# **DATASHEET - LS-S11S/L**



### Position switch, 1N/0+1N/C, roller lever

Part no. LS-S11S/L Catalog No. 106800 Eaton Catalog No. LS-S11S/L 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/0
N/C = Normally closed		1 NC →
Notes		e safety function, by positive opening to IEC/EN 60947-5-1
Contact sequence		0-\frac{13}{14}\frac{1}{22}
Contact travel = Contact closed = Contact open		0 4.4 9.6 21-22 13-14 21-22 13-14 2.3 2w = 8.7 mm
Positive opening (ZW)		yes
Colour		
Enclosure covers		Yellow
Enclosure covers		
Housing		Insulated material
Connection type		Screw terminal
$\textbf{Notes} \ \text{The operating head can be rotated at } 90^{\circ} \ \text{intervals to adapt to the specified application}$	proach 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

Degree of Protection			IP66, IP67
Terminal capacities		$mm^2$	
Solid		mm <sup>2</sup>	1 x (0.5 - 2.5)
Flexible with ferrule		$mm^2$	1 x (0.5 - 1.5)
Contacts/switching capacity			
Rated impulse withstand voltage	$U_{\text{imp}}$	V AC	4000
Rated insulation voltage	Ui	٧	400
Overvoltage category/pollution degree			III/3
Rated operational current	I <sub>e</sub>	Α	
AC-15			
24 V	I <sub>e</sub>	Α	6
220 V 230 V 240 V	I <sub>e</sub>	Α	6
380 V 400 V 415 V	I <sub>e</sub>	Α	4
DC-13			
24 V	I <sub>e</sub>	Α	3
110 V	I <sub>e</sub>	Α	0.6
220 V	I <sub>e</sub>	Α	0.3
Control circuit reliability			
at 24 V DC/5 mA	H <sub>F</sub>	Fault probabilit	< 10 <sup>-7</sup> , < 1 fault in 107 operations ty
at 5 V DC/1 mA	H <sub>F</sub>	Fault probabilit	$< 10^{-6}$ , $< 1$ failure at 5 x $10^6$ operations ty
Supply frequency		Hz	max. 400
Short-circuit rating to IEC/EN 60947-5-1			
max. fuse		A gG/gL	6
Repetition accuracy		mm	0.15
Rated conditional short-circuit current		kA	1
Mechanical variables			
Lifespan, mechanical	Operations	x 10 <sup>6</sup>	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

In	Α	6
$P_{\text{vid}}$	W	0.17
$P_{\text{vid}}$	W	0
$P_{vs}$	W	0
P <sub>diss</sub>	W	0
	°C	-25
	°C	70
		Meets the product standard's requirements.
		Meets the product standard's requirements.
		Meets the product standard's requirements.
		Meets the product standard's requirements.
	P <sub>vid</sub> P <sub>vid</sub> P <sub>vs</sub>	P <sub>vid</sub> W P <sub>vid</sub> W P <sub>vs</sub> W P <sub>diss</sub> W °C

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)

