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S300

OVERVIEW

- 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

TECHNICAL SPECIFICATION

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	500Hz (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-reinforced
Lens material	frontal window and lens in PC
Operating temperatur	-25 ... 55 °C
Storage temperature	-25 ... 70 °C
Weight	120 g (mod. S300...2), 130 g (mod. S300...1)

S3Z

OVERVIEW

- 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

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

TECHNICAL SPECIFICATION

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), one turn sensitivity trimmer
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

S45

OVERVIEW

- 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	

TECHNICAL SPECIFICATION

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(Wxx,Yxx),Analog 0...10V(Yxx)
Output current	100mA

Saturation voltage	2 V max
Response time	≤ 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

S5N

OVERVIEW

- 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
- IO-Link connectivity V1.1 with double channel

IO-Link

APPLICATIONS

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

TECHNICAL SPECIFICATION

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/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)

S62 COMPACT PHOTOELECTRIC SENSOR

OVERVIEW

- 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

TECHNICAL SPECIFICATION

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	sensititivity 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.

S65-M

OVERVIEW

- Long Range background suppression detection up to 5m
- Black 6% detection up to 3,5mt
- Model for stable detection on glossy surface
- 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
- Current and Voltage Analog out 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
Critical shiny surface object detection	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	

TECHNICAL SPECIFICATION

Supply voltage	24 VDC ± 20%
Consumption	< 2.2 W (excluding any loads)
Operating Distance	0.3..5 m (90% white) / 0.3..4.5 m (18% grey) / 0.3..3.5 m (6 % black) (Models S65...OO, ...OOZ, ...OOI, ...OOV) 0,3..4 m (90% white) / 0,3..2,6 m (18% grey) / 0,3..2 m (6% black) (Model S65... M53)
Hysteresis	30mm / 50mm / 80mm
Response time	8.5 msec max. 30 msec max. (S65...M53)
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.
Voltage output	0...10V (S65...OOV)
Current output	4...20mA (S65...OOI)
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 MΩ, 500 VDC between electronics and case
Reading spot size	typ 200×200 mm @ 4m
Pointer spot size (green)	typ 250×250 mm @ 4m
Max. deviation of pointer/reading spot axes origin	+/- 40 mm
Emission and Wavelength	LED IR / 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

S67-Y

OVERVIEW

- 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	

TECHNICAL SPECIFICATION

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 Drif	± 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

S7

OVERVIEW

- 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

TECHNICAL SPECIFICATION

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.

S70

OVERVIEW

- DIN rail mounting
- Double digital display
- High Speed models: 200 µs ... 5 ms
- Super High Speed models: 10 µs ... 1ms
- Teach-in setting via switch / button + / SET / -
- Remote input
- IO-Link communication V1.1 COM2 2,3ms cycle time
- High level of parameterization
- Normalized connection with 2 m or 4-pole M8 cable

IO-Link

APPLICATIONS

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

TECHNICAL SPECIFICATION

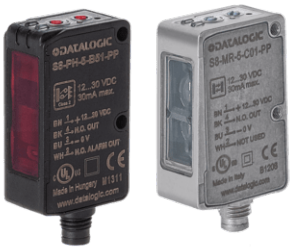
Power supply	10...30 V (current output models and digital output models) 12...30 (voltage output models)
Ripple	10% max
Consumption (output current excluded)	40 mA max. (standard display mode), 30 mA max. (ECO display mode)
Light emission	red 660 nm (mod. S70...E1, S70...E3)
	red 635 nm (mod. S70...E2)
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 2,3ms cicle time V1.1.2 Smart Sensor Profile
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.

S8

OVERVIEW

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



IO-Link

New ASIC

APPLICATIONS

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

TECHNICAL SPECIFICATION

Power supply	12 ... 30 Vdc (battery inversion protected)
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.; 40mA max. all IO-Link Models
Light emission	red LED 660 nm (mod. S8...B01/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...B51/B53/M) Class 1
Sensitivity Setting	8-turn distance adjustment trimmer (mod. S8...M53/M)
	teach-in push button (mod. S8...B53/B53...OZ/M53/W03/W03...OZ/W13/T53/T53...OZ/U03/U03...OZ)
	remote input (mod. S8...M53)
	mono-turn trimmer (mod. S8...B01/C/F/M/T51)
Operating mode	automatic auto adjustement (mod. S8...W/T50)
	remote input (mod. S8...M53)

	LIGHT / DARK mono-turn trimmer (mod. S8...B/C/F/T51/T53/U)
Indicators	yellow OUTPUT LED (all models excl. mod. S8...G), OUTPUT/ALARM LED (mod. S8...M53/M/C)
	green POWER LED
Output	PNP or NPN N.O. ; PNP/NPN/Push Pull fully configurable outputs for all IO-Link models (S8...B53/T53 /W03/U03...OZ)
Output current	100 mA (overload protection and short circuit)
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/T53...OZ IO-Link)
	100 µs (Laser vers. mod. S8...M)
	50 µs (mod. S8...W00/W03/W03..OZ IO-Link and Laser mod. S8...B51/B53...OZ IO-Link)
	20 µs (mod. S8...W13)
	250 µs...1 ms (mod. S8...U) and U03...OZ IO-Link
Switching frequency	500 Hz (mod. S8...M53/M)
	1 kHz (mod. S8...B/F/C)
	2 kHz (mod. S8...T/T53...OZ IO-Link)
	5 kHz (Laser vers. mod. S8...M)
	10kHz (mod. S8...W00/W03/W03..OZ IO-Link and Laser mod. S8...B51/B53...OZ IO-Link)
	25 kHz (mod. S8...W13)
	500 Hz...2 kHz (mod. S8...U) and U03...OZ IO-Link
Communication	IO-Link COM2 V1.1.2 2,3ms cycle time
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 AISI 316L
Optical window 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)

S85

OVERVIEW

- Direct 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**

TECHNICAL SPECIFICATION

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...Y13)
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

SL5

OVERVIEW

SENSORS:

- Emitter-receiver photocells with test input
- Type 2 and Type 4 models
- Plastic tubular and MAXI formats
- Up to 50m operating distance
- Class 1 red laser emission models up to 40
- Standard M12 connectors

CONTROL UNITS:

- Integrated control of 4 single beams and 2 light curtains
- Simple DIP Swicth configuration
- Muting functions can be assigned to light curtains or single beams

APPLICATIONS

- **Robots**
- **Automatic assembling lines**
- **Palletizers and Depalletizers**

TECHNICAL SPECIFICATION

	S5	SL5	S300
GENERAL DATA			
Format	M18 Tubular		Rectangular
Light Emission	Infrared LED 880 nm	Class 1 Red laser (650 nm)	Infrared LED 880 nm
Type (EN61496-1)	2/4 depending on model	4	2/4 depending on model
Effective Aperture Angle (EN61496-2)		-/+ 2.5° for Type 4 models -/+ 5° for Type 2 models	
Operating distance	0 ... 8 m	0 ... 40 m	0 ... 50 m (S300...ST2) 9 ... 40 m (S300...ST4)
ELECTRICAL DATA			
Power supply (Vdc)	24 Vdc ± 15%		
Outputs	PNP (short circuit protection)		
Output current	100 mA max		

Response time	1 ms max		
MECHANICAL AND ENVIRONMENTAL DATA			
Operating temperature	-25 ... 55°C	-10 ... 50 °C	40 ... 55 °C
Mechanical protection (EN 60529)	IP 67		
Housing Material	Polycarbonate, ABS		PBT
Window material	PMMA		Polycarbonate

SR21

OVERVIEW

- 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

TECHNICAL SPECIFICATION

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
Vibrationss	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

SR23

OVERVIEW

- 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

TECHNICAL SPECIFICATION

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

UNIVERSAL PHOTOELECTRIC SENSORS

S10 series

Basic line of standard tubular M18 metal IP69K photoelectric sensors

- Base optic functions available
- IP69K protection
- AISI-316L stainless steel versions
- Ideal for pharmaceutical and food industries
- Standard 3 wire output configuration

NEW PERFORMANCES

The new S10 series of photoelectric sensors in tubular M18 metal housing is ideal for the more critical applications in the pharmaceutical or food industries. The IP69K mechanical protection guarantees resistance against washing with water jets reaching 80°C temperature and 100 bar pressure. Moreover, for a better resistance against more aggressive chemical agents and detergents, AISI-316L stainless steel versions are available with excellent resistance against acid corrosion. The S10 series includes adjustable 10, 35 or 60 cm proximities and 14 mm fixed focus, 4 m retroreflex, 3 m polarised retroreflex and 1 m for transparents, 18 m through beam. The M12 connections requires only 3 wires for power supply and NPN or PNP output.

S50 series

Extended range of standard 'One for All' photoelectric tubular M18 sensors

- All optic functions and Laser versions
- M18 flat plastic with universal fixing
- Available in M18 metal housing
- Axial or radial optics, cable or connector
- Standard 4 wire NO-NC NPN or PNP output

NEW PERFORMANCES

The S50 series offers all the optic functions with the best performances in the standard M18 housing, ranging from the universal also with Laser class 1 emission, to the most advanced as foreground and/or background suppression, contrast, luminescence or distance sensors with analogue output. All models are available in the innovative flat plastic housing with universal fixing, with M18 nuts and M3 screws, or the more traditional cylindrical metal housing. Axial or radial optics, cable or M12 connection with 4 wire standard configuration and NO-NC NPN or PNP antivalent outputs are available. The S50 series is the 'One for All' solution for industrial automation.

S51 series

Cost-effective basic line of standard M18 tubular photoelectric sensors

- Selection of universal optic functions
- The best performances at the best price
- Flat plastic or metal M18 housing
- Axial or radial, cable or conn. versions
- Standard 3 wire and dark/light inputs

NEW PERFORMANCES

The S51 series represents the most cost-effective solution for optic detection in industrial automation. The cost reduction, guaranteed by the automated production and economy of scale, does not compromise the performances that are the best for all basic optic functions. The diffuse proximity has a fixed 10 cm distance or adjustable reaching 40 cm. The retroreflex reaches 4 m or 3 m in the polarised version. The through beam couple offers an operating distance reaching 18 m. All models are available both in a flat plastic housing or cylindrical metal housing, with either axial or radial optics, with cable or M12 connection and NPN or PNP output.

S15 series
Tubular photoelectric sensors

- Small housing of only 40 mm
- Cable output
- No sensitivity adjustment trimmer
- IP69K mechanical protection

NEW SERIES

The main characteristic of the new M18 tubular S15 sensors is the housing length of only 40 mm. The S15 series is supplied without the sensitivity adjustment trimmer to ease and speed installation. Cable or pig-tail versions are available. This feature reduces drastically the possibility of allowing the operator to modify the sensor's performances and so guaranteeing major reliability and productivity. The main optic functions used in the industrial market are available, polarised retroreflex, non-polarised retroreflex, diffuse proximity and through beam. These sensors are ideal for the most critical applications with harsh environmental conditions thanks to the IP69K mechanical protection.

