DATASHEET - LS-S11S/L



Position switch, Roller lever, Complete unit, 1 N/O, 1 NC, Snap-action contact - Yes, Screw terminal, Yellow, Insulated material, -25 - +70 $^{\circ}$ C, EN 50047 Form E, Long

Powering Business Worldwide

Part no. LS-S11S/L Catalog No. 106800 Alternate Catalog LS-S11S/L

No.

EL-Nummer 4315213

(Norway)

Delivery program

Delivery program		
Basic function		Position switches Safety position switches
Part group reference		LS(M)
Product range		Roller lever
Degree of Protection		IP66, IP67
Features		Complete unit
Ambient temperature	°C	-25 - +70
Design		EN 50047 Form E
Snap-action contact		Yes
Description		Long
Contacts		
N/O = Normally open		1 N/O
N/C = Normally closed		1 NC →
Notes		= safety function, by positive opening to IEC/EN 60947-5-1
Contact sequence		$0 - \frac{13}{14} \begin{bmatrix} 21 \\ 22 \end{bmatrix}$
Contact travel ■ = Contact closed = Contact open		0 4.4 9.6 21-22 13-14 21-22 13-14 2.3 Zw = 8.7 mm
Positive opening (ZW)		yes
Colour		
Enclosure covers		Yellow
Enclosure covers		
Housing		Insulated material
Connection type		Screw terminal
Notes The operating head can be rotated at 90° intervals to adapt to the specified approximately 100° intervals.	oach direction.	

Technical data

General

Standards		IEC/EN 60947
Climatic proofing		Damp heat, constant, to IEC 60068-2-78; damp heat, cyclical, to IEC 60068-2-30
Ambient temperature	°C	-25 - +70
Mounting position		As required

Darway of Darta stice			IDCC IDC7
Degree of Protection			IP66, IP67
Terminal capacities		mm ²	
Solid		mm ²	1 x (0.5 - 2.5)
Flexible with ferrule		mm ²	1 x (0.5 - 1.5)
Repetition accuracy		mm	0.15
Contacts/switching capacity			
Rated impulse withstand voltage	U _{imp}	V AC	4000
Rated insulation voltage	Ui	V	400
Overvoltage category/pollution degree			III/3
Rated operational current	I _e	Α	
AC-15			
24 V	I _e	Α	6
220 V 230 V 240 V	I _e	Α	6
380 V 400 V 415 V	I _e	Α	4
DC-13			
24 V	I _e	Α	3
110 V	I _e	Α	0.6
220 V	I _e	Α	0.3
Control circuit reliability			
at 24 V DC/5 mA	H _F	Fault probabilit	$< 10^{-7}, < 1$ fault in 10^7 operations by
at 5 V DC/1 mA	H _F	Fault probabilit	$< 5 \times 10^{-6}$, < 1 failure at 5×10^{6} operations by
Supply frequency		Hz	max. 400
Short-circuit rating to IEC/EN 60947-5-1			
max. fuse		A gG/gL	6
Rated conditional short-circuit current		kA	1
Mechanical variables			
Lifespan, mechanical	Operations	x 10 ⁶	8
Mechanical shock resistance (half-sinusoidal shock, 20 ms)			
Standard-action contact		g	25
Operating frequency	Operations/h		≦ 6000
Actuation			
Mechanical			
Actuating force at beginning/end of stroke		N	1.0/8.0
Actuating torque of rotary drives		Nm	0.2
Max. operating speed with DIN cam		m/s	1
Notes			for angle of actuation $\alpha = 30^{\circ}/45^{\circ}$

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	6
Heat dissipation per pole, current-dependent	P _{vid}	W	0.17
Equipment heat dissipation, current-dependent	P _{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	0
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects $$			Meets the product standard's requirements.

