# **\$DATALOGIC**

# SRF-L SERIES

## Slot sensor Laser



### CONTROLS

YELLOW LED ON – object presence YELLOW LED OFF– object absent

#### SENSITIVITY TRIMMER

This trimmer can be used to adjust sensitivity of the sensor.

#### N.O. / N.C. TRIMMER – OUTPUT

This trimmer can be used to adjust the output status.

**WARNING:** The trimmer rotation is limited to 270° by a mechanical stop. Do not apply excessive torque when adjusting.

#### **CONNECTIONS**







DIMENSIONS





#### **TECHNICAL DATA**

Power supply:     10 30 VDC; reverse polarity protected       Ripple:     2 Vpp max.       Current consumption     20mA max.       Output current excluded):     200 mA max. with short-circuit protection       Dutputs:     PNP or NPN / N.O. / N.C. selectable       Dutput current:     200 mA max. with short-circuit protection       Dutput saturation voltage:     3 V max. PNP / 2.5 V max. NPN       Response time:     100 μs       Switching frequency:     5000 Hz       Tysteresis:     20 μm     25 μm       Resolution:     0.05 mm     0.08 mm     0.1 mm       4gepeatability:     10 μm     15 μm       1didity:     35 85% rH non condensing     15 μm       1didity:     30 μm     50 μm     20 μm       20 μm     20 μm     20 μm     20 μm       20 km     sensitivity trimmer and N.O./N.C. trimmer       Deperating temperature:     -20 70°C		SRF-L-30	SRF-L-50	SRF-L-80	SRF-L-120
Ripple:   2 Vpp max.     Current consumption output current excluded):   20mA max.     Outputs:   PNP or NPN / N.O. / N.C. selectable     Output current:   200 mA max. with short-circuit protection     Output saturation voltage:   3 V max. PNP / 2.5 V max. NPN     Response time:   100 µs     Switching frequency:   5000 Hz     ysteresis:   20 µm   25 µm   30 µm   50 µm     Resolution:   0.05 mm   0.08 mm   0.1 mm   0.15 mm     Repeatability:   10 µm   15 µm   15 µm     4umidity:   35 85% rH non condensing   ndicators:   YELLOW LED     Setting:   sensitivity trimmer and N.O./N.C. trimmer     Operating temperature:   -10 60°C   20 70°C     Dielectric strength:   500 Vac 1 min., between electronics and housing   nsulating resistance:   >20 MΩ 500 Vac, between electronics and housing     Emission type:   red laser (650 nm) Class 1 EN 60825-1   Armoient light rejection:   5 kLux     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 (EN60068-2-7)     Slot width:   30 mm	Power supply:	10 30 VDC; reverse polarity protected			
Current consumption     20mA max.       Output current excluded):     PNP or NPN / N.O. / N.C. selectable       Output saturation voltage:     3 V max. PNP / 2.5 V max. NPN       Response time:     100 μs       Switching frequency:     5000 Hz       ysteresis:     20 μm     25 μm     30 μm     50 μm       Response time:     0.05 mm     0.08 mm     0.1 mm     0.15 mm       Resolution:     0.05 mm     0.08 mm     0.1 mm     0.15 mm       Respeatability:     10 μm     15 μm     10 μm     15 μm       Humidity:     35 85% rH non condensing     ndicators:     YELLOW LED       Setting:     sensitivity trimmer and N.O./N.C. trimmer     20 μm     10 μm     15 μm     10 μm     10 μm <td>Ripple:</td> <td colspan="4">2 Vpp max.</td>	Ripple:	2 Vpp max.			
Contract excluded):     Contract and the set of the	Current consumption	20m / max			
Dutputs:PNP or NPN / N.O. / N.C. selectableDutput surrent:200 mA max. with short-circuit protectionDutput saturation voltage: $3 V max. PNP / 2.5 V max. NPN$ Response time: $100 \mu s$ Switching frequency: $5000 Hz$ Hysteresis: $20 \mu m$ $25 \mu m$ Resolution: $0.05 mm$ $0.08 mm$ Qumit $25 \mu m$ $30 \mu m$ Resolution: $0.05 mm$ $0.08 mm$ Qumit $15 \mu m$ $15 \mu m$ Humidity: $35 \dots 85\%$ rH non condensingIndicators:YELLOW LEDSetting:sensitivity trimmer and N.O./N.C. trimmerOperating temperature: $-10 \dots 60^{\circ}C$ Storage temperature: $-20 \dots 70^{\circ}C$ Dielectric strength: $500 Vac 1 min., between electronics and housingInsulating resistance:>20 M\Omega 500 Vdc, between electronics and housingImision type:red laser (650 nm) Class 1 EN 60825-1Armbient light rejection:5 kLux/ibration:0.5 mm amplitude, 10 \dots 55 Hz frequency, for every axis (EN60068-2-6)Shock resistance:11 ms (30 G) 6 shock for every axis (EN60068-2-67)Slot width:30 mm50 mmHousing:GlassProtection class:IP67Onnections:M8 3 pole connectorNeight:66 gNigg210 g$	output current excluded):	ZUIIIA IIIdX.			