S40/S41 series
Extended range of miniature European style photoelectric sensors

- Cost-effective trimmer universal models
- High-performance models with teach-in
- Background suppression and Laser RRX
- Polarised retroreflex for transparents
- 4 wire NO/NC output or Remote

NEW PERFORMANCES

The S40 series and cost-effective S41 basic line represent the most complete offer of miniature photoelectric sensors with standard European market dimensions and fixing. Different models are available including 6 m through beam, 3 m polarised retroreflex, also with 6 m Laser emission, 0.7 m retroreflex for transparents, 35 cm fixed focus proximity and 15 cm Laser versions, 10 cm background suppression and 6 cm Laser versions for more precise detection. The S40 series presents NO output with Remote input for models with teach-in setting, whereas the S41 cost-effective line has NO-NC antivalent output for models with trimmer adjustment. All versions have NPN or PNP output with cable or M8 connection.

S8 series
Advanced line of miniature photoelectric sensors

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

NEW SERIES

The new S8 series of compact sensors offers excellent detection performances, usually associated with sensors that have larger dimensions and a higher price. The series offers Laser models with coaxial polarised retroreflex for the detection of transparent objects, biaxial retroreflex, background suppression, diffuse proximity optic functions as well as contrast sensors with RGB emission. The Laser versions present extremely focussed spot inferior to 1 mm and switching frequencies that are amongst the highest on the market reaching 10kHz. The retroreflex models supply great reliability and plant productivity thanks to an additional ALARM output for dirty lenses. Connector M8 or M12 'pig-tail' versions are available.

UNIVERSAL PHOTOELECTRIC SENSORS

S3Z series

Basic line of miniature Far East style photoelectric sensors

- 50-250 mm background suppression
- 0.7 m proximity, 15 cm with narrow beam
- 4 m polarised retroreflex
- 15 m through beam
- Standard 3 wire output configuration

NEW MODELS

The high operating distances and cost effective price, make the S3Z series a reference in the miniature format with dimensions and standard fixing affirmed on the market, in particular in the Far East. Different models are available: 15 m through beam, 4 m polarised retroreflex, 70 cm diffuse proximity and narrow beam for between 50 and 150 mm. Moreover, a 5 to 25 cm background suppression model with multi-turn mechanical trimmer setting is available. Versions with NPN or PNP output, with dark or light operating mode and with cable or M8 connection are foreseen. The plastic housing is completely overprinted, guaranteeing maximum mechanical protection also in presence of frequent washing.

S7 series

Fibre optic amplifiers in a compact format for DIN rail

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

NEW MODELS

The S7 sensors represent the ideal solution for the mounting of different units on DIN rails allowing to displace the various fibre optic detection points in different machine positions, also in limited spaces or in presence of mechanical constraints or high temperatures. Models with only 50 µs response time and 4-digit display indication are available for applications requiring high-precision and speed detection of small objects or minimum colour or grey-scale contrasts. Standard 500 µs and 10 bit models are ideal for applications with higher operating distances. Sensor setting is easy and rapid thanks to the *EASYtouch*™ system or trimmer adjustment in more cost-effective models.

S60 series

Extended photoelectric sensor range in the compact 50x50 'One for All' format

- Universal and application optic functions
- Laser class 1 versions for long distances
- Polarised retroreflex for transparents
- Contrast and UV luminescence sensors
- Standard 4 wire NO-NC NPN or PNP

NEW PERFORMANCES

The S60 series, in the compact 50x50 housing, only 15 mm wide, offers the most advanced optic functions, together with the universal ones for presence detection, available also with Laser class 1. The different models include polarised retroreflex with coaxial optics for the detection of reflective and transparent objects, foreground and background suppression, white light contrast sensors for the detection of coloured marks, UV emission luminescence sensor and the distance sensor with analogue output. Versions with cable or two-position rotatable M12 connector are available, with NPN or PNP standard output.

S62 series

High-performance background suppression and polarised retroreflex

- Sensors with LED or Laser emission
- Background suppr. from 3 cm to 2 m
- Polarised retroreflex up to 20 m
- Distance sensor 50 to 150 mm
- NPN/PNP output NO-NC configuration

NEW SERIES

The S62 series offers the maximum performances in the main optic detection functions. The background suppression models reach a 3-30 cm range with visible red LED emission, or 6-60, 6-120 and 20-200 cm with infrared LED emission. The polarised retroreflex models with visible red LED emission present a very long operating distance reaching 10 m with high immunity against reflection received from shiny objects. Versions with visible red Laser emission are available with both 3-15 or 5-35 cm background suppression and polarised retroreflex up to 22 m and distance measurement 50-150 mm. The Laser sensors are characterised by a very small light spot and a low response time that guarantee excellent detection repeatability.

S90 series

Extended range of compact photoelectric sensors in metal housing

- Background suppression and polarised retroreflex
- Laser class 1 versions for long distances
- Contrast and UV lumin. sensors
- High mechanical protection degree
- Standard 4 wire NO-NC NPN or PNP output

NEW PERFORMANCES

The S90 series, developed in the sturdy compact 41x49x15 mm metal housing, offers all the application and universal optic functions, available also with Laser class 1 emission. The series includes polarised retroreflex with coaxial optics for the detection of reflective or transparent objects, foreground and background suppression, contrast sensor with white light emission for register mark detection, luminescence sensor with UV emission for fluorescent mark detection. Versions with NPN or PNP output are available with standard M12 connector rotatable in 4 positions.

S2Z series

New line of Maxi photoelectric sensors ideal for critical applications

- Base optic functions
- IP67 mechanical protection
- Timing functions (ONE-SHOT, ON / OFF Delay)
- Connection block with spring clamps to ease cabling

NEW SERIES

The new S2Z series offers 4 models with base optic functions: 50 m through beam, 7 m polarised retroreflex, 1 m diffused proximity and 2 m background suppression. Versions with continuous 10 a 30Vdc and alternate 24…240 Vac / 12…240 Vdc free-voltage, available with timing versions, adjustable from 0.1 to 5 seconds. The outputs can have a SPDT relay contact or transistor with double NPN/PNP open collector solution. The connection block facilitates connections and simplifies installation. The sturdy plastic housing guarantees excellent resistance to particularly harsh working environments.

UNIVERSAL PHOTOELECTRIC SENSORS

Tubular

			S5	S10
OPERATING DISTANCES	**SERIES**			
	Through beam		0...12 m	0...18 m
	Retroreflex (on R2 reflector)		0.1...4 m	0.1...4 m
	Polarised retroreflex (on R2 reflector)		0.1...3 m	0.1...3 m
	Retroreflex for transparents (on R2 reflector)		0.1...0.8 m	0.1...0.8 m
	Diffuse proximity		1...10 cm 1...35 cm 0...60 cm	1...10 cm 1...35 cm 0...60 cm
	Fixed focus proximity		15 mm	14 mm
	Background suppression			
	Foreground suppression			
	Distance sensor			
	Through beam with fibre optic		0...85 mm	
	Diffuse proximity with fibre optic		0...22 mm	
TECHNICAL DATA	Power supply	Vdc	10...30	10...30 II3
		Vac	15...264	
		Vac/dc		
	Output	PNP	•	•
		NPN	•	•
		NPN/PNP	•	
		relay (SCR)	(•)	
		other		
	Connection	cable	•	
		connector	•	•
		pig-tail		
	Approximate dimensions (mm)		M18 x 55/68	M18 x 55/67
	Housing material		ABS	NI plated brass AISI-316L stainless steel
	Mechanical protection		IP67	IP69K

S15
0…20 m
0.1…4 m
0.1…3 m
1…10 cm 1…35 cm
12…30
•
•
•
•
M18 x 40
ABS
IP69K

UNIVERSAL PHOTOELECTRIC SENSORS

Tubular

	SERIES		S50	S51
OPERATING DISTANCES	Through beam		0...25 m 0...60 m cl.1	0...20 m
	Retroreflex (on R2 reflector)		0.1...4 m	0.1...4 m
	Polarised retroreflex (on R2 reflector)		0.1...4 m 0.1...16 m cl.1	0.1...3 m
	Retroreflex for transparents (on R2 reflector)		0.1...1.3 m	
	Diffuse proximity		0...10 cm 0...40 cm 0...70 cm 0...35 cm cl.1	0...10 cm 1...45 cm
	Fixed focus proximity		10 cm	
	Background suppression		5...10 cm	
	Foreground suppression		4...10 cm	
	Distance sensor		5...10 cm	
	Through beam with fibre optic		0...100 mm	
	Diffuse proximity with fibre optic		0...30 mm	
TECHNICAL DATA	Power supply	Vdc	10...30	10...30
		Vac		
		Vac/dc		
	Output	PNP	•	•
		NPN	•	•
		NPN/PNP		
		relay (SCR)		
		other	0...10 V	
	Connection	cable	•	•
		connector	•	•
		terminal block		
	Approximate dimensions (mm)		M18 x 55/68	M18 x 55/68
	Housing material		PBT Nl plated brass	PBT Nl plated brass
	Mechanical protection		IP67	IP67

SDS	SL5
	0…60 m cl.1
	0.03…12 m cl.1
	0…35 cm cl.1
2…10 cm 4…12 cm	
10…30	10…30
•	•
•	
•	
•	•
M18 x 100 (SDS5) M18 x 80 (SDS10)	M18 x 66
ABS (SDS5) NI plated brass (SDS10)	ABS
IP67	IP67

UNIVERSAL PHOTOELECTRIC SENSORS

Miniature and fiber optic

		SERIES	SM*all*	S40
OPERATING DISTANCES		Through beam	0...2 m	0.1...6 m
		Retroreflex (on R2 reflector)	5...150 cm	0.1...3 m
		Polarised retroreflex (on R2 reflector)	10...100 cm	0.1...2.5 m cl.2 0.1...6 m
		Retroreflex for transparents (on R2 reflector)		0.1...0.7 m
		Diffuse proximity		0.5...30 cm 4...15 cm cl.2
		Fixed focus proximity	3...15 mm 3...20 mm 3...30 mm 3...50 mm	
		Background suppression		1.5...10 cm 2...6 cm cl.2
		Foreground suppression		
		Distance sensor		
		Through beam with fibre optic		
		Diffuse proximity with fibre optic		
TECHNICAL DATA	Vdc	Power supply	10...30	10...30
	Vac			
	Vac/dc			
	PNP	Output	•	•
	NPN		•	•
	NPN/PNP			
	relay			
	other			
	cable	Connection	•	•
	connector			•
	terminal block			
		Approximate dimensions (mm)	8 x 23 x 12	12 x 32 x 20
		Housing material	polycarbonate	ABS
		Mechanical protection	IP67	IP67

S41
0.1…6 m
0.1…2.5 m
0.1…0.7 m
0.2…35 cm
110 mm
10…30
•
•
•
•
12 x 32 x 20
ABS
IP67

UNIVERSAL PHOTOELECTRIC SENSORS

Miniature and fiber optic

			S3Z	S3
OPERATING DISTANCES	SERIES			
	Through beam		0...15 m	0...5 m
	Retroreflex (on R2 reflector)			0.1...2.5 m
	Polarised retroreflex (on R2 reflector)		0.05...4 m	0.1...2 m
	Retroreflex for transparents (on R2 reflector)			0.2...0.8 m
	Diffuse proximity		0...70 cm 5...15 cm	0...10 cm 0...50 cm
	Fixed focus proximity			12 mm
	Background suppression		5...25 cm	
	Foreground suppression			
	Distance sensor			
	Through beam with fibre optic			0...110 mm
	Diffuse proximity with fibre optic			0...33 mm
TECHNICAL DATA	Power supply	Vdc	10...30	10...30
		Vac		
		Vac/dc		
	Output	PNP	•	•
		NPN	•	
		NPN/PNP		•
		relay		
		other		
	Connection	cable	•	•
		connector	•	•
		pig-tail		
	Approximate dimensions (mm)		11 x 31 x 19	13 x 42 x 29
	Housing material		PC/PBT	ABS
	Mechanical protection		IP67	IP66

S8	S7
0…10 m cl.2 0.1…5 m	
0…0.8 m	
0…50 cm	
2...20 cm cl.2 5…30 cm	
	0...300 mm 0...150 mm 0...75 mm
	0...100 mm 0...50 mm 0...25 mm
12…30	12...24
•	•
•	•
	•
•	•
•	
14 x 42 x 25	10 x 40 x 65
ABS	ABS
IP67	IP65 IP50 (trimmer vers.)

