12/5P MALE/FEMALE 2M IDNET
606-0675-4.5	M-Series I/O Cable, DB37 M/M, 4.5 Meter
93A051371	CAB-9S05 M16-IP67 CABLE TO CBX 5M
6003-0940	CBL,AC CORD,IEC/EUR,ROHS
93A050115	CAB-MC06 M300 M12 8P PWR + CAN
93A050066	ETH CABLE M12-M12 3M (STRAIGHT-STRAIGHT)
606-0677-HF-03	Cable, Gig-E, Hi-Flex CAT-5e, 3 Meter
606-0677-02	Cable, Gig-E, CAT6, 2 Meter
93A050079	CAB-SE03 M12M TO M12F 3M
95A903012	86978-Pwr and I/O cbl,6pin, pigtail,5M
93A051289	CAB-6505 FAM 6K-8K CABLE 5m
632289-001	CABLE,CAB-521 ENHANCED USB,BLACK,STRT,2M
CAB-524	CABLE,CAB-524,USB,TYPE A,POT,COIL,2.4M
93A050103	CAB-1001 - M120 M12 MAIN EXTENS 1M
1000065716	CORDSET,ENET,8P,(M) M12-(F) RJ45,0.2M
606-0677-M1-03	Cable, Gig-E, CAT6, Horizontal Mold, 3 M
95A903003	86969-I/O Cable, DB37 M/M, 3 Meter
606-0677-10	Cable, Gig-E, CAT6, 10 Meter
95A903009	86975-Pwr and I/O cbl,12pin,pigtail,10M
90A051740	CAB-391 IBM/PS2 COILED MINIDIN EXT.PW
93A051000	CAB-8005 CABLE SCANNER CONTROLLER 5m
93A051389	CAB-GE10 M12-IP67 TO RJ45 10M
606-0671-02	Power Supply/IO cable, 12pin, pigtail,2M
0112247002	CBL ASY,SYNC NTWRK ADPTR,2FT,AV60
606-0673-05	Camera to Term Block Pwr/IO cable,12 pin
90A051950	CAB-428 RS485 INTERFACE SPLITTER
95A906071	CAB-SCS10 Cable, A30/T4x to CBX, 10M
93ACC1752	CAB-6310 POWER CABLE FAM 6K 10M
CAB-463	CAB-463 KBW PS2 POT LAPTOP 12' 90A051995
93A201206	AV7000 CONTROLLER KEY
8-0730-04	CABLE,ROHS,RS,ICL PC,15'
CAB-501	CAB-501 RS 9D F PWR STR 10.5' 90A052036
606-0673-02	Camera to Term Block Pwr/IO cable,12 pin
RCR-P090	CABLE RETAINER & SPACER (5PCS)
606-0675-3	M-Series I/O Cable, DB37 M/M, 3 Meter
CAB-462	CAB-462 KBW PS2 POT-E/P 12' 90A051994
95A906516	Cable USB3.0, Micro B screw lock/A, 5m
93A051358	CAB-MS01 M16-IP67 CABLE TO CBX 1M
CAB-437	CAB-437 KBW PS/2 POT COIL,10' 90A051968
606-0677-HF-02	Cable, Gig-E, Hi-Flex CAT-5e, 2 Meter
95A903011	86977-Pwr and I/O cbl,6pin, pigtail,3M
90A052060	CBL ASY,RS/BEETLE,9P,COIL,6M
90A052058	CBL ASY,RS/BEETLE,9P-M,COILED,12'
93A051240	CAB-6105 CABLE M.SLAVE FAM 6K 5M
10-4229	PART,CABLE,ANALOG,HORIZONTAL MGL85, 85XT
93A050047	CBL-1496 TERM. RESIST. M12/5P/FEM. IDNET
93A050057	CBL-1534-0.2 ADAPT. CABLE ETH M12-TO-RJ4
90A051350	CAB-364 RS232 COILED 25PIN MALE DTE
890002947	MEMOR X3 CABLE KIT
95A901700	DataVS-CV-VSM-02 connection cable 2mt
93A050053	CBL-1494-05 M12/5P/FEMALE-LEADS 5M IDNET
94A051020	CAB-427 RS232 NULL MODEM CABLE
671376-001	CABLE,USB,SERIES A,POT,2M
93A050124	CAB-ETH-X-M03 M12-IP67 GETH-X CAB 5M
93A051363	CAB-9C05 M12-IP67 CABLE CHAIN 5M
93A050123	CAB-ETH-X-M03 M12-IP67 GETH-X CAB 3M
93A051387	CAB-MS003 M16 IP-67 CABLE TO QL 0,35M
93A050070	ETH CABLE M12-M12 5M (STRAIGHT-90°)
93A050088	ETH CABLE M12-RJ45 5mt LENGTH (90°-RJ45)
606-0672-05	Power Supply/IO cable,6pin,pigtail,5M
93A050071	Connection Cable SC5000 to CBX510
93A050049	CBL-1480-01 M12/5P MALE/FEMALE 1M IDNET
94ACC0157	RS232 CABLE, SCREEN BLANKING
6003-0925	POWER CORD,IEC C13,AUSTRALIA,RoHS
CAB-509	CBL ASY, RS,25P,M,CBX800 E/P,COIL,12'
94ACC0165	DC PWR CABLE 2.9m
93ACC1854	BA500 M12 4P F. PANEL CONN. (TRIGGER)
93ACC1853	BA400 M12 3P M. PANEL CONN. (EXT.POWER)
93ACC1877	BA300 M12 3P F. PANEL CONN. (SERVICE)
93A050108	CAB-1051 - M120 M12 MAIN USB AND I/O 1M