10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.2.5 Lifting	Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions	Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.5 Protection against electric shock	Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9 Insulation properties	
10.9.2 Power-frequency electric strength	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material	Is the panel builder's responsibility.
10.10 Temperature rise	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 7.0

Sensors (EG000026) / End switch (EC000030)

Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Position switch / Position switch (Type 1) (ecl@ss10.0.1-27-27-06-01 [AGZ382015])

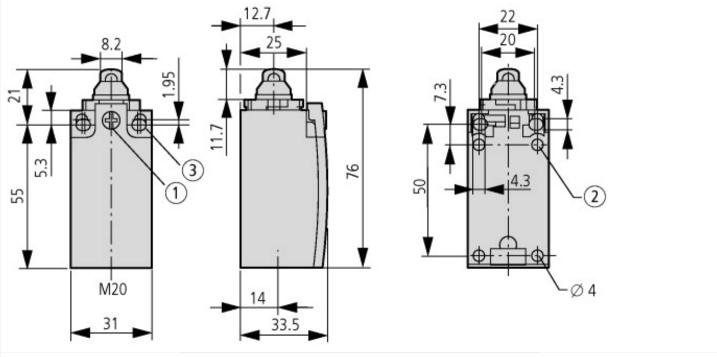
Width sensor mm 3 Diameter sensor mm 6 Leight of sensor mm 33.5 Rated operation current le at AC-15, 24 V A 6 Rated operation current le at AC-15, 25 V A 6 Rated operation current le at AC-15, 25 V A 3 Rated operation current le at CC-13, 24 V A 3 Rated operation current le at DC-13, 24 V A 3 Rated operation current le at DC-13, 25 V A 3 Rated operation current le at DC-13, 25 V A 0 Switching function Current le at DC-13, 25 V A 0 Switching function Duis be as switch 0 0 Switching function Current le at DC-13, 25 V A 0 Switching function Current le at DC-13, 25 V A 0 Switching function Current le at DC-13, 25 V A 0 Switching function Current le at DC-13, 25 V A 0 Switching function Current le at DC-13, 25 V A 0	(ecl@ss10.0.1-27-27-06-01 [AGZ382015])		
Height of sensor	Width sensor	mm	31
Length of sensor mm 335 Rated operation current le at AC-15, 24 V A 6 Rated operation current le at AC-15, 125 V A 6 Rated operation current le at DC-13, 230 V A 3 Rated operation current le at DC-13, 125 V A 0.8 Rated operation current le at DC-13, 230 V A 0.8 Rated operation current le at DC-13, 230 V A 0.0 Switching function B A 0.0 Switching function latching B A 0.0 Output electronic B A 0.0 Number of contacts as normally closed contact B B A 0.0 Number of contacts as normally open contact B <td>Diameter sensor</td> <td>mm</td> <td>0</td>	Diameter sensor	mm	0
Rated operation current le at AC-15, 24 V A 6 Rated operation current le at AC-15, 250 V A 6 Rated operation current le at AC-15, 230 V A 6 Rated operation current le at DC-13, 24 V A 3 Rated operation current le at DC-13, 125 V A 0.3 Switching function Duick-break switch 0.3 Switching function No No Output electronic No No Forced opening Yes No Number of safety auxiliary contacts 1 1 Number of contacts as normally open contact 1 1 Number of contacts as normally open contact 1 1 Number of contacts as onapally open contact 0 None Type of interface of contacts as change-over contact 0 None Type of interface for safety communication 1 None Control of plousing 1 None Control of lement 1 Other Type of control element 1 Other Type of control element	Height of sensor	mm	61
Rated operation current le at AC-15, 125 V A 6 Rated operation current le at AC-15, 230 V A 6 Rated operation current le at DC-13, 24 V A 3 Rated operation current le at DC-13, 125 V A 0.8 Rated operation current le at DC-13, 230 V A 0.3 Switching function Moulch-break switch Switching function No No Output electronic No No Forced opening Yes No Number of safety auxiliary contacts 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as change-over contact 1 1	Length of sensor	mm	33.5
Rated operation current le at AC-15, 230 V A 6 Rated operation current le at DC-13, 24 V A 3 Rated operation current le at DC-13, 25 V A 0.8 Rated operation current le at DC-13, 230 V A 0.3 Switching function Cuick-break switch Switching function latching No No Output electronic Yes No Forced opening Yes 1 Number of safety auxiliary contacts 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as change-over contact 1 1 Type of interface None None Type of interface for safety communication None None Construction type housing None Plastic Material housing Plastic Other Cotting housing Roller lever Other Alignment of the control element Roller lever Other Alignment of the control element None None With status indication None	Rated operation current le at AC-15, 24 V	Α	6