UNIVERSAL PHOTOELECTRIC SENSORS

Compact

	SERIES		S6	S60
OPERATING DISTANCES	Through beam		0...20 m	0...20 m 0...60 m cl.1
	Retroreflex (on R2 reflector)		0.1...6 m	
	Polarised retroreflex (on R2 reflector)		0.1...5 m	0...3.2 m (coaxial) 0.1...6.5 m 0.1...20 m cl.1
	Retroreflex for transparents (on R2 reflector)		0.1...1 m	0...1.7 m (coaxial)
	Diffuse proximity		1...90 cm 5...200 cm	1...100 cm 5...200 cm 0...60 cm cl.1
	Fixed focus proximity			
	Background suppression		0.1...10 cm 3...25 cm 10...50 cm	7...20 cm 5...10 cm cl.1
	Foreground suppression		5...20 cm	7...20 cm
	Distance sensor			5...15 cm
	Through beam with fibre optic			
	Diffuse proximity with fibre optic			
TECHNICAL DATA	Power supply	Vdc	10...30	10...30
		Vac		
		Vac/dc	15...264	
	Output	PNP	•	•
		NPN		•
		NPN/PNP	•	
		relay	•	
		other		0...10 V
	Connection	cable	•	•
		connector	•	•
		terminal block		
	Approximate dimensions (mm)		18 x 50 x 50	15 x 50 x 50
	Housing material		ABS	ABS
	Mechanical protection		IP65	IP67

S62	S90
	0…20 m 0…60 m cl.1
0.5…8.5 m 0.3…20 m cl.2	0…3.2 m (coaxial) 0.1…6.5 m 0.1…20 m cl.1
	0…1.7 m (coaxial)
	1…100 cm 5…200 cm 0…60 cm cl.1
30…300 mm 60…600 mm 60…1200 mm 200…2000 mm 30…150 mm cl.2 50…350 mm cl.2	7…20 cm 5…10 cm cl.1
	7…20 cm
80 ± 40 mm cl.2	
10…30	10…30
•	•
•	•
•	
•	•
18 x 50 x 50	15 x 50 x 41
ABS IP67	zama IP67

UNIVERSAL PHOTOELECTRIC SENSORS

Maxi

	SERIES		S2	S2Z
OPERATING DISTANCES	Through beam		0...10 m 0...50 m	0...50 m
	Retroreflex (on R2 reflector)		0.1...5 m	
	Polarised retroreflex (on R2 reflector)		0.1...3 m	0.2...7 m
	Retroreflex for transparents (on R2 reflector)			
	Diffuse proximity		1...90 cm 1...200 cm	0...1 m
	Fixed focus proximity			
	Background suppression			20...200 cm
	Foreground suppression			
	Distance sensor			
	Through beam with fibre optic			
	Diffuse proximity with fibre optic			
TECHNICAL DATA	Power supply	Vdc	10...30	12...24
		Vac		
		Vac/dc	15...264	12...240
	Output	PNP		•
		NPN		•
		NPN/PNP	•	
		relay	•	•
		other		
	Connection	cable		
		connector		
		terminal block	•	•
	Approximate dimensions (mm)		26 x 58 x 85	25 x 67.5 x 90
	Housing material		PBT	PBT
	Mechanical protection		IP66	IP67

S20	S30
0.1…50 m	0…50 m
0.1…8 m	0.1…10 m
0.1…2 m	0.05…2 m
10…50 cm	20…110 cm
10…30	10…30
	17…264
•	•
•	
	•
	•
•	•
	•
26 x 65 x 55	32 x 85 x 73
ABS	policarbonato
IP66	IP67

APPLICATION
PHOTOELECTRIC SENSORS

SR21 series
High-resolution 2 mm slot sensors for labelling and packaging

- 25 kHz high switching frequency
- IR or red/green light models
- Detection of semi-transparent labels
- Detection of register marks on transparents
- 4 wire antivalent NPN and PNP output

NEW PERFORMANCES

The slot sensors of the SR21 series, with 2 mm slot width, are characterised by a high 12 bit (4096 steps) resolution, a low 20 μs response time and a switching frequency reaching 25 kHz. The setting of the switching threshold is carried-out automatically by simply pressing a push-button, or dynamically during label (or other reference) movement. The SR21-IR model with infrared emission is ideal for label or hole detection on continuous reels, while the SR21-RG model with red or green emission (automatically selected) suits print register colour mark detection on transparent films for automatic packaging.

LD46 series
New luminescence sensor line in standard metal housing

- UV high power LED emission
- High sensitivity on fluorescent marks
- 10 - 100 mm detection distance
- 2 kHz switching frequency
- NPN/PNP and 0-5 V analogue outputs

NEW SERIES

The new LD46 series of UV LED emission luminescence sensors, with operating distances ranging from 10 to 100 mm, offers different models ideal for typical industrial applications. A model able to detect fluorescent marks, including thin or not clearly marked lines on even reflective tiles is available for the ceramic industry. High-power models for luminescent mark detection at longer operating distances, even on very irregular surfaces, are available for wood-working machines. Another model, specifically developed for the pharmaceutical industry, is offered for the detection of labels on glass phials, or paper sheets in pharmaceutical packaging.

LD50 series
New luminescence sensor line in innovative plastic housing

- UV high power LED emission
- Innovative plastic housing
- 10 mm detection distance
- 2 kHz switching frequency
- Bipolar NPN and PNP outputs

NEW SERIES

The new LD50 series of UV LED emission luminescence sensors, has been developed as the most cost-effective solution with high reading performances and innovative design. The LD50 is especially suited to application in compact machinery where limited space is available, the robust plastic housing ensure easy and flexible integration into many diffetrent enviroment. The LD50 is typical used in pharmaceutical and cosmetic industries to detect label on bottles, automatic packaging to detect whitened paper or fluorescent glues. The M12 4 poles connector offers simple and fast connection.

TL46 series

New contrast sensor line in standard metal housing

- Wide-spectrum RGB LED emission
- Basic, standard and enhanced versions
- Manual and dynamic teach-in setting
- 30 kHz switching frequency
- NPN/PNP and 0-5 V analogue outputs

NEW SERIES

The new contrast sensor line of the TL46 series is available in 3 different versions. The TL46-W basic version has only one setting push-button, 2 indication LEDs and optimised performances to obtain maximum use at the lowest price. The TL46-WL standard metal version has 3 push-buttons and a bargraph for manual, automatic or manual setting of the threshold, with excellent performances reaching maximum contrast resolution in grey or coloured scale with a 20 kHz switching frequency. The TL46-WLF enhanced version offers also a 4-digit display enabling the setting of the most advanced functions and the maximum performances are reached, such as the 30 kHz switching frequency.

TL50 series

New contrast sensor line in innovative plastic housing

- Wide-spectrum RGB LED emission
- 9 mm operating distance
- Automatic teach-in setting
- 15 kHz switching frequency
- Bipolar NPN and PNP outputs

NEW SERIES

Contrast sensors have become an essential part of automated production processes. They are used for the reliable detection of all types of differences in contrast.
With static 2 point teach-in (mark and background) the TL50 is set up via the teach-in button directly on the sensor. The RGB emission (red, green and blue), means maximum reliability of detection, for each teach operation, the sensor independently selects which of the three emitter diodes to use. The compact design is the cost-effective alternative for standard applications with good reading performances. The robust plastic housing ensure easy and flexible integration into many different environments.

AS1 series

AREAsensor™ high-resolution photoelectric light grids

- Area sensors with crossed beams
- 100 mm controlled height
- Operating distance reaching 3 m
- PNP output, Scan mode input and trimmer adjustment

NEW SERIES

The *AREAsensor*™ photoelectric light grids of the AS1 series are area sensors with cross-beams able to detect all objects, with even 0.2x75 mm dimensions, inside a 100 mm height and distances reaching 3 m between emitter and receiver. The AS1 area sensors represent the ideal solution for the detection of very small objects, even in random positions inside the controlled height and width. The ultra-compact AS1 light grids suit fast conveyor lines, such as feeding and downloading lines, for the object detection and counting in random positions. Versions with trimmer sensitivity adjustment and optic synchronism are available.