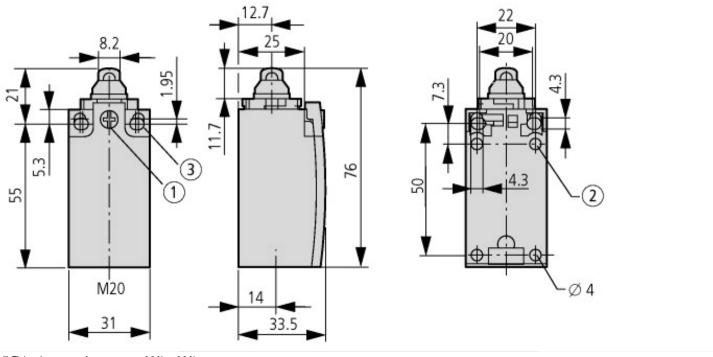
Diameter sensor         mm         0           Height of sensor         mm         61           Length of sensor         mm         33.5           Rated operation current le at AC-15, 24 V         A         6           Rated operation current le at AC-15, 25 V         A         6           Rated operation current le at 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, 25 V         A         0.8           Rated operation current le at DC-13, 25 V         A         0.3           Rated operation current le at DC-13, 25 V         A         0.3           Rated operation current le at DC-13, 25 V         A         0.3           Rated operation current le at DC-13, 25 V         A         0.0           Switching function         Durb contract of the properties of the p	(ecl@ss10.0.1-27-27-06-01 [AGZ382015])	· ,		
Height of sensor	Width sensor		mm	31
Length of sensor         mm         33.5           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, 220 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           Switching function latching         Mo         O           Output electronic         No         No           Forced operation         Yes         No           Number of safety auxiliary contacts         Yes         1           Number of contacts as normally closed contact         Yes         1           Number of contacts as change-over contact         Yes         1           Number of contacts as change-over contact         Yes         None           Construction type housing         Yes         None           Material housing         Yes         None           Control element         Yes         None           Type of interface for safety communication         Yes         None           Control element         Yes         None           Control element         Yes         None	Diameter sensor		mm	0
Rated operation current le at AC-15, 25 V         A         6           Rated operation current le at AC-15, 230 V         A         6           Rated operation current le at DC-13, 230 V         A         3           Rated operation current le at DC-13, 24 V         A         0.8           Rated operation current le at DC-13, 125 V         A         0.3           Rated operation current le at DC-13, 230 V         A         0.3           Switching function         Duick-break switch           Switching function latching         No         No           Output electronic         No         No           Forced opening         Yes         Number of contacts as normally closed contact         1           Number of contacts as normally closed contact         1         1           Number of contacts as normally open contact         1         None           Type of interface         None         None           Type of interface for safety communication         None         Cubid           Construction type housing         Cubid         None           Material housing         Cubid         Cubid           Coating housing         Cubid         Cubid           Material housing         Cubid         Cubid           Au Salac	Height of sensor		mm	61
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, 24 V         A         0.8           Rated operation current le at DC-13, 125 V         A         0.3           Rated operation current le at DC-13, 230 V         A         0.3           Switching function         Quick-break switch           Switching function latching         No           Output electronic         No           Forced opening         Yes           Number of safety suxiliary 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         None           Construction type housing         Cuboid           Material housing         Cuboid           Coating housing         Cuboid           Allegement of the control element         C	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, 125 V         A         0.8           Rated operation current le at DC-13, 230 V         A         0.3           Switching function         Mo         0.0           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 closed contact         1         1           Number of contacts as change-over contact         0         0           Type of interface         None         None           Type of interface for safety communication         None         Cubick           Construction type housing         Cubick         Cubick           Material housing         Plastic         Cubick           Coating housing         Cubick         Cubick           Alignment of the control element         Cubick         Cubick           Alignment of the control element         <	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         Will character in the switch         0.0           Switching function latching         No         No           Output electronic         No         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 normally open contact         1         1           Number of contacts as change-over contact         0         0           Number of contacts as change-over contact         No         None           Type of interface for safety communication         No         None           Construction type housing         1         Plastic           Cotating housing         1         Plastic           Cotating housing         1         Roller lever           Alignment of the control element         0         Other           Type of electric connection         No         No           With status indication	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           Forced opening         Yes           Number of safety auxiliary contacts         1           Number of contacts as normally closed contact         1           Number of contacts as normally closed contact         1           Number of contacts as change-over contact         0           Type of interface for safety communication         None           Construction type housing         None           Material housing         Ubbid           Construction type housing         Ubbid           Cotating housing         Hastic           Cotating housing         Boller lever           Alignment of the control element         Ubbid           Type of electric connection         Ubbid           With status indication         No           Suitable for safety functions         Yes           Explosion safety category for gas         No	Rated operation current le at AC-15, 230 V		Α	6
