### **DATASHEET - LS-S11S-SW**



Position switch, Rounded plunger, Basic device, expandable, 1 N/0, 1 NC, Screw terminal, Black, Insulated material, -25 - +70 °C, EN 50047 Form B



LS-S11S-SW Part no. Catalog No. 106806 Alternate Catalog **LS-S11S-SW** No.

	program

	Position switches Safety position switches
	LS(M)
	Rounded plunger
	IP66, IP67
	Basic device, expandable
°C	-25 - +70
	EN 50047 Form B
	Yes
	1 N/O
	1 NC →
	→ = safety function, by positive opening to IEC/EN 60947-5-1
	$0 - \frac{13}{14} = \frac{13}{22}$
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	yes
	Black
	Insulated material
	Screw terminal
	°C

## **Technical data**

#### General

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		$\mathrm{mm}^2$	1 x (0.5 - 1.5)
Repetition accuracy		mm	0.15
Contacts/switching capacity			
Rated impulse withstand voltage	U <sub>imp</sub>	V AC	4000
Rated insulation voltage	Ui	V	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	l <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 probabili	$< 10^{-7}, < 1$ fault in $10^7$ operations ty
at 5 V DC/1 mA	H <sub>F</sub>	Fault probabili	$< 5 \times 10^{-6}$ , $< 1$ failure at $5 \times 10^{6}$ operations ty
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 <sup>6</sup>	8
Contact temperature of roller head		°C	≦ 100
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	1/0.5
Notes			for angle of actuation $\alpha = 0^{\circ}/30^{\circ}$

# 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	$P_{\text{vid}}$	W	0
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0
Heat dissipation capacity	P <sub>diss</sub>	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.

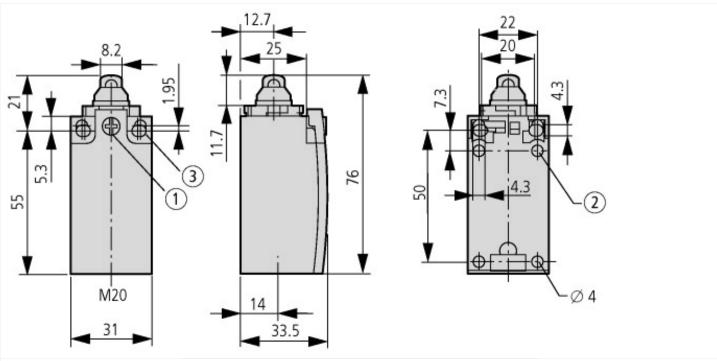
10.2.7 Inscriptions	Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.5 Protection against electric shock	Does not apply, 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**