APPLICATION
PHOTOELECTRIC SENSORS

Slot sensors

TECHNICAL DATA

SERIES		SR21	SR22
Slot sensor		2 mm	2 mm
Slot depth		50 mm	40 mm
Switching frequency		25 kHz	10 kHz
Light emission		IR LED red / green LED	IR LED
Setting		AUTO-SET push-button	trimmer
Power supply	Vdc	10...30	24 ± 15%
	Vac		
	Vac/dc		
Output	PNP	•	•
	NPN	•	•
	NPN/PNP		
	relay		
	other		
Connection	cable		
	connector	•	•
	terminal block		
Approximate dimensions (mm)		20 x 90 x 26	14 x 68 x 37
Housing material		zama	aluminium
Mechanical protection		IP65	IP60




SRF-30	SRF-50	SRF-80	SRF-120
30 mm	50 mm	80 mm	120 mm
34 mm	54 mm	54 mm	54 mm
1.5 kHz 3 kHz cl.2	1.5 kHz 3 kHz cl.2	1.5 kHz 3 kHz cl.2	1.5 kHz 3 kHz cl.2
red LED red Laser cl.2	red LED red Laser cl.2	red LED red Laser cl.2	red LED red Laser cl.2
trimmer	trimmer	trimmer	trimmer
10...30	10...30	10...30	10...30
•	•	•	•
•	•	•	•
•	•	•	•
10 x 50 x 59	10 x 70 x 79	10 x 100 x 79	10 x140 x 84
aluminium	aluminium	aluminium	aluminium
IP65	IP65	IP65	IP65

APPLICATION
PHOTOELECTRIC SENSORS

Luminescence sensors

SERIES		LDμ	LD46
Luminescence sensor		10…100 mm	10…100 mm
Luminescence sensor with fibre optic		0...30 mm	
Switching frequency		2 kHz	2 kHz
Light emission		UV LED	UV-HP LED
Setting		MARK and BACKGROUND push-buttons	+/- SET push-buttons
TECHNICAL DATA			
Power supply	Vdc	10…30	15…30
	Vac		
	Vac/dc		
Output	PNP	•	
	NPN	•	
	NPN/PNP		•
	relay		
	other	0…7 V	0…5 V
Connection	cable	•	•
	connector	•	•
	terminal block		
Approximate dimensions (mm)		31 x 81 x 58	31 x 81 x 58
Housing material		zama	aluminium
Mechanical protection		IP67	IP67

LD50	S90-U	S60-U	S50-U
0…60 mm	0…40 mm	0…40 mm	8…20 mm
2 kHz	2 kHz	2 kHz	1 kHz
UV-HP LED	UV LED	UV LED	UV LED
+/- push-buttons	SET push-button	SET push-button	SET push-button
15…30	10…30	10…30	10…30
	•	•	•
	•	•	•
•			
		•	•
•	•	•	•
31 x 81 x 53	15 x 50 x 41	15 x 50 x 50	M18 x 55/68
ABS	zama	ABS	PBT Ni plated brass
IP67	IP67	IP67	IP67

APPLICATION
PHOTOELECTRIC SENSORS

Contrast and colour sensors

TECHNICAL DATA

SERIES		TLμ	TL46
Contrast sensor		6...60 mm	6...60 mm
Contrast sensor with fibre optic		0...3 mm 0...10 mm	
Colour sensor			
Switching frequency		10 kHz 20 kHz	15 kHz 20 kHz 30 kHz
Light emission		red / green LED white LED	RGB LED
Serial interface			
Setting		MARK and BACKGROUND push-buttons	+/- SET push-buttons
Power supply	Vdc	10...30	10...30
	Vac		
	Vac/dc		
Output	PNP	•	
	NPN	•	
	NPN/PNP		•
	relay		
	other	0...5 V	0...5 V
Connection	cable	•	•
	connector	•	•
	pig-tail		
Approximate dimensions (mm)		31 x 81 x 58	31 x 81 x 58
Housing material		zama	aluminium
Mechanical protection		IP67	IP67

TL50	S65-W	S65-V	S8-W
9 mm	12…20 mm		10 mm
		5…45 mm	
15 kHz	30 kHz	1.5 kHz (V09 vers.) 500 Hz (V19 vers.)	10 kHz
RGB LED	white LED	RGB LED	RGB LED
	RS485	RS485	
MARK/BKGD push-buttons	+/- SET push-buttons	SET and SEL push-buttons	Teach-in
10…30	10…30	10…30	12…30
	•	•	•
	•	•	•
•			
	0…5 V		
•	•	•	•
			•
31 x 81 x 53	50 x 50 x 25	50 x 50 x 25	14 x 42 x 25
ABS	ABS	ABS	ABS
IP67	IP67	IP67	IP67

APPLICATION
PHOTOELECTRIC SENSORS

Area sensors

TECHNICAL DATA

SERIES		AS1-HR	AS1-SR
Area sensor		100 mm	100 mm
Line sensor			
Precision			
Resolution		0.2 x 75 mm Ø 6 mm	0.2 x 200 mm Ø18 mm
Switching frequency		500 Hz	500 Hz
Light emission		IR LED	IR LED
Serial interface			
Operating distance		0.3...1.9 m 0.8...3 m	0.3...1.9 m 0.8...3 m
Power supply	Vdc	10...30	10...30
	Vac		
	Vac/dc		
Output	PNP	•	•
	NPN		
	NPN/PNP		
	relay		
	other		
Connection	cable		
	connector	•	•
	terminal block		
Approximate dimensions (mm)		20 x 41 x 150	20 x 41 x 150
Housing material		aluminium	aluminium
Mechanical protection		IP67	IP67

S65-Z
150 mm
0.9 mm
0.15 mm
>130 Hz
IR LED
RS485
200 mm
10…30
•
•
4…20 mA
•
25 x 50 x 50
ABS
IP67

APPLICATION
PHOTOELECTRIC SENSORS

Accessories

Prismatic reflectors

R SERIES

Prismatic reflectors to be used together with retroreflex photoelectric sensors with IR or visible red light emission polarised light. Wide range of dimensions, shapes and fixing possibilities.

- Standard R2, R5 and R9 reflectors with respectively 48 mm, 75 mm and 23 mm diameters
- High-efficiency R4 and R6 reflectors for longer operating distances
- R10 and R11 reflectors suitable for specific applications, requiring broad surface
- R7, R8 and R20 microprism reflectors suitable for high-resolution detections are available for sensors with laser emission
- IP67 protection with –30°C - +70 °C temperature ranges
- Reflective auto-adhesive films that can be cut in different shapes and dimensions are available on request, also for polarised light emissions

Universal fibre optics

OF SERIES

Complete range of plastic standard fibre optics for through beam, proximity and coaxial proximity functions. Cuttable terminals that can be connected to all sensors with standard Ø 2.2 mm fixing holes. Focusing, collimating and deviating lenses, metal sheaths, 1 - 2.2 mm diameter adapters and universal cutting tool are available.

- High-temperature fibres reaching 125 °C
- Extra-flexible fibres with only 2mm bending radius
- High-efficiency fibres
- Coiled fibres extendable up to 2m
- Thin fibres with 1 mm external diameter

Application fibre optics

OFA SERIES

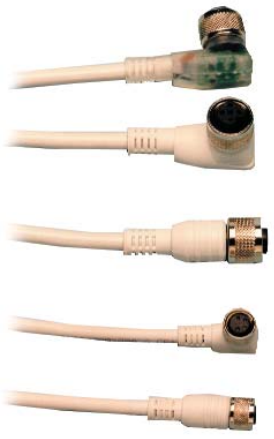
Advanced fibre optics for critical applications. All fibres have terminals that can be cut and are recommended for the use with high-resolution sensors of the S7 series.

- Versions with parallel beam fibre array for through beam and proximity detection
- Fixed focus proximity versions with axial, radial or lateral optics also for background suppression
- Proximity version with 90° optics fitted in the 3.8 mm diameter

Connectors

CS SERIES

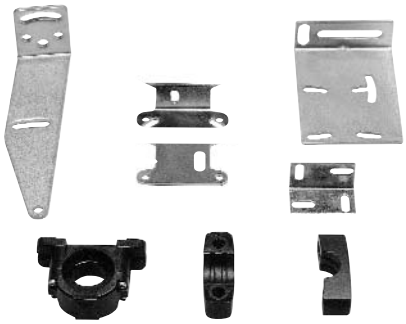
All connectors are pre-wired in a standard 4-pole configuration with 3, 5, 7 or 10 m cable.
M12 connectors are also available in a standard 3-pole NO configuration or with yellow signalling LED for PNP outputs and green power LED.
The connector housing is in PUR plastic and the cable is in PVC with CEI 20-22 self-extinguishing class.



Fixing brackets

ST SERIES

Complete range of fixing brackets for universal photoelectric sensors.
Plastic or metal supports for M18 tubular sensors available with both fixed and adjustable sensor optic axis, reaching 15° in every direction along a 360° arch.
High shock and vibration resistance.



Power supply

PSCU SERIES

Power supplies for low voltage photoelectric sensors or inductive and capacitive proximity.

- Logic and timing functions available for output signal elaboration
- Single or double input for NPN/PNP, relay or 0-10V analogue outputs.
- Timing function: delay ON and/or OFF, monostable, bistable.
- Comand panel with input sensitivity and timing adjustment trimmer, power supply and input/output status LED indicators.

PHOTOELECTRIC DEVICES FOR MEASUREMENT

DS1 series

AREAscan™ detection and measurement light grids with analogue output

- Position and dimension measurement
- 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 analogue outputs
- Trimmer adjustment

NEW PERFORMANCES

The DS1 AREAscan™ series are compact multibeam light grids suitable for the detection and measurement of objects with different shapes and dimensions. Different models are available with 100, 150 and 300 mm controlled height, 4 mm resolution and operating distance reaching 4 m. The electronics is fully integrated and so no external drivers are required. The measurement value is supplied through the analogue 0-10 V output which is proportional to the number of interrupted beams. The PNP digital output is activated every time a beam between emitter and receiver is interrupted. The low response time, ranging from 1 to less than 3 ms, depending on the height and measurement resolution, allows installation also on fastest machines and processes. Versions with trimmer sensitivity adjustment available.

DS2 series

AREAscan™ detection and measurement light grids with serial interface

- Automatic material handling
- 6 or 25 mm resolution models
- 150 - 1650 mm controlled heights
- Operating distance up to 10 m
- PNP digital, 0-10 V analogue and RS485

NEW MODELS

The AREAscan™ light grids of the DS2 series covers controlled heights ranging from 15 to 165 cm, with 5 m operating distances for 6 mm resolution versions, or 10 m for 25 mm resolution versions. The measurement configuration can be set manually thanks to internal dip-switches, or using graphic interface from remote PC on the serial port. Once loaded the program on the flash memory, the device functions in the stand-alone mode. The serial interface transmits the measurement in a binary or ASCII code, the operating status control as well as the setting of the different baud-rate versions. The DS2 light arrays suits different height or dimensional measurement applications in general, in automatic material handling.

US series

Ultrasonic sensors

- Standard M18 or M30 tubular housing
- Axial or radial emission
- Digital NPN and PNP outputs
- 4-20 mA or 0-10 V analogue output
- High resolution

NEW PERFORMANCES

The M18 and M30 ultrasonic sensor line of the US series offers versions with axial or radial sonotrode emission for M18 versions and only radial for M30 versions, with either NPN/PNP digital or 4-20mA / 0-10V analogue outputs. The main features include a low 5 ms response time and high resolution reaching 0.5mm. The sensors can be set on one or more distance values using the Teach-in push-button, for the distance or presence control up to 2000 mm, with background and foreground suppression. The ultrasonic sensors detect all targets independently from transparency, colour and non-sound absorbing material type, in automatic packaging applications as well as in automotive and manufacturing industries in general.

S80 series

Laser distance sensors with T.O.F. and laser emission

- Class 2 visible red laser emission
- Direct proximity measurement up to 4 or 7 m
- 20 to 100 m retroreflex measurement
- High precision and measurement speed
- PNP/NPN, 4-20 mA outputs and RS485 serial

NEW PERFORMANCES

The S80 distance sensors are based on the 'time of flight' measurement between the emitting and receiving of class 2 laser pulses. The S80-Y0 and YL0 sensors function as direct proximity up to 4 m, or with scaled range up to 7 m, for object positioning or double threshold on long distance background suppression. The S80-Y1 and Y2 sensors, with operating distances reaching 20 or 100 m, function as retroreflex measuring the distance from a reflector mounted over the object to detect, for position applications in automatic warehouses or conveyor lines in general. Two NPN or PNP outputs that can be set on different distances are available. The measurement is supplied by the 4-20 mA analogue output, by the RS485 serial interface as well as by a 4-digit display present on the sensor panel.