Dutput current:     200 mA max. with short-circuit protection       Output saturation voltage:     3 V max. PNP / 2.5 V max. NPN       Response time:     100 μs       Switching frequency:     5000 Hz       -lysteresis:     20 μm     25 μm     30 μm     50 μm       Resolution:     0.05 mm     0.08 mm     0.1 mm     0.15 mm       Repeatability:     10 μm     15 μm     10 μm     15 μm       Humidity:     35 85% rH non condensing     10 μm     15 μm       Humidity:     35 85% rH non condensing     10 60°C     10 60°C       Storage temperature:     -10 60°C     20 70°C     20 50 Vac 1 min., between electronics and housing     30 mm     50 Vac 1 min., between electronics and housing     30 55 KLux     30 mm     50 Mad	Outputs:	PNP or NPN / N.O. / N.C. selectable			
Dutput saturation voltage:     3 V max. PNP / 2.5 V max. NPN       Response time:     100 μs       Switching frequency:     5000 Hz       Hysteresis:     20 μm     25 μm     30 μm     50 μm       Resolution:     0.05 mm     0.08 mm     0.1 mm     0.15 mm       Repeatability:     10 μm     15 μm     15 μm       Humidity:     35 85% rH non condensing     15 μm       ndicators:     YELLOW LED     Setting:     20 μm     2	Output current:	200 mA max. with short-circuit protection			
Response time:     100 μs       Switching frequency:     5000 Hz       Hysteresis:     20 μm     25 μm     30 μm     50 μm       Resolution:     0.05 mm     0.08 mm     0.1 mm     0.15 mm       Repeatability:     10 μm     15 μm     15 μm       Humidity:     35 85% rH non condensing     15 μm       ndicators:     YELLOW LED     Setting:     Setting:       Setting:     sensitivity trimmer and N.O./N.C. trimmer     Oo°C       Storage temperature:     -10 60°C     Setting:       Operating temperature:     -20 70°C     Setting:       Dielectric strength:     500 Vac 1 min., between electronics and housing       smission type:     red laser (650 nm) Class 1 EN 60825-1       Ambient light rejection:     5 KLux       /ibration:     0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-6)       Shock resistance:     11 ms (30 G) 6 shock for every axis (EN60068-2-27)       Slot width:     30 mm     50 mm       Housing:     Glass       enses:     Glass       Protection class:     IP67  C	Output saturation voltage:	3 V max. PNP / 2.5 V max. NPN			
Switching frequency:5000 HzHysteresis:20 $\mu$ m25 $\mu$ m30 $\mu$ m50 $\mu$ mResolution:0.05 mm0.08 mm0.1 mm0.15 mmRepeatability:10 $\mu$ m15 $\mu$ mHumidity:35 85% rH non condensing15 $\mu$ mIndicators:YELLOW LEDSetting:sensitivity trimmer and N.O./N.C. trimmerOperating temperature:-10 60°CStorage temperature:-20 70°CDielectric strength:500 Vac 1 min., between electronics and housingnsulating resistance:>20 MΩ 500 Vdc, between electronics and housingEmission type:red laser (650 nm) Class 1 EN 60825-1Ambient light rejection: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 (EN60068-2-6)Shock resistance:GIZnSlot width:30 mm10 m60 Znenses:Glass'Protection class:IP67Connections:M8 3 pole connectorVeight:66 g.110 g.135 g.210 g.	Response time:	100 µs			
Hysteresis:20 μm25 μm30 μm50 μmResolution:0.05 mm0.08 mm0.1 mm0.15 mmRepeatability:10 μm15 μmHumidity: $35 \dots 85\%$ rH non condensingIndicators:YELLOW LEDSetting:sensitivity trimmer and N.O./N.C. trimmerOperating temperature: $-10 \dots 60^{\circ}$ CStorage temperature: $-20 \dots 70^{\circ}$ CDielectric strength: $500$ Vac 1 min., between electronics and housingInsulating resistance: $>20$ MΩ 500 Vdc, between electronics and housingEmission type:red laser (650 nm) Class 1 EN 60825-1Ambient light rejection: $0.5$ mm amplitude, $10 \dots 55$ Hz frequency, for every axis (EN60068-2-6)Shock resistance:11 ms (30 G) 6 shock for every axis (EN60068-2-6)Shot width:30 mm50 mmIousing:GDZnenses:GlassProtection class:IP67Connections:M8 3 pole connectorWeight:66 g.Nog.135 g.210 g.	Switching frequency:	5000 Hz			
Resolution:     0.05 mm     0.08 mm     0.1 mm     0.15 mm       Repeatability:     10 μm     15 μm     15 μm       Humidity:     35 85% rH non condensing     15 μm       Indicators:     YELLOW LED     Setting:       Setting:     sensitivity trimmer and N.O./N.C. trimmer       Operating temperature:     -10 60°C       Storage temperature:     -20 70°C       Dielectric strength:     500 Vac 1 min., between electronics and housing       nsulating resistance:     >20 MΩ 500 Vdc, between electronics and housing       Emission type:     red laser (650 nm) Class 1 EN 60825-1       Ambient light rejection:     5 kLux       /ibration:     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 (EN60068-2-6)       Shot width:     30 mm     50 mm     80 mm     120 mm       Iousing:     GDZn     GDZn     -     -       Pfo7     Connector     M8 3 pole connector     210 g.	Hysteresis:	20 µm	25 μm	30 µm	50 µm