R-SERIES REFLECTORS



EXCELLENT PERFORMANCE WITH INFRARED, RED LIGHT AND POLARIZED EMISSION

- Prismatic reflectors for retroreflective sensors
- High efficiency models for long operating distances
- Microprism reflectors for sensors with LASER emission
- Self-adesive reflectors and reflector tape

APPLICATIONS

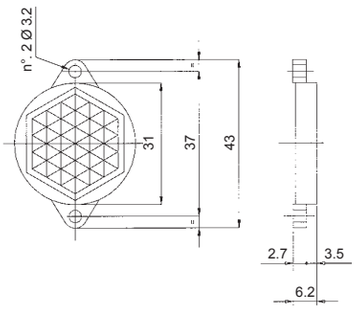
- Automated warehousing
- Processing and Packaging machinery
- Industrial vehicles
- Automotive

REFLECTORS	
Prismatic reflector material	Reflector in PMMA plastic
Support material	Support in ABS
Mechanical protection	IP67, IP69K (R4K)
Operating temperature	-30 ... +70°c

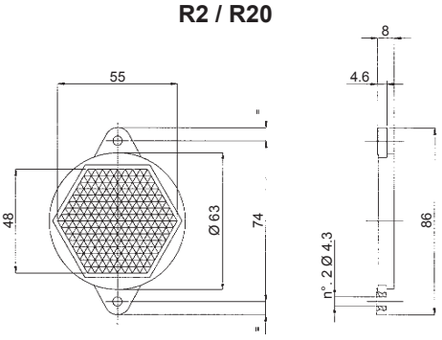
MODELS	DESCRIPTION	ORDER No.
R1	Ø 23 mm with Ø 31 mm support	S940700023
R2	Ø 48 mm with Ø 63 mm support	S940700048
R3	18 x 54 mm with 22 x 82 mm support	S940700972
R4	47x 47 mm with 51.5 x 61 mm support	95A151340
R4K	51X61 mm IP69K protection	95A151220
R5	Ø 75 mm with Ø 82 mm support	S940700075
R6	36 x 55 mm with 40.5 x 60 mm support	95A151350
R7	47x47 mm microprism reflector with 51 x 61 mm support	95A151360
R8	9.7 x 19 mm microprism reflector with 13.8 x 23 mm support	95A151370
R9	Ø 23 mm with Ø 25 mm self-adhesive support	95A151080
R10	36 x 176 mm with 41 x 181 mm support	S19120000
R11	146 x 15 mm with 150 x 18 mm support	95A155050
R14	Ø 24 mm with Ø 25 mm support	95A151310
R16	9.7 x 19 mm reflector with 14 x 23 mm support	95A151330
R20	Ø 48 mm microprism reflector with Ø 63 mm support	95A151090
R35	Ø 33 mm with Ø 35 mm support	95A151530
S12	Ø 48 mm with ch.52 mm hexagon support	S940710048
R100	19 x 35 mm reflector with 24 x 48 mm support	9CACC7990
RT3870	200 x 300 mm self-adhesive reflective tape	S940000600
RT3970	200 x 300 mm self-adhesive reflective tape for polarized light	S940000900
RT3970	60 x 40 mm self-adhesive reflective tape for polarized light	S940000604