S81 series

Cost effective distance sensor

- Class 2 visible red laser emission
- Plastic housing and optics
- Direct proximity measurement up to 4 m
- 2 PNP/NPN digital outputs
- 0-10V analogue output or alarm output

NEW SERIES

The S81 series is the cost effective line of distance measurement sensors. S81 is based on the 'time of flight' technology that guarantees high precision and measurement speed. S81 works as direct proximity up to 4 m for object positioning or long distance background suppression. The setup of the sensor is very quick thanks to two push-buttons, one for each digital output. The product is available in two different models: one offers an analogue output proportional to the result of the distance measurement, the other allows the user to receive an alarm signal according to the operating conditions of the lens. The S81-Y version has a scalable 0-10V analogue output that configures the minimum and maximum operating distance, and thus associating the minimum and maximum voltage. S81 series offers a competitive solution automatic warehouses, access control, wood industry and parking lot applications.

S62-Y series

High resolution distance sensor

- Operating range 80 ± 40 mm
- 50 μm resolution
- Linearity <0.1%
- Management of internal buffer memory
- 0.5x0.75mm spot at the focus distance

NEW MODELS

The new S62-Y series, based on optical triangulation technology, offers a very accurate distance measurement. The light emission is a Class 2 red laser and the receiver is based on a CCD component that guarantees a very high immunity to the typical reflections of shiny and not uniform objects. The S62-Y is especially suitable for very fast applications up to 1Khz. The result of the measurement is available thanks to the 4-20mA or 0-10V analogue output or the RS485 serial port. The serial protocol allows also a remote setting of the device via the PC based Graphic User Interface. Typical applications are in the wood industry for the verification of the worked products, metal working, positioning for assembly lines and pick-and-place.

Light arrays, line and ultrasonic sensors

TECHNICAL DATA

SERIES		DS1	DS2
Light array *(controlled height)*		100…300 mm	150…1650 mm
Line sensor *(controlled height)*			
Ultrasonica sensor			
Resolution		4...10 mm	6/25 mm
Number of beams		16…48	21…231 (res=6mm) 18…36 (res=25mm)
Light emission		IR	IR
Response time		1...2.75 ms	5…90 ms
Serial interface			RS485
Setting		Trimmer	Dip-switches Graphic interface
Operating distance		0.15...0.8 m 0.15...2.1 m 0.2...4 m	0.3...5 m
Hysteresis			
Power supply	Vdc	24	24
	Vac		
	Vac/dc		
Output	PNP	•	•
	NPN		
	NPN/PNP		
	relay (triac)		
	other	0. . . 10 V	0. . . 10 V
Connection	cable		
	connector	M12 4-poles for TX / M12 5-poles for RX	M12 4-poles for TX / M12 8-poles for RX
	terminal block		
Approximate dimensions (mm)		20 x 41	35 x 40
Housing material		aluminium	aluminium
Mechanical protection		IP65	IP65

DS3	S65-Z	US18	US30
150…600 mm			
	150 mm		
	0.15 mm		
0.5/0.8 mm (crossed beams) 6 mm (parallel beams)		± 1 mm (2.5 ms) ± 0.5 mm (30 ms)	0.1 % distanza
24. . .96	1 (retroreflex)		
IR	IR		
3…12 ms (crossed beams) 23…92 ms (parallel beams)	3.8 ms		
	RS485		
Teach-in	Teach-in	Teach-in	Teach-in
0.2...2 m	200 mm	30 ... 300 mm	200 ... 1000 mm 300 ... 2000 mm
		0.7 mm	2 mm
24	10…30	10…30	10…30
•			
	•	•	•
0. . . 10 V	4…20mA	4…20mA / 0 ... 10 V	4…20mA / 0 ... 10 V
M12 4-poles for TX / M12 8-poles for RX	M12 8-poles	M12 5-poles	M12 5-poles
35 x 40	25 x 50 x 50	18x91 (axial) 18x95 (radial)	30 x 63.6 x 45
aluminium	ABS	Polyester	Polyester
IP65	IP67	IP67	IP67

Distance sensors

SERIES		S80-Y0	S80-YL0
Distance sensor		0.3. . . 4 m	0.3. . . 7 m
Digital resolution		0.9 mm	0.4 mm
Linearity		0.3 %	0.3 %
Switching frequency		100 Hz (Normal) 500 Hz (Fast)	100 Hz
Light emission		red Laser cl.2	red Laser cl.2
Response time		5 ms (Normal) 1 ms (Fast)	5 ms
Serial interface		RS485	RS485
Setting		Teach-in	Teach-in
Operating distance			
Hysteresis			
TECHNICAL DATA			
Power supply	Vdc	15. . . 30	15. . . 30
	Vac		
	Vac/dc		
Output	PNP	•	•
	NPN		
	NPN/PNP		
	relay (triac)		
	other	4...20 mA	4...20 mA
Connection	cable		
	connector	M12 8-poles	M12 8-poles
	terminal block		
Approximate dimensions (mm)		34 x 90 x 73	34 x 90 x 73
Housing material		aluminium	aluminium
Mechanical protection		IP67	IP67

S80-Y1	S80-Y2	S81	S62-Y
0.3. . . 20.3 m (on R80 reflector)	0.3. . . 100.3 m (on R80 reflector)	0.3...4 m	80 ± 40 mm
0.6 mm	6 mm	0.9 mm	< 50 µm
0.25 %	0.15 %		< 0.1%
100 Hz (Normal) 500 Hz (Fast)	100 Hz (Normal) 500 Hz (Fast)	80 Hz	1 KHz
red Laser cl.2	red Laser cl.2	red Laser cl.2	red Laser cl.2
5 ms (Normal) 1 ms (Fast)	5 ms (Normal) 1 ms (Fast)	6 ms	1 ms
RS485	RS485		RS485
Teach-in	Teach-in	Teach-in	Teach-in
		30 mm (M models)	
15. . . 30	15. . . 30	15...30	12...24
•	•	•	
		•	
4...20 mA	4...20 mA	0...10 V	0...10 V or 4...20 mA
M12 8-poles	M12 8-poles	M12 5-poles	M12 8-poles
34 x 90 x 73	34 x 90 x 73	58 x 31 x 31	18 x 50 x 50
aluminium	aluminium	ABS	ABS
IP67	IP67	IP67	IP67

PHOTOELECTRIC DEVICES FOR INSPECTION

SVS1 series
The quickest plug-and-play vision sensor

- Real embedded vision sensor
- Quick setup via VSC unit
- No PC needed
- Real time monitoring
- Single control inspection

SVS1 FOX

NEW SERIES

The SVS1 series is the easiest solution for the machine vision applications. SVS1 relies on the concept of a completely embedded vision sensor. The setup is very quick and intuitive thanks to the VSC unit, the external configurator with 3.5” colour display and push-buttons. No PC is needed for the configuration. The image processing is completely carried-out inside the sensor, which is able to work in stand alone mode after the setup. The VSC unit can provide a real time monitoring of the images, but it is not required during the functioning of the sensor and so it can be disconnected and used to setup multiple sensors. SVS1 allows a single control on each image, but offers different kind of tools to solve several tasks: product orientation on conveyor belts, presence/absence on assembly lines, overprinting controls on packaging machineries.

SVS2 series
The sharpest stand alone vision sensor

- Flexible setup via PC
- Ethernet communication
- Object recognition or identification tools
- 360° pattern matching
- Multiple control inspections

SVS2 Eagle

NEW SERIES

The SVS2 series of vision sensors presents all the characteristics able to solve artificial machine vision problems in a flexible and intuitive manner. The setup of the SVS2 is carried-out on a PC using Ethernet connection, ensuring a high level of flexibility. A Graphic User Interface based on a Wizard system leads step by step the user in the creation of the inspection. Different models according to different software tools are available: Object Recognition, Advanced Object Recognition (with 360° pattern matching), Identification (Barcode, Datamatrix and OCV). The sensor can store up to 20 different inspections, that can be selected using digital pulses or via Ethernet. The sensor is able to contemporarily carry-out different controls on the same object, thus reducing installation time and costs compared to using more devices in the same application.

SCS1 series
One-for-all Smart Camera Sensor

- CMOS 640x480 image sensor
- Integrated or external illuminator
- Measurement, control and inspection
- Ethernet port and RS232 / RS485

SCS1 Leopard

NEW PERFORMANCES

The SCS1 Smart Camera offers all the functions of a vision system, together with the simplicity and costs of an advanced sensor. Multiple controls available: measurement, blob analysis, Pattern and Contour Match, circle locator. The illuminator can be integrated or external. The sensor can be configured via Host PC through the Ethernet port and works in a stand-alone mode. Two PNP outputs activated according to the inspection, configurable inputs and RS232 and RS485 serial interfaces are present on the standard M12 8-pole connector. The standard CS or C-mount optics are interchangeable.

SIL series

Illuminators for industrial artificial vision

- Linear, areolar, puntiform or backlight models
- Red, blue, green, white or IR light LED
- Resistant IP65 housing
- Laser visible red emission

NEW PERFORMANCES

The solid state SIL illuminators have been developed to offer a complete range of industrial lighting solutions for machine vision, illumination for bar code readers and visual checking and also lightening for microscopy. Many different SIL models are available including Line, Area, Back, Ring or Spot Light, able to cover all the main industrial lighting requirements. Red, blue, green, white or IR emission LEDs and lenses with different emission angles are available on demand. Furthermore, a new laser visible red emission version is available. Models with continuous or strobe light with a control unit also are available. The sturdy metal housing guarantees high mechanical protection, connection is fast and easy thanks to standard M8 4-pole connectors.