Repeatability:     10 μm     15 μm       Humidity:     35 85% rH non condensing     ndicators:     YELLOW LED       Setting:     sensitivity trimmer and N.O./N.C. trimmer     20       Operating temperature:     -10 60°C     30       Storage temperature:     -20 70°C     20       Dielectric strength:     500 Vac 1 min., between electronics and housing     nsulating resistance:       Dielectric strength:     500 VAc, between electronics and housing     musicating       Emission type:     red laser (650 nm) Class 1 EN 60825-1     400068-2-6)       Ambient light rejection:     0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-6)     5hock resistance:       Shock resistance:     11 ms (30 G) 6 shock for every axis (EN60068-2-6)     5hock resistance:     120 mm       Jouring:     GDZn     GDZn     -     -       -enses:     Glass     -     -     -       Pfo7     20nnections:     M8 3 pole connector     210 g.     210 g.	Resolution:	0.05 mm	0.08 mm	0.1 mm	0.15 mm
Humidity:   35 85% rH non condensing     Indicators:   YELLOW LED     Setting:   sensitivity trimmer and N.O./N.C. trimmer     Operating temperature:   -10 60°C     Storage temperature:   -20 70°C     Dielectric strength:   500 Vac 1 min., between electronics and housing     nsulating resistance:   >20 MΩ 500 Vdc, between electronics and housing     Emission type:   red laser (650 nm) Class 1 EN 60825-1     Ambient light rejection:   5 kLux     /ibration:   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 (EN60068-2-6)     Shock resistance:   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 (EN60068-2-7)     Slot width:   30 mm   50 mm   80 mm   120 mm     -enses:   GDZn   -	Repeatability:	10 μm 15 μm			
Indicators:   YELLOW LED     Setting:   sensitivity trimmer and N.O./N.C. trimmer     Operating temperature:   -10 60°C     Storage temperature:   -20 70°C     Dielectric strength:   500 Vac 1 min., between electronics and housing     nsulating resistance:   >20 MΩ 500 Vdc, between electronics and housing     Emission type:   red laser (650 nm) Class 1 EN 60825-1     Ambient light rejection:   5 kLux     /ibration:   0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-66)     Shock resistance:   11 ms (30 G) 6 shock for every axis (EN60068-2-67)     Slot width:   30 mm   50 mm   80 mm   120 mm     Iousing:   GDZn   -   -   -     enses:   Class   -   -   -   -     Protection class:   IP67   - <t< td=""><td>Humidity:</td><td colspan="4">35 85% rH non condensing</td></t<>	Humidity:	35 85% rH non condensing			
Setting:   sensitivity trimmer and N.O./N.C. trimmer     Operating temperature:   -10 60°C     Storage temperature:   -20 70°C     Dielectric strength:   500 Vac 1 min., between electronics and housing     nsulating resistance:   >20 MΩ 500 Vdc, between electronics and housing     Emission type:   red laser (650 nm) Class 1 EN 60825-1     Ambient light rejection:   5 KLux     /ibration:   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 (EN60068-2-6)     Shock resistance:   0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-6)     Shock resistance:   11 ms (30 G) 6 shock for every axis (EN60068-2-27)     Slot width:   30 mm   50 mm   80 mm   120 mm     double:   GDZn   Glass   -   -   -     Protection class:   IP67   -   -   -   -     Questions:   M8 3 pole connector   -   -   210 g.   -	ndicators:	YELLOW LED			
Operating temperature:     -10 60°C       Storage temperature:     -20 70°C       Dielectric strength:     500 Vac 1 min., between electronics and housing       nsulating resistance:     >20 MΩ 500 Vdc, between electronics and housing       Emission type:     red laser (650 nm) Class 1 EN 60825-1       Ambient light rejection:     5 kLux       /ibration:     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 (EN60068-2-6)       Shock resistance:     11 ms (30 G) 6 shock for every axis (EN60068-2-27)       Slot width:     30 mm     50 mm     80 mm     120 mm       double:     Glass     -70 tection class:     Glass     -70 tection class:     PF67       2onnections:     M8 3 pole connector     M8 3 pole connector     210 g.     210 g.	Setting:	sensitivity trimmer and N.O./N.C. trimmer			
Storage temperature:     -20 70°C       Dielectric strength:     500 Vac 1 min., between electronics and housing       nsulating resistance:     >20 MΩ 500 Vdc, between electronics and housing       Emission type:     red laser (650 nm) Class 1 EN 60825-1       Ambient light rejection:     5 kLux       /ibration:     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 (EN60068-2-7)       Slot width:     30 mm     50 mm     80 mm     120 mm       -ousing:     GDZn     GDZn     -     -       -ensees:     Glass     -     -     -       ?rotection class:     IP67     -     -     -       Quight:     66 g.     110 g.     135 g.     210 g.	Operating temperature:	-10 60°C			