Rated operation current le at DC-13, 24 V A 3 Rated operation current le at DC-13, 125 V A 0.8 Rated operation current le at DC-13, 230 V A 0.3 Switching function M 0.0 Switching function latching Mo No Output electronic Mo Yes Forced opening Yes 1 Number of safety auxiliary contacts 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as change-over contact 1 1 Number of contacts as change-over contact 1 None Type of interface None None Type of interface for safety communication 1 None Construction type housing 1 Plastic Material housing 1 Plastic Coating housing 1 Roller lever Alignment of the control element 1 Roller lever Alignment of the control element 0 Other With status indication 1 Yes	Rated operation current le at AC-15, 125 V	Α	6
Rated operation current le at DC-13, 125 V A 0.8 Rated operation current le at DC-13, 230 V A 0.3 Switching function Cuick-break switch Switching function latching No Output electronic No No Forced opening Yes Number of safety awilliary contacts 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally open contact 1 1 Number of contacts as change-over contact 1 1 Number of trafface for safety communication 1 None Type of interface for safety communication 1 1 Construction type housing 1 2 1 Material housing 1 2 1 2 Coating housing 1 2 1 2 <td>Rated operation current le at AC-15, 230 V</td> <td>Α</td> <td>6</td>	Rated operation current le at AC-15, 230 V	Α	6
Rated operation current le at DC-13, 230 V A 0.3 Switching function Cuick-break switch Cuick-break switch Switching function latching No No Output electronic No No Forced opening Yes Yes Number of safety auxiliary contacts 1 1 Number of contacts as normally closed contact 1 1 Number of contacts as normally open contact 1 1 Number of contacts as change-over contact 1 1 Type of interface 1 None Type of interface for safety communication 1 None Construction type housing 2 Plastic Cototing housing Plastic Other Type of control element 2 Plastic Type of control element 2 Roller lever Alignment of the control element 0 Other Type of electric connection 0 No With status indication 0 No Suitable for safety functions 0 No	Rated operation current le at DC-13, 24 V	Α	3
Switching functionCuick-break switchSwitching function latchingNoOutput electronicNoForced openingYesNumber of safety auxiliary contacts1Number of contacts as normally closed contact1Number of contacts as normally open contact1Number of contacts as change-over contact0Type of interfaceNoneType of interface for safety communicationNoneConstruction type housingNoneMaterial housingPlasticCotting housingOtherType of control elementNoleAlignment of the control elementOtherType of electric connectionOtherWith status indicationOtherSuitable for safety functionsNoSuitable for safety functionsNoSuitable for safety functionsNoSuitable for safety category for gasNo	Rated operation current le at DC-13, 125 V	Α	0.8
Switching function latchingNoOutput electronicNoForced openingYesNumber of safety auxiliary contacts1Number of contacts as normally closed contact1Number of contacts as normally open contact1Number of contacts as change-over contact0Type of interfaceNoneType of interface for safety communicationNoneConstruction type housingCuboidMaterial housingPlasticCoating housingOtherType of control elementRoller leverAlignment of the control elementOtherType of electric connectionOtherWith status indicationNoSuitable for safety functionsNoSuitable for safety functionsYesExplosion safety category for gasNone	Rated operation current le at DC-13, 230 V	Α	0.3
Output electronic No Forced opening Yes Number of safety auxiliary contacts 1 Number of contacts as normally closed contact 1 Number of contacts as normally open contact 1 Number of contacts as change-over contact 0 Type of interface None Type of interface for safety communication None Construction type housing Cuboid Material housing Plastic Coating housing Other Type of control element Roller lever Alignment of the control element Other Type of electric connection Other With status indication No Suitable for safety functions Yes Explosion safety category for gas None	Switching function		Quick-break switch
Forced opening Number of safety auxiliary contacts Number of contacts as normally closed contact Number of contacts as normally open contact Number of contacts as normally open contact Number of contacts as normally open contact Number of contacts as change-over contact Type of interface Type of interface or safety communication Construction type housing Material housing Coating housing Coating housing Coating housing Type of control element Alignment of the control element Type of electric connection With status indication No Suitable for safety functions Explosion safety category for gas Yes In Contact as normally closed contact 1 Contact as normally closed contact 1 1 Contact as normally closed contact 1 None 1 Contact as normally closed contact 1 None Type of electric connection No None	Switching function latching		No