Smart Camera Sensors

SERIES		SCS1
Category		Smart camera
Resolution		640 x 480
Frame per second		up to 150
Illuminator		integrated or external via M8 conn.
Connectivity		Ethernet
Serial interface		RS232 / RS485
Configuration		*USEasy*® PC GUI
Functioning		stand-alone
Lenses		C or CS-mount
Functions		measurement and inspection
TECHNICAL DATA		
Power supply	Vdc	24
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	
	NPN/PNP	
	relay (triac)	
	other	
Connection	cable	
	connector	M12 8-poles / M8 4-poles / RJ45
	terminal block	
Approximate dimensions (mm)		75 x 100 x 40
Housing material		aluminium
Mechanical protection		IP40

Illuminators

SERIES		SIL	SIL
Models		Line - Area - Ring - Spot - Back	Laser
Driver		integrated or external	integrated
Light source		power LED	Laser 650 nm
Lenses		DATASENSOR Power Optics	
Light emission		red / green / blue / white / IR	red
Emission angles		6° - 25° - 45° - 10x30°	60°
Strobe signal		5...24 Vdc	0...30Vdc
Light intensity at 500 mm		250. . .1000 lux	
Laser class			5 mW cl.3
TECHNICAL DATA			
Power supply	Vdc	24	5...24
	Vac		
	Vac/dc		
Output	PNP		
	NPN		
	NPN/PNP		
	relay (triac)		
	other		
Connection	cable		
	connector	M8 4-poles	M12 4-poles
	terminal block		
Approximate dimensions (mm)			
Housing material		aluminium	aluminium
Mechanical protection		IP65	IP65

Smart Vision Sensors

SERIES	SVS1	SVS2
Category	Vision Sensor	Vision Sensor
Resolution	640 x 480	640 x 480
Frame per second	up to 60	up to 60
Illuminator	integrated	integrated
Connectivity	configurator connection	Ethernet
Serial interface		RS 232
Configuration	VSC configurator	PC Graphic user interface
Functioning	stand-alone	stand-alone
Lenses	6/8/12/16 mm	6/8/12/16 mm
Functions	measurement & inspection	measurement & inspection or identification
TECHNICAL DATA		
Power supply	24	24
Output	•	•
Connection	2x M12 8-poles	M12 8-poles / M12 4-poles
Approximate dimensions (mm)	52 x 58 x 40	52 x 58 x 40
Housing material	aluminium/plastic	aluminium/plastic
Mechanical protection	IP50	IP50

Configurators and Monitors

SERIES		VSC	VSM
Display		3.5“ TFT LCD	3.5“ TFT LCD
Functions		SVS1 sensor setup real time monitoring	SVS2 sensor monitoring
Resolution		320x240	320x240
Mounting		DIN-Rail or panel	DIN-Rail or panel
User interface		8 push-buttons 8 signalling LEDs	8 push-buttons 8 signalling LEDs
TECHNICAL DATA			
Power supply	Vdc	via SVS1 sensor	24
	Vac		
	Vac/dc		
Output	PNP		
	NPN		
	NPN/PNP		
	relay (triac)		
	other		
Connection	cable		
	connector	M12 8-poles	n°2 M12 8-poles
	terminal block		
Approximate dimensions (mm)		96 x 96 x40	96 x 96 x40
Housing material		plastic	plastic
Mechanical protection		IP40	IP40

PHOTOELECTRIC DEVICES FOR SAFETY

SE4 series

Type 4 *SAFEasy*™ Base and Plus safety light curtains

- 150 to 1650 mm controlled heights
- 14, 20, 30, 35 mm resolution and 2, 3, 4 beams
- Finger, hand or body protection
- Versions with Blanking and EDM functions
- Cascade Master/Slave versions and EDM

COMPLETE SERIES

The SE4 series offers the widest range of Type 4 safety light curtains, including standard Base versions and Plus models with Blanking, Master and Slave Cascadable and EDM functions. Models with 150 - 1650 mm controlled heights are available, with 14, 20, 30 or 35 resolution for finger or hand protection and with 2, 3 or 4 beams for body protection. The Restart and Muting configuration is made using dip-switches protected via HW and SW. The Fixed or Floating Blanking function allows to avoid the detection of objects in a fixed position or in a repetitive movement inside the detection area. The Master and Slave versions can be connected in cascade, forming for example vertical and horizzontal 'L-shaped' light curtain systems. The EDM controls also the external relay.

SE4-R series

Type 4 *SAFEasy*™ Retroreflex safety light curtains

- 500 mm controlled height
- 2 beam model for body protection
- Passive unit with mirrors or reflectors
- Operating distance up to 7.5 m (linear version) or up to 3 m ('L' and 'T' versions)
- 'L' and 'T' versions with integrated Muting sensors

NEW PERFORMANCES

The Type 4 retroreflex safety light curtains of the SE4-R series is formed by the active SE4-RA1 unit and by the passive unit with mirrors integrated in the SE4-RDB light curtain or with two SE4-RSM accessory deviating mirrors. The detection height is 500 mm and the operating distance reaches 7.5 m for the linear version or 3 m for the 'L' and 'T' versions. The Restart, EDM and Muting functions are integrated and selectable through the dip-switches on the active unit. 'L' or 'T' shaped versions are available for applications requiring the Muting function. The SE4-R light curtains represent a reliable and cost-effective alternative to light curtains with active units on emitter and receiver sides thanks to reduced costs and installation time as well as the advantage of cabling only the active unit.

SE4T-L series

Type 4 *SAFEasy*™ safety light curtains with SE4 T/L Muting functions

- 500 or 800 mm controlled heights
- Models with 2 or 3 beams for body protection
- Integrated sensor and Muting lamp
- 'L' (one-way) or 'T' (two-way) system
- Linear model for external Muting sensors

NEW PERFORMANCES

The Type 4 safety light curtains of the SE4T-L series have the Muting function completely integrated, thanks to the use of pre-assembled, pre-wired and pre-aligned sensors. Models with 'T' integrated Muting sensors for two-way Muting, 'L' integrated Muting sensors for one-way Muting and linear versions without integrated Muting sensors are available. Versions with 2 or 3 safety beams, with 500 and 800 mm. The operating distances reaches 3 m for the 'T' and 'L' versions using retroreflex arms and 7 m with through beam arms. The linear versions have 25 m operating distances. Integrated Muting lamp and configuration carried-out by dip-switches protected HW and SW distinguish this product series. Muting is necessary when the material has to pass through the dangerous area as for example in palletisers/ depalletisers.

SG2 series

Type 2 *SAFEasy*™ safety light curtains with the best performance/cost ratio

- 2 models: BASE and EXTENDED
- Resolution 30, 50 and 90 mm
- Operating distance up to 19 m and controlled height reaching 1800 mm
- Plus functions for EXTENDED models: EDM, Anti-Interference system, selectable Manual/Automatic Restart

SG2 Tiger

NEW SERIES

The new SG2 Type 2 safety light curtains represent the natural evolution of the SF2 series. Two models are available, SG2-B 'Base' and SG2-E 'Extended', in order to guarantee replacement of the SF2 series (SG2-B) and the availability of advanced functions for a Type 2 safety light curtain, such as EDM and Anti-Interference (SG2-E). Other distinctive features include the operating distance reaching 19 m, controlled heights ranging from 150 to 1800 mm, one of the best response times available today, as well as the more functional new profile. The product is also prearranged for the use of new 'TOP-BOTTOM' rotating fixing brackets that simplify and speed the alignment of the TX and RX units, also at long distances and in applications with deviating mirrors.

SG4 series

Type 4 *SAFEasy*™ safety light curtains with base functions

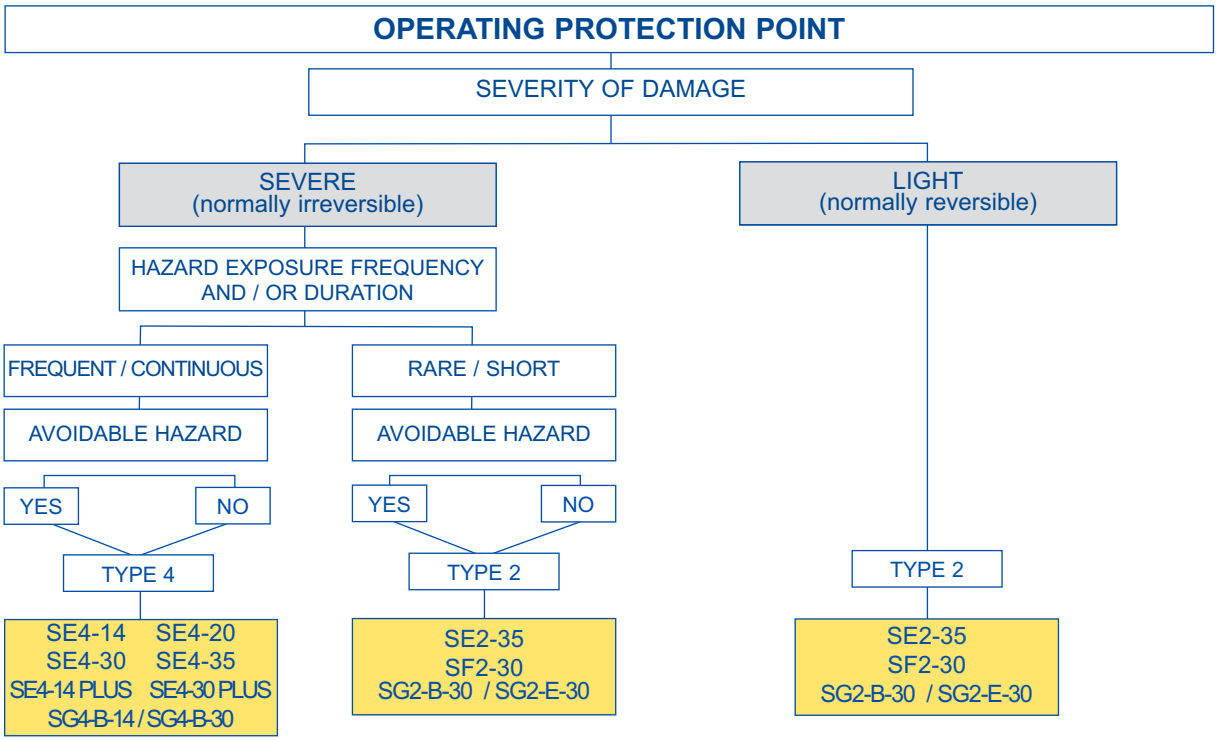
- Resolution: 14 and 30 mm
- Operating distance reaching 19m (for 30mm versions) and controlled heights reaching 1800 mm
- Integrated functions for Type 4 base device: EDM, Manual/Automatic Restart

SG4 Lion

NUOVA SERIE

The new series of *SAFEasy*™ SG4-B safety light curtains widens the existing SG range, whilst representing an evolution of the SE4-PLUS line, offering a Type 4 safety light device for finger protection with base functions. Ideal for applications that do not require complementary functions such as Muting, Cascade and blanking. Improved response time and operating distance, respect to the SE4-PLUS series distinguish this series and make it one of the best performing light curtains available today on the market. All models, with heights ranging from 150 to 1800mm, have 14 and 30 mm resolution for finger and hand protection. The EDM function can be easily activated by wire selection, like the Restart function in manual or automation configuration. The 7-segment display helps the user in understanding the diagnostic messages and product alignment.