Dielectric strength:     500 Vac 1 min., between electronics and housing       nsulating resistance:     >20 MΩ 500 Vdc, between electronics and housing       Emission type:     red laser (650 nm) Class 1 EN 60825-1       Ambient light rejection:     5 kLux       /ibration:     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 (EN60068-2-6)       Shock resistance:     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 (EN60068-2-6)       Shock resistance:     0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-6)       Shock resistance:     0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-6)       Shock resistance:     0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-6)       Shock resistance:     0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-27)       Slot width:     30 mm     50 mm     80 mm     120 mm       -ousing:     GDZn     -     -     -     -       ?rotection class:     IP67     -     -     -     -       2onnections:     M8 3 pole connector	Storage temperature:	-20 70°C			
nsulating resistance:     >20 MΩ 500 Vdc, between electronics and housing       Emission type:     red laser (650 nm) Class 1 EN 60825-1       Ambient light rejection:     5 kLux       /lbration:     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 (EN60068-2-6)       Shotk resistance:     30 mm     50 mm     80 mm     120 mm       Job width:     30 mm     50 mm     80 mm     120 mm       -enses:     GDZn     -     -       -rotection class:     IP67     -     -       2onnections:     M8 3 pole connector     -     20 mg.	Dielectric strength:	500 Vac 1 min., between electronics and housing			
Emission type:     red laser (650 nm) Class 1 EN 60825-1       Ambient light rejection:     5 kLux       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 (EN60068-2-6)       Shock resistance:     11 ms (30 G) 6 shock for every axis (EN60068-2-6)       Shock resistance:     11 ms (30 G) 6 shock for every axis (EN60068-2-27)       Shock resistance:     0.11 ms (30 G) 6 shock for every axis (EN60068-2-27)       Shock resistance:     GDZn	nsulating resistance:	>20 M $\Omega$ 500 Vdc, between electronics and housing			
Ambient light rejection:     5 kLux       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)       Shotk resistance:     30 mm     50 mm     80 mm     120 mm       Job width:     30 mm     50 mm     80 mm     120 mm       Iousing:     GDZn	Emission type:	red laser (650 nm) Class 1 EN 60825-1			
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)       Shock resistance:     11 ms (30 G) 6 shock for every axis (EN60068-2-27)       Shock resistance:     30 mm     50 mm     80 mm     120 mm       Investigation     30 mm     50 mm     80 mm     120 mm       Investigation     GDZn     Glass     -       Protection class:     IP67     -       Connections:     M8 3 pole connector     Veight:     66 g.     110 g.     135 g.     210 g.	Ambient light rejection:	5 kLux			
Shock resistance:     11 ms (30 G) 6 shock for every axis (EN60068-2-27)       Slot width:     30 mm     50 mm     80 mm     120 mm       Housing:     GDZn     Glass     Slot width:     Slot wi	/ibration:	0.5 mm amplitude, 10 55 Hz frequency, for every axis (EN60068-2-6)			
Slot width:     30 mm     50 mm     80 mm     120 mm       Housing:     GDZn       Lenses:     Glass       Protection class:     IP67       Connections:     M8 3 pole connector       Weight:     66 g.     110 g.     135 g.     210 g.	Shock resistance:	11 ms (30 G) 6 shock for every axis (EN60068-2-27)			
GDZn       Lenses:     Glass       Protection class:     IP67       Connections:     M8 3 pole connector       Weight:     66 g.     110 g.     135 g.     210 g.	Slot width:	30 mm	50 mm	80 mm	120 mm
Glass       Protection class:     IP67       Connections:     M8 3 pole connector       Weight:     66 g.     110 g.     135 g.     210 g.	Housing:	GDZn			
Protection class:     IP67       Connections:     M8 3 pole connector       Weight:     66 g.     110 g.     135 g.     210 g.	_enses:	Glass			
M8 3 pole connector       Veight:     66 g.     110 g.     135 g.     210 g.	Protection class:	IP67			
Weight:     66 g.     110 g.     135 g.     210 g.	Connections:	M8 3 pole connector			
	Weight:	66 g.	110 g.	135 g.	210 g.