DIMENSIONS

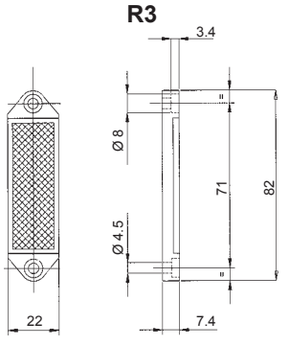
R1



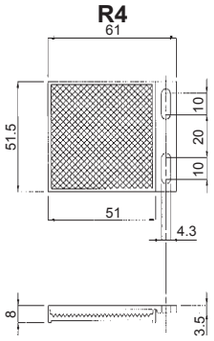
R2 / R20



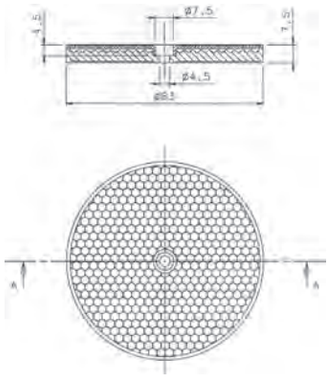
R3



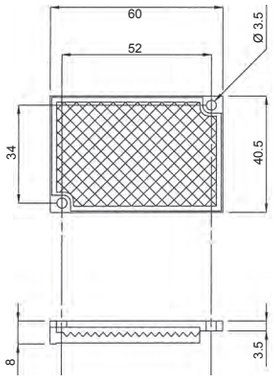
R4



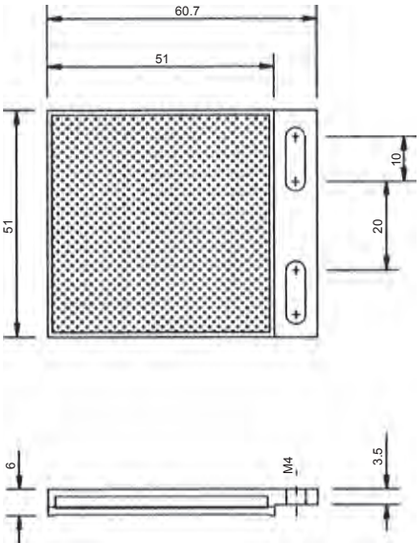
R5



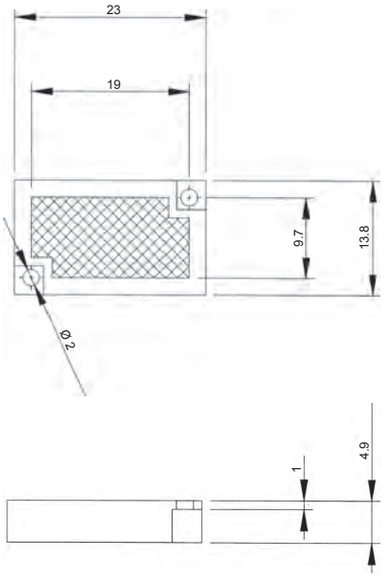
R6