Selection guide

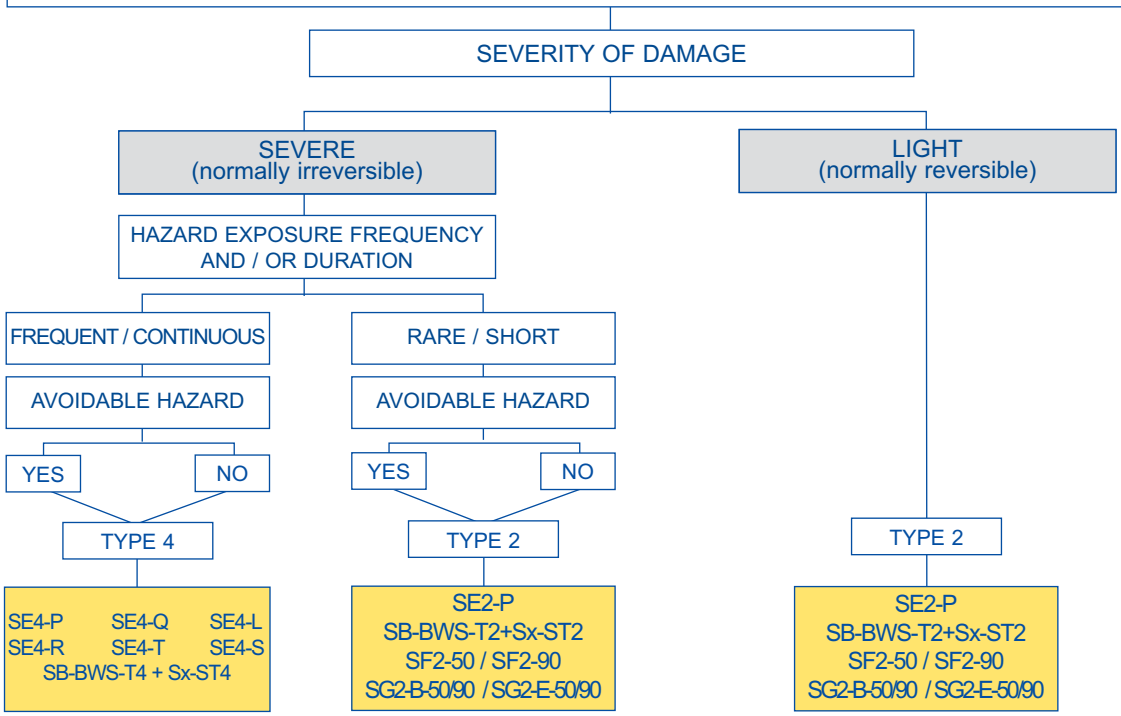


Note: The given information is indicative and synthetic; it is compulsory to refer to the complete **EN 954** standard for a correct risk and safety type evaluation.

		RESOLUTION (mm)	OPERATING RANGE (m)
	SF2-30	30	15
Type 2	SG2-B-30	30	19
	SG2-E-30	30	9 / 19*
			* selectable maximum distance: 9 m or 19 m
	SE2-35	35	15
	SG4-B-14	14	6
	SE4-14	14	6
Type 4	SE4-14 PLUS	14	6
	SE4-20	20	6
Type 4	SE4-30	30	15
	SE4-30 PLUS	30	15
	SE4-35	35	15
	SG4-B-30	30	19

TYPE 2 TYPE 4

ACCESS PROTECTION



Note: The given information is indicative and synthetic; it is compulsory to refer to the complete **EN 954** standard for a correct risk and safety type evaluation.

		RESOLUTION (mm)	OPERATING RANGE (m)
Type 2	SE2-P	515 - 415 - 315	50
Type 2	SF2-B-50 / 90	50 / 90	15
	SG2-B-50 / 90	50 / 90	19
	SG2-E-50 / 90	50 / 90	9 / 19* * selectable maximum distance: 9 m or 19 m
	SB-BWS-T2 + SX-ST2	-	up to 50* * 8 m with S5/S10-ST2; 50 m with S30-ST2
Type 4	SE4-Q	515 - 415 - 315	25
	SE4-P	515 - 415 - 315	50
	SE4-T	515 - 415	3
	SE4-L	515 - 415	3
	SE4-S	515 - 415	25
Type 4	SE4-R 'T'	515	3 | 7 * 3 m for '-W' versions; 7 m for '-T' versions
	SE4-R 'L'	515	3 | 7 * 3 m for '-W' versions; 7 m for '-T' versions
	SE4-R Linear	515	7.5
Type 4	SB-BWS-T4 + Sx-ST4	-	up to 50* * 8 m with S5/S10-ST4; 40 m with SL5-ST4; 50 m with S30-ST4

TYPE 2 TYPE 4

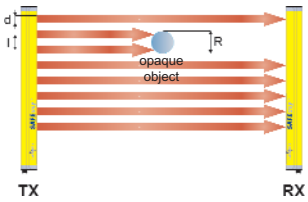
Selection guide

Note: The reference Standard is the **EN 999** ***'Safety of machinery - the positioning of protective equipment in respect of approach speeds of parts of the human body'***. The given information is indicative and synthetic; it is compulsory to refer to the complete **EN 999** standard for a correct safety distance calculation.

The minimum distance S in mm between the hazardous area and the detection point is expressed by the formula:

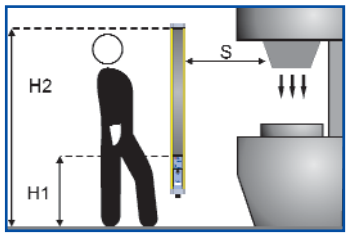
S = (K x T) + C

K is a parameter (mm/sec) linked to the approach speed of the human body or parts
T is the total time (sec) necessary to stop the machine, where $T = t_1 + t_2$
t_1 = max. time between the detection actuation and the change of the device switching status
t_2 = max. machine response time
C is an additional distance (mm) based on the device typology used in terms of resolution, where the resolution is the minimum dimension of an opaque object able to obscure at least one of the beams of the sensitive detection area.



R ≤ 40 mm	Finger or hand protection	Type 4 Type 2 Type 4	R=resolution
R > 70 mm	Body protection	Type 2 Type 4 Type 4	
R < 116 mm	Presence detection	Type 2	

NORMAL APPROACH TO THE DETECTION AREA



Safety light curtains with 40 mm maximum resolution

S = (K x T) + C

where K = 2000 mm/sec, C = 8 (d - 14 mm) but not smaller than 0,
d = device resolution (mm)

This formula is valid for safety distances S up to 500 mm.
If the result of the formula gives S higher than 500 mm, K = 1600 mm/sec and S = (1600 mm/sec x T) + 8(d-14 mm)

Safety light curtains with 40 to 70 mm resolution

S = (K x T) + C

where K = 1600 mm/sec, C = 850 mm

In all cases, the highest beam height is ≥ 900 mm and the lowest beam is ≤ 300 mm.

Safety light grid with separate multiple beams

S = (K x T) + C

where K = 1600 mm/sec, C = 850 mm

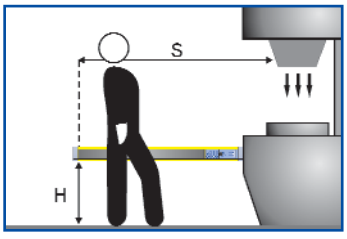
A light grid with 2, 3, 4 separate beams is often used to detect the intrusion of the human body or parts in a specific area; the number of beams and the distance between them depends on the risk estimation made and by specific machine applications. Risks such as slipping under the lower beam, passing over the higher beam, passing through two beams have to be considered.
The following table provides the heights from the ground or from reference plane for different beams.

Number of beams	Heights of single beams from the plane (mm)
4	300, 600, 900, 1200
3	300, 700, 1100
2	400, 900

In case of use of a single beam, in an industrial environment, a height of 750 mm is considered appropriate, with the device positioned at a machine distance, where
S = (1600 mm/sec x T) + 1200 mm.

PARALLEL APPROACH TO THE DETECTION AREA

S = (K x T) + C
where K = 1600 mm/sec, C = (1200 mm - 0,4 H), not less than 850 mm
Hmax = 1000 mm, Hmin = 15 (d - 50 mm), where d = resolution of the safety light curtain



ANGLED APPROACH RESPECT TO THE DETECTION AREA

For foreseeable approach angles bigger than 30°, follow the normal approach procedure, while for angles inferior to 30° follow the parallel approach procedure.

Note: The reference Standard is the **EN 999** ***'Safety of machinery - the positioning of protective equipment in respect of approach speeds of parts of the human body'***. The given information is indicative and synthetic; it is compulsory to refer to the complete **EN 999** standard for a correct safety distance calculation.

Finger protection

TECHNICAL DATA

SERIES	SE4-14	SE4-14 PLUS
According to IEC 61496-1 IEC 61496-2	Type 4 integrated light curtains	Type 4 integrated light curtains
Power supply	24 Vdc	24 Vdc
Resolution	14 mm	14 mm
Operating range	0.2...6 m	0.2...6 m
Controlled height	150...900 mm	150...1200 mm
Response time	18...39 ms	21...68 ms 14...41 ms EDM Models
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles; Tx: M12 4-poles Rx: M12 5-poles; Tx: M12 5-poles
Dimensions (mm)	35 x 40	35 x 40
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection EDM selection
Certifications		
Plus functions		4 models available: EDM Fixed/Floating Blanking EDM Cascading EDM Cascading/Blanking EDM

SE4-20	SG4-B-14
Type 4 integrated light curtains	Type 4 integrated light curtains
24 Vdc	24 Vdc
20 mm	14 mm
0.2...6 m	0.2...6 m
150...1650 mm	150 ... 1800 mm
16...39 ms	10...51 ms
2 PNP transistor	2 PNP transistor
Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
35 x 40	32 x 37
Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection EDM selection

Hand protection

TECHNICAL DATA

SERIES	SE2-35	SF2-30
According to IEC 61496-1 IEC 61496-2	Type 2 integrated light curtains	Type2 integrated light curtains
Power supply	24 Vdc	24 Vdc
Resolution	35 mm	30 mm
Operating range	0.2...15 m	0.2...15 m
Controlled height	150...1650 mm	150...1500 mm
Response time	15...32 ms	24 ms max.
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 5 poles Tx: M12 4 poles
Dimensions (mm)	35 x 40	31 x 32
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual Restart Automatic Restart
Certifications		
Plus functions		

SG2-B-30	SG2-E-30
Type2 integrated light curtains	Type2 integrated light curtains
24 Vdc	24 Vdc
30 mm	30 mm
0.2...19 m	0.2...9 m / 0.2...19 m selectable
150...1800 mm	150...1800 mm
8...24 ms	8...24 ms
2 PNP transistor	2 PNP transistor
Rx: M12 5-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
32 x 37	32 x 37
Test Automatic Restart	Test Manual/auto Restart selection
	EDM selectable Selectable max. distance: 9 m or 19 m

Hand protection

TECHNICAL DATA

SERIES	SE4-20	SE4-30
According to IEC 61496-1 IEC 61496-2	Type 4 integrated light curtains	Type 4 integrated light curtains
Power supply	24 Vdc	24 Vdc
Resolution	20 mm	30 mm
Operating range	0.2...6 m	0.2...15 m
Controlled height	150...1650 mm	150...1650 mm
Response time	16...39 ms	15...32 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
Dimensions (mm)	35 x 40	35 x 40
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection Total/partial Muting selection Override
Certifications		
Plus functions		