	Technical data ETIM 7.0			
Accidence   10   1.27   27   0.0 of   1.42   232015 )	Sensors (EG000026) / End switch (EC000030)			
Diameter sensor	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])			
mm   Silent of sensor   Silent of	Width sensor	mm	31	
ceneral of sensor         mm         33.5           Rated operation current le at AC-15, 25V         A         6           Rated operation current le at AC-15, 25V         A         6           Rated operation current le at AC-15, 22V         A         6           Rated operation current le at DC-13, 22V         A         0.8           Rated operation current le at DC-13, 23V         A         0.8           Rated operation current le at DC-13, 230 V         A         0.3           Switching function latching         A         0.3           Switching function latching         No         No           Dutte electronic         Yes         No           Corrected opening         Yes         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         None           Obstitution type housing         Contacts as change-over contact         Cubic         Cubic           Obstitution type housing         Cubic         Cubic	Diameter sensor	mm	0	
Set of operation current le at AC-15, 125 V         A         6           Alted operation current le at AC-15, 125 V         A         6           Alted operation current le at AC-15, 125 V         A         6           Alted operation current le at AC-15, 230 V         A         0           Alted operation current le at DC-13, 230 V         A         0.3           Alted operation current le at DC-13, 230 V         A         0.3           Switching function         No         No           Switching function latching         No         No           Dutput electronic         I         No           Switching function latching         I         1           Number of safety auxiliary contacts         I         1           Number of contacts as normally closed contact         I         1           Number of contacts as change-over contact         I         No           Number of contacts as change-over contact         I         No           Obstitution type housing         I         No           Obstitution type housing         I         Dutped           Obstitution type housing         I         Dutped           Vege of control element         I         Dutped           Vige of control element         I	Height of sensor	mm	61	
Bated operation current le at AC-15, 125 V         A         6           Bated operation current le at AC-15, 230 V         A         3           Bated operation current le at DC-13, 24 V         A         0           Bated operation current le at DC-13, 25 V         A         0           Switching function         B         0           Switching function latching         No         No           Dutput electronic         No         No           Forest opening         Yes         1           Number of safety auxiliary contacts         1         1           Number of contacts as normally open contact         1         1           Number of contacts as normally open contact         1         0           Number of contacts as normally open contact         1         0           Number of contacts as normally open contact         1         None           Number of contacts as normally open contact         1         0           Number of contacts as normally open contact         1         0           None         1         0           None         0         0           None         0         0           None         0         0           None         0         <	Length of sensor	mm	33.5	
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, 125 V         A         0.8           Sated operation current le at DC-13, 220 V         A         0.3           Switching function         No         0.0           Switching function latching         No         No           Dutput electronic         No         No           Forced opening         Yes         No           Number of safety suxiliary 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         None         None           Type of interface for safety communication         None         Cuboid           Material housing         Cuboid         Cuboid           Auterial housing         Cuboid         Cuboid           Auterial housing         Cuboid         Cuboid           Alignment of the control element         Cuboid         Cuboid           Alignment of the control element         Cuboid         Cuboid           Alignment of the control element	Rated operation current le at AC-15, 24 V	Α	6	
Asted operation current le at DC-13, 24 V A 0.8 Asted operation current le at DC-13, 125 V A 0.8 Asted operation current le at DC-13, 125 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 230 V A 0.3 Asted operation current le at DC-13, 125 V A 0.3 Asted operation current le at DC-13, 1	Rated operation current le at AC-15, 125 V	Α	6	
Rated operation current le at DC-13, 125 V A 0.3 Rated operation current le at DC-13, 230 V A 0.3 Routed operation current le at DC-13, 230 V A 0.3 Routeling function latching No. Routeling for safety suililiary contacts No. Routeling for contacts as normally closed contact I 1 Routeling for contacts as normally open contact I 1 Routeling for contacts as normally open contact I 1 Routeling for contacts as change-over contact I 1 Routeling for safety communication No. Routeling for safety communication No. Routeling for contact I 1 Routeling for safety communication No. Routeling for the control element No. Routeling for safety functions No. Routeling for dust No. Routeling for the control element No. Routeling for the control elem	Rated operation current le at AC-15, 230 V	Α	6	
A Descripting function current le at DC-13, 230 V	Rated operation current le at DC-13, 24 V	Α	3	
Switching function Switching function latching Surpose of electric connection Switching function latching Switching function latching Surpose of electric connection Switching function latching Switching function Switch funct	Rated operation current le at DC-13, 125 V	Α	0.8	
Switchining function latching Dutput electronic Forced opening Number of safety auxillary contacts Number of safety auxillary contacts Number of contacts as normally closed contact 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 closed contacts Numb	Rated operation current le at DC-13, 230 V	Α	0.3	
Dutput 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           Express of interface for safety communication         None           Construction type housing         Cuboid           Material housing         Plastic           Control element         Other           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           Explosion safety category for dust         None           Ambient temperature during operating         °C         25 - 70           Degree of protection (IP)         Ple7	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 change-over contact  Number of contacts as normally open contact	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 normally open contact Number of contacts as change-over contact Number of contacts as normally open contacts as normally open contacts as normally open	Output electronic		No	
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 change-over contact Number of contacts as normally open contact Number of contacts as change-over contact Number of contacts as change.	Forced opening		Yes	
Number of contacts as normally open contact  Number of contacts as change-over contact  Number of contacts as change-over contact  None  None  None  Construction type for safety communication  Construction type housing  Material housing  Control element  Nignment of the control element  None  Nother  None  Nother  None  Nother  None  Nother  None  Nother  None  None  None  None  None  Suitable for safety functions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  None  Control (IP)  Planger  None  1	Number of safety auxiliary contacts		1	
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  Alignment of the control element  Type of electric connection  With status indication  With status indication  Suitable for safety functions  Explosion safety category for dust  Ambient temperature during operating  Coating housing  Coating housing  Other  Other  None  Suitable for safety category for dust  Ambient temperature during operating  Coating housing  None  1	Number of contacts as normally closed contact		1	
Type of interface for safety communication  Construction type housing  Material housing  Coating housing  Co	Number of contacts as normally open contact		1	
None Construction type housing Coating housing	Number of contacts as change-over contact		0	
Construction type housing Material housing Coating housing Coa	Type of interface		None	
Material housing Coating housing Type of 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 Explosion safety category for dust Ambient temperature during operating Degree of protection (IP)  Plastic Other Other Other Other Other No No Yes Solitable for safety functions CC 25 - 70 Degree of protection (IP)	Type of interface for safety communication		None	
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  Explosion safety category for dust  Ambient temperature during operating  Degree of protection (IP)  Other  Other  Other  No  No  Yes  None  25 - 70  IP67	Construction type housing		Cuboid	
Fype of control element Alignment of the control element Type of electric connection With status indication Suitable for safety functions Explosion safety category for gas Ambient temperature during operating  Plunger Other Other No	Material housing		Plastic	
Alignment of the control element  Type of electric connection  With status indication  Suitable for safety functions  Explosion safety category for gas  Ambient temperature during operating  Degree of protection (IP)  Other  No  No  No  No  No  No  None  None  1 P67	Coating housing		Other	
Type of electric connection  With status indication  Suitable for safety functions  Explosion safety category for gas  Ambient temperature during operating  Degree of protection (IP)  Other  Other  No  No  Yes  None  None  Cc 25 - 70  IP67	Type of control element		Plunger	
With status indication  Suitable for safety functions  Explosion safety category for gas  Ambient temperature during operating  Pegree of protection (IP)  No  No  No  No  No  No  No  No  No  N	Alignment of the control element		Other	
Suitable for safety functions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Cegree of protection (IP)  Yes  None  None  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Type of electric connection		Other	
Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Compare of protection (IP)  None  25 - 70  IP67	With status indication		No	
Explosion safety category for dust  Ambient temperature during operating  °C 25 - 70  Degree of protection (IP)  IP67	Suitable for safety functions		Yes	
Ambient temperature during operating  °C 25 - 70  Degree of protection (IP)  IP67	Explosion safety category for gas		None	
Degree of protection (IP)	Explosion safety category for dust		None	
	Ambient temperature during operating	°C	25 - 70	
Degree of protection (NEMA) 4X	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