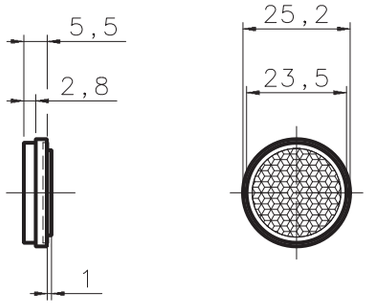
R7



R8

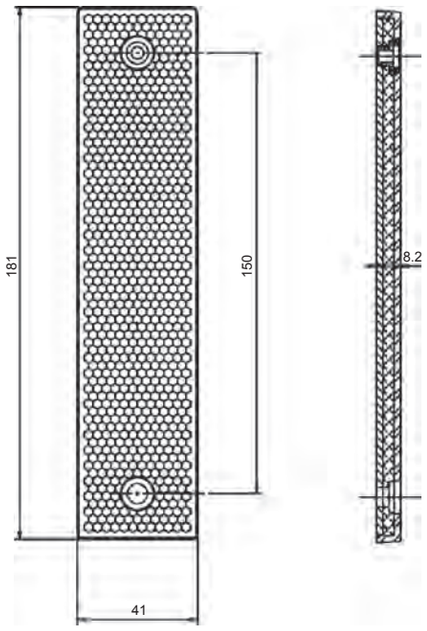


R9

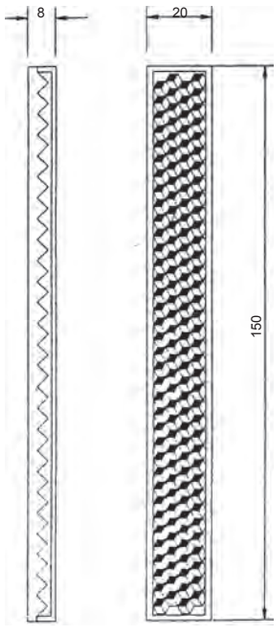


mm

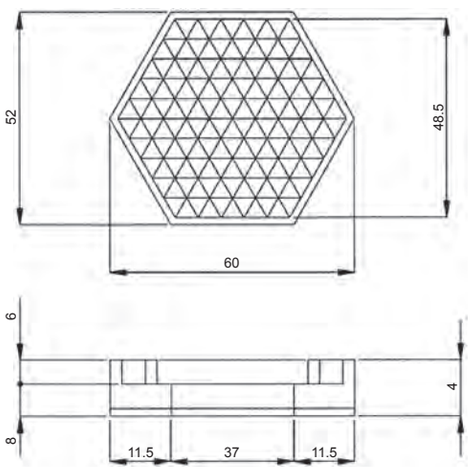
R10



R11

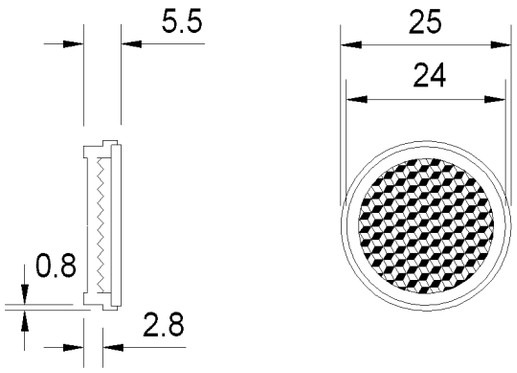


S12



mm

R14



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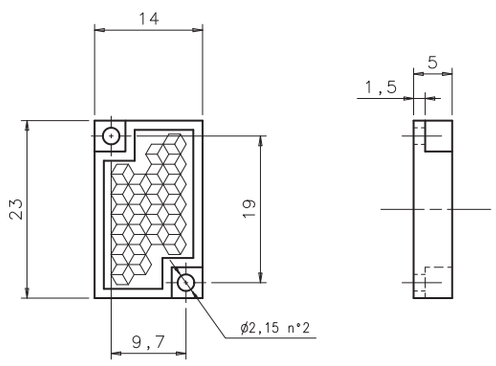
