DATASHEET - LSM-11



Safety position switch, LS(M)-..., Rounded plunger, Basic device, expandable, 1 N/O, 1 NC, EN 50047 Form B, Yellow, Metal, Cage Clamp, -25 - +70 $^{\circ}$ C



Part no. LSM-11 Catalog No. 266144 Alternate Catalog LSM-11

No.

EL-Nummer 4356139

(Norway)

Delivery program

Delivery program		
Basic function		Position switches Safety position switches
Part group reference		LS(M)
Product range		Rounded plunger
Degree of Protection		IP66, IP67
Features		Basic device, expandable
Ambient temperature	°C	-25 - +70
Design		EN 50047 Form B
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		$0 - \frac{13}{14} \frac{1}{22}$
Contact travel = Contact closed = Contact open		0 4.3 6.1 13-14 NO 21-22 NC 3.0 Zw = 4.5 mm
Positive opening (ZW)		yes
Colour		
Enclosure covers		Yellow
Enclosure covers		
Housing		Metal
Connection type		Cage Clamp
Notes		Cage-Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany. Accessories for the Cage-Clamp terminals from Wago:power comb, gray, Wago Article No. 264-402

Technical data

General

delicital		
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	°C -25 - +70
Mounting position		As required
Degree of Protection		IP66, IP67
Terminal capacities	mm	mm ²
Solid	mm	mm ² 1 x (0.5 - 2.5)