A 0.3 Switching function Switching function latching Output electronic 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 change-over contact Number of contacts as normally open contact Number of contacts as normally closed contact Number of safety as normal	Rated operation current le at DC-13, 24 V		Α	3
Switching function         Quick-break switch           Switching function latching         No           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         Other           Suitable for safety functions         Yes           Explosion safety category for gas         None	Rated operation current le at DC-13, 125 V		Α	0.8
Switching function latching         No           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           Construction type fourign         None           Construction type housing         Cuboid           Material housing         Plastic           Coating housing         Other           Type of control element         Other           Alignment of the control element         Other           With status indication         No           Suitable for safety functions         No           Explosion safety category for gas         None	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       Number of contacts as change-over contact     None       Type of interface     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 change-over contact Number of contacts as change-over contact Number of contacts as change-over contact None Type of interface None Construction type housing None Construction type housing Naterial housing Plastic Coating housing Other Type of control element Alignment of the control element Nipe of electric connection With status indication Suitable for safety functions Explosion safety category for gas 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 Coating housing Coating the control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas  I a  I a  I a  I a  I a  I a  I a  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  None  Type of interface for safety communication  Construction type housing  Material 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	Forced opening			Yes
Number of contacts as normally open contact  Number of contacts as change-over contact  Type of interface  None  Type of interface for safety communication  Construction type housing  Material housing  Coating housing  Coating housing  Coating the control element  Type of electric connection  With status indication  Suitable for safety functions  Explosion safety category for gas  I a  O Coating housing  Cuboid  Cher  Roller lever  Other  Other  Other  Yes  No  No  No  No  No  No  No  No  No  N	Number of safety auxiliary contacts			1
Number of contacts as change-over contact Type of interface None Type of interface for safety communication Construction type housing Material housing Coating housing Coating housing Coating housing Coating the control element 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  O  None  None  O  None  O  None  None  None	Number of contacts as normally closed contact			1
Type of interface Type of interface for safety communication Construction type housing Cuboid Material housing Material housing Coating housing Cother 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 None None None None None	Number of contacts as normally open contact			1
Type of interface for 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  Suitable for safety functions  Explosion safety category for gas  None  None  None  None  None	Number of contacts as change-over contact			0
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 category for gas  Cuboid Cuboid Plastic Other Roller lever Other Other Other No No Suitable for safety category for gas None	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 Plastic Plastic Plastic Plastic Plastic Pother Roller lever Other Other Other No Suitable for safety functions Yes Explosion safety category for gas None	Type of interface for safety communication			None
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  Other  Other  No  No  No  Noe	Construction type housing			Cuboid
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  Roller lever Other Other No	Material housing			Plastic
Alignment of the control element Type of electric connection Other With status indication No Suitable for safety functions Explosion safety category for gas Other No	Coating housing			Other
Type of electric connection  Other  With status indication  No  Suitable for safety functions  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  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

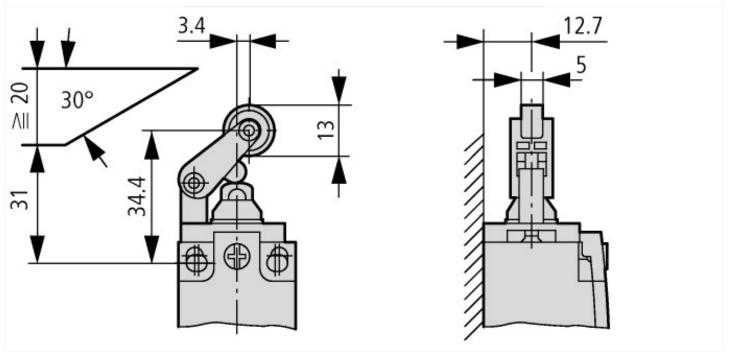
# Approvals

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 x M4  $\ge$  30 M<sub>A</sub> = 1.5 Nm



# **Additional product information (links)**

IL053001ZU LS-Titan position switch: basic device

IL053001ZU LS-Titan position switch: basic device

ftp://ftp.moeller.net/DOCUMENTATION/AWA\_INSTRUCTIONS/IL053001ZU2018\_06.pdf