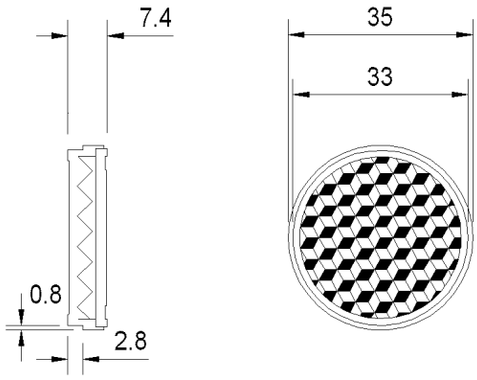
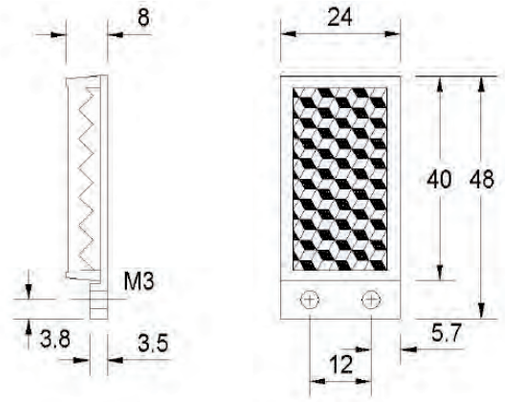
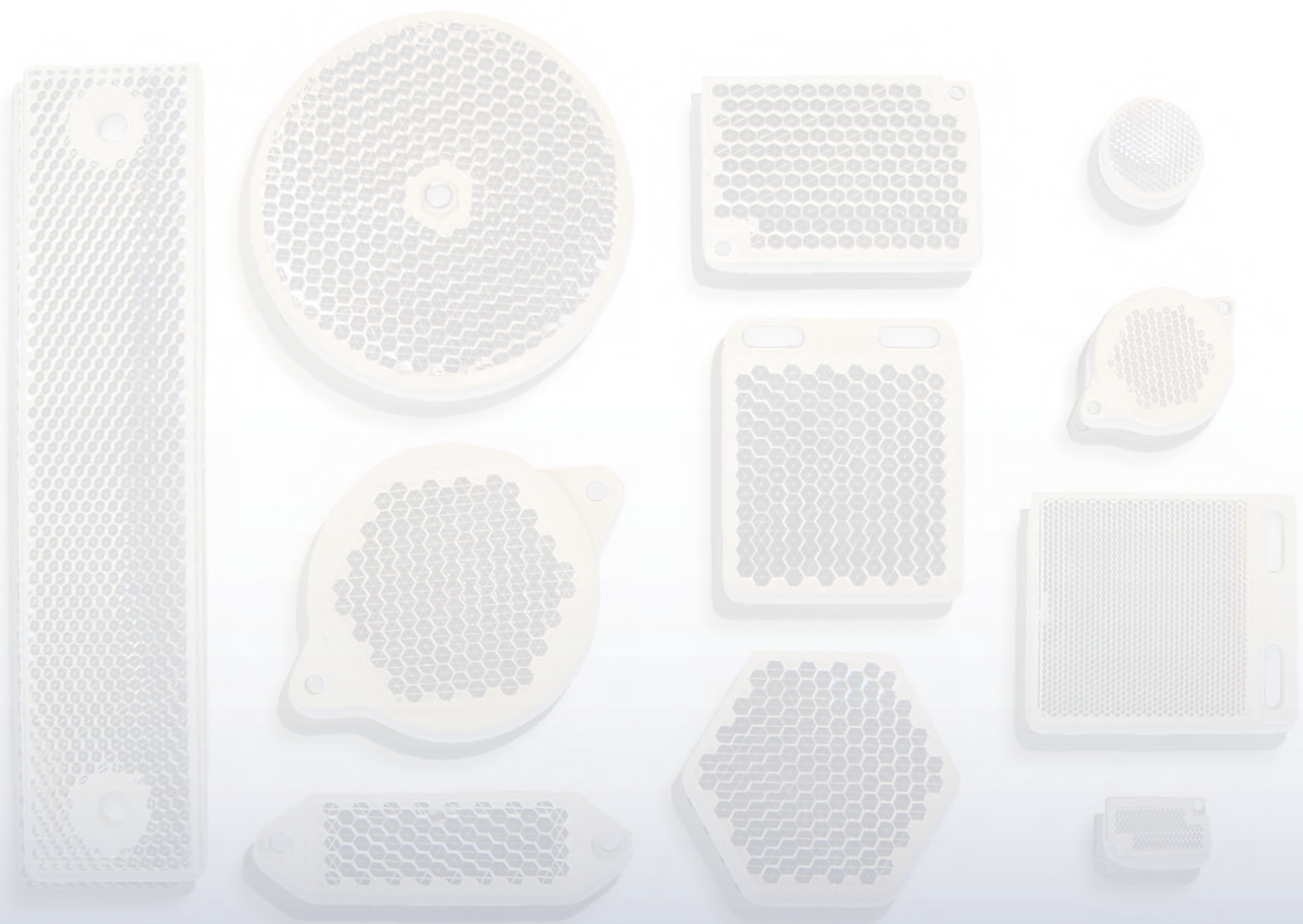


R35



R100





Rev. 00, 05/2019

NOTES

NOTES

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Rev. 09, 08/2019

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