#### SETTING

- 1) Place the object to read in the sensor slot using the reference marks on the tip for alignment.
- 2) Turn the sensitivity with the trimmer in order to obtain the correct reading of the object.



These slot sensors are not suitable for safety applications.

### **SAFETY NOTES**

- These photoelectric sensors may not be used in applications where personal safety depends on proper function of the devices (not safety designed per EU machine guideline). Read these operating instructions carefully before putting the device into service.
- Danger of eye injury. Do not look into the laser beam! Laser protection regulations: The transmitter and the laser light barrier comply with laser class 1 in accordance with EN 60825-1:2003-10. Therefore no additional protective measures are necessary for operation.

Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated Jun 24, 2007.

Caution! The use of controls or adjustments or performance of procedure other than those specified herein may result in hazardous radiation exposure.



The sensors are NOT safety devices, and so MUST NOT be used in the safety control of the machines where installed.

#### WARRANTY

Datalogic Automation warrants its products to be free from defects. Datalogic Automation will repair or replace, free of charge, any product found to be defective during the warranty period of 36 months from the manufacturing date.

This warranty does not cover damage or liability deriving from the improper application of Datalogic Automation products.

#### DATALOGIC AUTOMATION srl

Via Lavino 265 - 40050 Monte S.Pietro - Bologna – Italy Tel: +39 051 6765611 - Fax: +39 051 6759324 www.datalogic.com

Under current Italian and European laws, Datalogic Automation is not obliged to take care of product disposal at the end of its life.

Datalogic Automation Recommends to dispose of the product in compliance with local laws or contact authorised waste collection centres. Datalogic Automation reserves the right to make modifications and improvements without prior notification.

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