Number of safety auxiliary contacts Number of contacts as normally closed contact Number of contacts as normally open contact Number of contacts as change-over contact Type of interface Type of interface for safety communication Construction type housing Material housing Coating housing Coating housing Type of control element Alignment of the control element Type of lectric connection With status indication Suitable for safety functions Explosion safety category for gas I I I I I I I I I I I I I	Output electronic		No
Number of contacts as normally closed contact Number of contacts as normally open contact Number of contacts as change-over contact Type of interface Type of interface for safety communication Construction type housing Material housing Coating housing Coating housing Type of control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas 1 1 1 1 1 1 1 1 1 1 1 1 1	Forced opening		Yes
Number of contacts as normally open contact1Number of contacts as change-over contact0Type of interfaceNoneType of interface for safety communicationNoneConstruction type housingCuboidMaterial housingPlasticCoating housingOtherType of control elementRoller leverAlignment of the control elementOtherType of electric connectionOtherWith status indicationNoSuitable for safety functionsYesExplosion safety category for gasNone	Number of safety auxiliary contacts		1
Number of contacts as change-over contact Type of interface None Type of interface for safety communication None Construction type housing Cuboid Material housing Plastic Coating housing Other Type of control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas Other None	Number of contacts as normally closed contact		1
Type of interface Type of interface for safety communication None Construction type housing Cuboid Material housing Plastic Coating housing Other Type of control element Roller lever Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas None	Number of contacts as normally open contact		1
Type of interface for safety communication Construction type housing Material housing Coating housing Coating housing Other Type of control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas None	Number of contacts as change-over contact		0
Construction type housing Cuboid Material housing Coating housing Coating housing Type of control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas Cuboid Cuboi	Type of interface		None
Material housing Coating housing Other Type of control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas Plastic Other Roller lever Other Other Other Vies No No No Suitable for safety functions No None	Type of interface for safety communication		None
Coating housing Other Type of control element Alignment of the control element Other Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas Other No No Noe	Construction type housing		Cuboid
Type of control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas Roller lever Other Other No	Material housing		Plastic
Alignment of the control element Type of electric connection With status indication No Suitable for safety functions Explosion safety category for gas Other No No No No Noe	Coating housing		Other
Type of electric connection With status indication No Suitable for safety functions Explosion safety category for gas Other No No No Yes Explosion safety category for gas None	Type of control element		Roller lever
With status indication No Suitable for safety functions Yes Explosion safety category for gas None	Alignment of the control element		Other
Suitable for safety functions Yes Explosion safety category for gas None	Type of electric connection		Other
Explosion safety category for gas None	With status indication		No
	Suitable for safety functions		Yes
Explosion safety category for dust None	Explosion safety category for gas		None
	Explosion safety category for dust		None

Ambient temperature during operating	°C	25 - 70
Degree of protection (IP)		IP67
Degree of protection (NEMA)		4X

Approvals

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL Category Control No.	NKCR
CSA File No.	12528
CSA Class No.	3211-03
North America Certification	UL listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

Dimensions



- ① Tightening torque of cover screws: 0.8 Nm \pm 0.2 Nm ② only with LS (insulated version) ③ Fixing screws $2 \times M4 \ge 30$ $M_A = 1.5$ Nm

