

# 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  $\mu$ s 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 different 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<sup>TM</sup> 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<sup>TM</sup> 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



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	
TECHNICAL DATA	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	1.5 kHz 3 kHz	1.5 kHz 3 kHz	1.5 kHz 3 kHz
red LED red Laser	red LED red Laser	red LED red Laser	red LED red Laser
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 x 140 x 84
aluminium	aluminium	aluminium	aluminium
IP65	IP65	IP65	IP65

# APPLICATION



## PHOTOELECTRIC SENSORS

### Luminescence sensors



SERIES		LD $\mu$	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 	
		Vac	15...30  	
		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



SERIES		TL $\mu$	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	
TECHNICAL DATA	Power supply	Vdc Vac Vac/dc	10...30	10...30
	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



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	
TECHNICAL DATA	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  $-30^{\circ}\text{C}$  -  $+70^{\circ}\text{C}$  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  $\text{Ø}$  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  $125^{\circ}\text{C}$
- Extra-flexible fibres with only 2mm bending radius
- High-efficiency fibres
- Coiled fibres extendable up to 2m
- Thin fibres with 1 mm external diameter

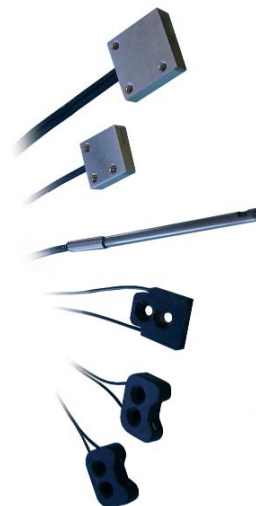


### Application fibre optics

#### 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.

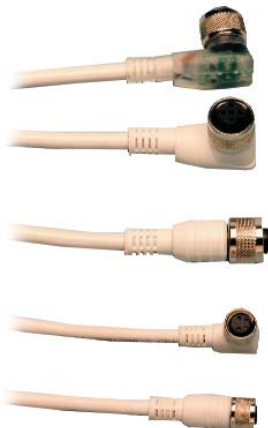
- Versions with parallel beam fibre array for through beam and proximity detection
- Fixed focus proximity versions with axial, radial or lateral optics also for background suppression
- Proximity version with  $90^{\circ}$  optics fitted in the 3.8 mm diameter



## 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.
- Command panel with input sensitivity and timing adjustment trimmer, power supply and input/output status LED indicators.