Contacts/switching capacity Ump VAE 4000 Rated insulation voltage U ₁ VAE 4000 Overvoltage catagony/pollution degree IU3 IU3 Rated operations current Ie A IV3 AC-15 II A 6 240 V 240 V 240 V Ie A 6 250 V 230 V 240 V Ie A 6 24 V Ie A 6 24 V Ie A 6 24 V Ie A 3 110 V Ie A 3 220 V Ie A 0.6 220 V Ie A 0.3 Control circuit reliability II Fault III V 2 III V 3 III V 4	5 1 11 11 11 11 11 11 11 11 11 11 11 11 1			. (0.5 4.5)
Contacts/switching capacity Ump VAE 4000 Rated insulation voltage U ₁ VAE 4000 Overvoltage catagony/pollution degree IU3 IU3 Rated operations current Ie A IV3 AC-15 II A 6 240 V 240 V 240 V Ie A 6 250 V 230 V 240 V Ie A 6 24 V Ie A 6 24 V Ie A 6 24 V Ie A 3 110 V Ie A 3 220 V Ie A 0.6 220 V Ie A 0.3 Control circuit reliability II Fault III V 2 III V 3 III V 4	Flexible with ferrule		mm ²	1 x (0.5 - 1.5)
Rated impulse withstand voltage Ump V AC 4000 Does voltage category/pollution degree Ui V B 11/3 Rated operational current Ig AC 15 AC-15 B C 14/4 C 24 V Ig AC 5 380 V400 V415 V Ig AC 5 24 V Ig AC 3 24 V Ig AC 5 24 V Ig AC 5 24 V Ig AC 3 110 V Ig AC 3 220 V Ig AC 3 220 V Ig AC 3 220 V Ig AC 3 24 V DC/5 mA Ig Fault 5 10° < 1 fault in 10° operations	Repetition accuracy		mm	0.15
Nation N	Contacts/switching capacity			
Overvitage category/pollution degree Interpretational current	Rated impulse withstand voltage		V AC	4000
Return operational current In In In In In In In	Rated insulation voltage	Ui	V	400
AC-15 24 V 16 A 6 220 V 230 V 240 V 380 V 400 V 415 V 16 A 4 16 A 5 380 V 400 V 415 V 16 A 5 17 A 7 A 6 18 A 6 18 A 6 18 A 6 18 A 6 19 A 6 110 V 18 A 8 110 V 110 V 18 A 8 18 A 9 110 V 110 V 18 A 9 18 A	Overvoltage category/pollution degree			111/3
24 V	Rated operational current	l _e	Α	
220 V 230 V 240 V 10	AC-15			
10C-13	24 V	l _e	Α	6
DC-13	220 V 230 V 240 V	I _e	Α	6
110 V Ie A 0.6 220 V Ie A 0.3 Control circuit reliability at 24 V DC/5 mA	380 V 400 V 415 V	I _e	Α	4
10 V 10	DC-13			
220 V Control circuit reliability at 24 V DC/5 mA HF Fault probability at 5 V DC/1 mA HF Fault probability 45 × 10-6, < 1 fault in 10 ⁷ operations Supply frequency HF Fault probability HF Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations Fault probability HF Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HF Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HF Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HE Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HE Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HE Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HE Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HE Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HE Fault probability 45 × 10-6, < 1 failure at 5 × 10 ⁶ operations HE Fault probability 46 × 10 47 × 16 fault in 10 ⁷ operations HE Fault probability 47 × 1 fault in 10 ⁷ operations HE Fault probability 47 × 1 fault in 10 ⁷ operations HE Fault probability 47 × 1 fault in 10 ⁷ operations 48 × 10 49 × 10 40 × 10	24 V	le	Α	3
Control circuit reliability at 24 V DC/5 mA the fault probability at 5 V DC/1 mA the fault probability the probability of	110 V	le	Α	0.6
HF Fault probability 10 -7, < 1 fault in 107 operations at 5 V D C/1 mA HF Fault probability 5 x 10 -6, < 1 failure at 5 x 106 operations Supply frequency Short-circuit rating to IEC/EN 60947-5-1 max. fuse Rated conditional short-circuit current Mechanical variables Lifespan, mechanical Contact temperature of roller head Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operations Standard-action contact Operations Mechanical Actuation Mechanical Actuating force at beginning/end of stroke HE Fault probability 5 x 10 -6, < 1 failure at 5 x 106 operations max. 400 A GUA A GB/GL B	220 V	l _e	Α	0.3
HF Fault probability Supply frequency	Control circuit reliability			
Supply frequency Short-circuit rating to IEC/EN 60947-5-1 max. fuse Rated conditional short-circuit current Mechanical variables Lifespan, mechanical Contact temperature of roller head Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operating frequency Operations/ Actuation Mechanical Actuating force at beginning/end of stroke Hz max. 400 6 6 6 6 7 8 8 8 6 100 9 25 6 6 6 6 6 6 6 7 6 6 7 6 7 6 7 6 7 7	at 24 V DC/5 mA	H _F	Fault probabilit	< 10 ⁻⁷ , < 1 fault in 10 ⁷ operations ty
Short-circuit rating to IEC/EN 60947-5-1 max. fuse Rated conditional short-circuit current Mechanical variables Lifespan, mechanical Contact temperature of roller head Contact temperature of roller head Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operations/h Standard-action contact Operations/h Actuation Mechanical Actuation Mechanical Actuation N 1.0/8.0	at 5 V DC/1 mA	H _F		$< 5 \times 10^{-6}$, < 1 failure at 5×10^{6} operations by
max. fuse Rated conditional short-circuit current Mechanical variables Lifespan, mechanical Lifespan, mechanical Operations x 10 ⁶ 8 Contact temperature of roller head Contact temperature of roller head Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operations/h Standard-action contact Operations/h Actuation Mechanical Actuating force at beginning/end of stroke Actuating force at beginning/end of stroke	Supply frequency		Hz	max. 400
Rated conditional short-circuit current Mechanical variables Lifespan, mechanical Operations x 10 ⁶ 8 Contact temperature of roller head Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operations/h ≤ 6000 Actuation Mechanical Actuating force at beginning/end of stroke kA 1 1 1 1 1 1 1 1 1 1 1 1 1	Short-circuit rating to IEC/EN 60947-5-1			
Mechanical variables Lifespan, mechanical Operations x 10 ⁶ 8 Contact temperature of roller head Contact temperature of roller head Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operations y Operations/h Actuation Mechanical Actuating force at beginning/end of stroke Operations y 1.0/8.0	max. fuse		A gG/gL	6
Lifespan, mechanical Operations x 10 ⁶ 8 Contact temperature of roller head **C ≤ 100 Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operating frequency Operations/h Actuation Mechanical Actuating force at beginning/end of stroke Operations N 1.0/8.0	Rated conditional short-circuit current		kA	1
Contact temperature of roller head Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operating frequency Operations/h Actuation Mechanical Actuating force at beginning/end of stroke Actuation N 1.0/8.0	Mechanical variables			
Mechanical shock resistance (half-sinusoidal shock, 20 ms) Standard-action contact Operating frequency Operations/h Actuation Mechanical Actuating force at beginning/end of stroke Operations/h N 1.0/8.0	Lifespan, mechanical	Operations	x 10 ⁶	8
Standard-action contact Operating frequency Operations/h Actuation Mechanical Actuating force at beginning/end of stroke Actuating force at beginning/end of stroke g 25 6000 1.0/8.0	Contact temperature of roller head		°C	≦ 100
Operating frequency Operations/h Actuation Mechanical Actuating force at beginning/end of stroke N 1.0/8.0	Mechanical shock resistance (half-sinusoidal shock, 20 ms)			
Actuation Mechanical Actuating force at beginning/end of stroke N 1.0/8.0	Standard-action contact		g	25
Mechanical Actuating force at beginning/end of stroke N 1.0/8.0	Operating frequency	Operations/h		≦ 6000
Actuating force at beginning/end of stroke N 1.0/8.0	Actuation			
	Mechanical			
	Actuating force at beginning/end of stroke		N	1.0/8.0
Actuating torque of rotary drives Nm 0.2	Actuating torque of rotary drives		Nm	0.2
Max. operating speed with DIN cam m/s 1/0.5	Max. operating speed with DIN cam		m/s	1/0.5
Notes for angle of actuation $\alpha = 0^{\circ}/30^{\circ}$	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 _{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.