SE4-30 PLUS	SE4-35	SG4-B-30
Type 4 integrated light curtains	Type 4 integrated light curtains	Type 4 integrated light curtains
24 Vdc	24 Vdc	24 Vdc
30 mm	35 mm	30 mm
0.2...15 m	0.2...15 m	0.2...19 m
150...1650 mm	150...1650 mm	150 ... 1800 mm
16...43 ms 12...26 ms EDM Models	15...32 ms	9...28 ms
2 PNP transistor	2 PNP transistor	2 PNP transistor
Rx: M12 8-poles; Tx: M12 4-poles Rx: M12 5-poles; Tx: M12 5-poles	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
35 x 40	35 x 40	32 x 37
Test Manual/auto Restart selection EDM selection	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection EDM selection
4 models available: EDM Fixed/Floating Blanking EDM Cascading EDM Cascading/Blanking EDM		

PHOTOELECTRIC DEVICES FOR SAFETY

Body protection and presence control

TECHNICAL DATA

SERIES	SE2-P	SB-BWS-T2+Sx-ST2
According to IEC 61496-1 IEC 61496-2 	Type 2 integrated light curtains	Type 2 control unit and sensors
Power supply	24 Vdc	24 Vdc
N° beams / resolution	2 - 3 - 4	up to 2
Operating range	0.5...50 m	up to 50 m
Controlled height	500 - 800 - 900 - 1200 mm	
Response time	14 ms	22 ms max
OSSD output	2 PNP transistor	2 relay
Connection	Rx: M12 8-poles Tx: M12 4-poles	terminal block
Dimensions (mm)	35 x 40	75 x 100 x 75
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual Restart
Certifications		
Plus functions		

SF2-50 / SF2-90	SG2-B-50 / SG2-B-90	SG2-E-50 / SG2-E-90
Type 2 integrated light curtains	Type 2 integrated light curtains	Type 2 integrated light curtains
24 Vdc	24 Vdc	24 Vdc
50 / 90 mm	50 / 90 mm	50 / 90 mm
0.2... 15 m	0.2...19 m	0.2...9 m / 0.2...19 m selectable
300...1500 mm	300...1800 mm	300...1800 mm
15...24 ms	8...20 ms (50 vers.) 8...19 ms (90 vers.)	8...20 ms (50 vers.) 8...19 ms (90 vers.)
2 PNP transistor	2 PNP transistor	2 PNP transistor
Rx: M12 5-poles Tx: M12 4-poles	Rx: M12 5-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
31 x 32	32 x 37	32 x 37
Test Manual Restart Automatic Restart	Test Automatic Restart	Test Manual/auto Restart selection
		EDM selectable Selectable max. distance: 9 m or 19 m

Body protection

TECHNICAL DATA

SERIES	SE4-P	SE4-Q
According to IEC 61496-1 IEC 61496-2 	Type 4 integrated light curtains	Type 4 integrated light curtains
Power supply	24 Vdc	24 Vdc
N° beams	2 - 3 - 4	2 - 3 - 4
Operating range	4...50 m	0.5...25 m
Controlled height	500 - 800 - 900 - 1200 mm	500 - 800 - 900 - 1200 mm
Response time	14 ms	14 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
Dimensions (mm)	35 x 40	35 x 40
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection Total/partial Muting selection Override
Certifications		
Plus functions		

SB-BWS-T4+Sx-ST4
Type 4 control unit and sensors
24 Vdc
up to 4
up to 50 m
32 ms max
2 relay
terminal block
73 x 152 x 118
Test Manual/auto Restart selection Total/partial Muting selection Muting time-out selection Double Muting/Override

Body protection with integrated Muting

TECHNICAL DATA

SERIES	SE4-T	SE4-L
According to IEC 61496-1 IEC 61496-2	Type 4 integrated light curtains with Muting sensors	Type 4 integrated light curtains with Muting sensors
Power supply	24 Vdc	24 Vdc
N° beams	2 - 3	2 - 3
Operating range	0.5…3 m (‘-W’ models) 0.5…7 m (‘-T’ models)	0.5…3 m (‘-W’ models) 0.5…7 m (‘-T’ models)
Controlled height	500 - 800 mm	500 - 800 mm
Response time	14 ms	14 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles/M12 5-poles Tx: M12 4-poles (‘-W’ models) Tx: M12 4-poles/M12 4-poles (‘-T’ mod.)	Rx: M12 8-poles/M12 5-poles Tx: M12 4-poles (‘-W’ models) Tx: M12 4-poles/M12 4-poles (‘-T’ mod.)
Dimensions (mm)	35 x 40	35 x 40
Device functions	Two-way Muting Test Manual/auto Restart selection Muting time-out selection EDM selection Override	One-way Muting Test Manual/auto Restart selection Muting time-out selection EDM selection Override
Certifications		
Plus functions		

SE4-S
Type 4 integrated light curtains for external Muting sensors
24 Vdc
2 - 3
0.5...25 m
500 - 800 mm
14 ms
2 PNP transistor
Rx: M12 8-poles/M12 5-poles Tx: M12 4-poles ('-W' models) Tx: M12 4-poles/M12 4-poles ('-T' mod.)
35 x 40
One-way or two-way Muting Test Manual/auto Restart selection Muting time-out selection EDM selection Override

Body protection with passive unit and integrated Muting

TECHNICAL DATA

SERIES	SE4-R-'T'	SE4-R-'L'
According to IEC 61496-1 IEC 61496-2	Type 4 retroreflex light curtains	Type 4 retroreflex light curtains
Power supply	24 Vdc	24 Vdc
N° beams	2	2
Operating range	0.5...3 m	0.5...3 m
Controlled height	500 mm	500 mm
Response time	14 ms	14 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	active unit: M12 5-poles / M12 8-poles passive unit: non connected	active unit: M12 5-poles / M12 8-poles passive unit: non connected
Dimensions (mm)	active unit: 35 x 40 passive unit: 52 x 55	active unit: 35 x 40 passive unit: 52 x 55
Device functions	Two-way Muting Test Manual/auto Restart selection Muting time-out selection EDM selection Override	One-way Muting Test Manual/auto Restart selection Muting time-out selection EDM selection Override
Certifications		
Plus functions		

SE4-R LINEAR

Type 4 retroreflex light curtains
24 Vdc
2
0.5…25 m
500 mm
14 ms
2 PNP transistor
active unit: M12 5-poles / M12 8-poles passive unit: non connected
active unit: 35 x 40 passive unit: 52 x 55
One-way or two-way Muting Test Manual/auto Restart selection Muting time-out selection EDM selection Override

Accessories

Shielded connector cables

CV SERIES

The use of shielded cables is compulsory for the safety devices of the SE2, SE4 light curtains and for the Sx-ST2/ST4 safety sensor series.

- M12 axial or radial connector and cable with 4, 8 poles
- Cable length: 3, 5, 10, 15, 25 m
- Cable material: PVC

Fixing brackets

ST SERIES

The fixing brackets are supplied together with the safety light curtains of the SE2, SE4 and SF2 series.
Standard fixing brackets (4 pcs kit) are available as accessories for the SE2 and SE4 safety light cutains, as well as orientable, anti-vibration supports. Standard fixing brackets (12 pcs kit) and anti-scratch fixing brackets (4 pcs kit) are available for the SF2 safety light curtains.

Unshielded connector cables

CS SERIES

M12 4-pole unshielded connectors are available for the connection of the Muting sensors. M12 4, 5 and 8-pole UL2464 cable connectors are available for SG2 and SG4-B series.

- M12 axial or radial connector and cable with 3, 4, 5, 8 poles
- Cable length : 3, 5, 7, 10, 15, 25 m
- Cable material: PVC

The TOP-BOTTOM rotating fixing brackets help the user in the alignment phase even in the most critical conditions thanks to an 180° rotating angle and a ±10° fine adjustment angle. The rotating bracket kit is supplied together with the SG2-E light curtains and is available as an accessory for the entire SG2-B and SG4-B series.

Safety relays

SE - SR2 SERIES

To be used with the SE2, SF2, SE4, SG2 and SG4 safety light curtain series.

- Type 4 safety relays
- Safety contacts: 3 NO 1 NC.

Test pieces

TP SERIES

Light curtain test pieces with 14, 20, 30, 35, 40, 50 and 90 mm diameter.

Muting devices

LMS SERIES

Muting lamps: standard, tower modular, with horizontal and vertical mounting.
Muting sensors: all DATASENSOR non-safety sensors can be used.

EDM relay box

CS SERIES

The connection box has been developed with 3 NO contacts and 1 NC contact for signal feedback in order to simplify and ease EDM connection of the Type 2 and Type 4 safety light curtains integrated with EDM function.

- Module for Type 2 and Type 4 light curtains
- Output contacts: 3 NO safety contacts and 1 NC feedback/EDM contact

Connection box

SE - SRT SERIES

Connection box for light curtains with integrated Muting function, allowing a rapid activation of the Override function using key switches and Test / Start comands via the specific push-button. Compatibile with the SE4T-L and SE4-R light curtains.

Accessories

Column and floor stands

SE - S SERIES

To be used with the SE2, SE4, SF2 light curtains and SE-DM deviating mirror series.
Available in different heights: 800, 1000 and 1200 mm with 30 x 30 mm profile dimensions.
1500 and 1800 mm with 45 x 45 mm profile dimensions.
Ground fixing plate dimensions: 240 x 240 mm.

Deviating mirrors

SE - DM SERIES

To be used with the SE2, SE4, SF2 light curtains and mono-beam
Sx-ST2/ST4 safety sensor series.
Available in different heights ranging 150 mm to 1800 mm.
Deviating mirror dimension: 124 mm width, 6 mm depth.

Protective stands and deviating mirrors

SG - PS / SG - DM SERIES

Sturdy aluminium column stands for shock protection of the mirrors and safety light curtains. All the SE and SG light curtain series can be mounted inside the support as well as the SG-DM mirror series. The fixing system supplied and spherical spirit level at the stainless steel base guarantee fast installation and precise alignment.

Note: please carefully follow the instructions supplied in the user manual relative to the operating distances for the correct use fo the deviating mirrors.

Laser pointer

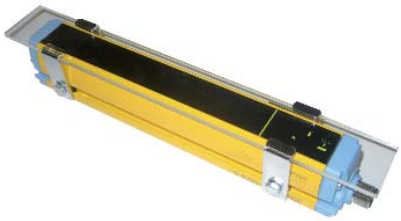
SE - LP SERIES

To be used with the SE2, SE4 and SF2 to support emitter and receiver alignment.

Lens shield

SG - LS SERIES

PMMA plate to mount on the front glass of the light curtain to protect it against dust, splinters and/or drops of incandescent material.
Lens shield is available for safety light curtain with a 150-1800 mm controlled height.



IP69K protection

SG - IP69K SERIES

Tubular profile for SG light curtains to guarantee IP67/IP69K protection, ideal for the typical “food” industry applications where strong detergents or aggressive agents are frequently used. Accessory is available for safety light curtain with a 150-1800 mm controlled height.

Protective stands

SE - P SERIES

To be used with the SE2, SE4 and SF2 safety light curtains.
Available in different heights ranging from 273 to 1743 mm.

По вопросам продаж и поддержки обращайтесь:

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