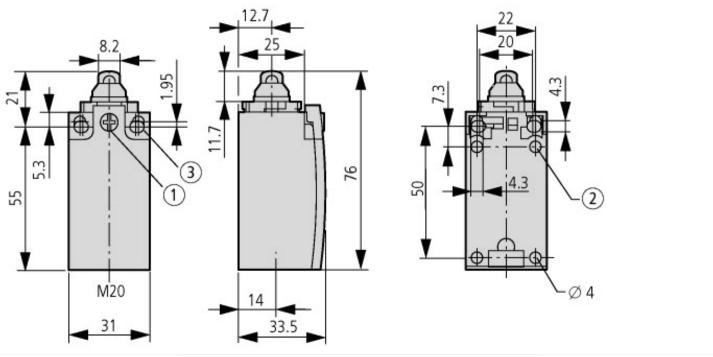
10.2.7 Inscriptions	Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.5 Protection against electric shock	Does not apply,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

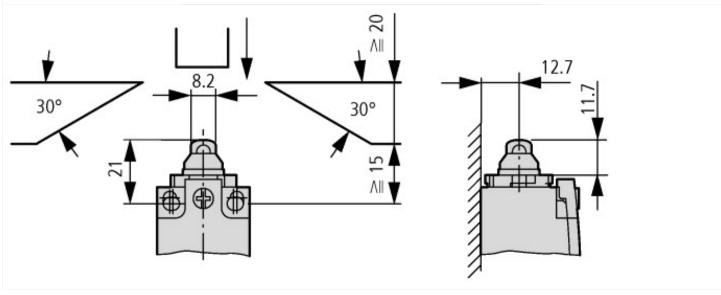
Iconnical data Ethin 7.0		
Sensors (EG000026) / End switch (EC000030)		
Electric engineering, automation, process control engineering / Binary sensor technol (ecl@ss10.0.1-27-27-06-01 [AGZ382015])	ogy, safety-related s	ensor technology / Position switch / Position switch (Type 1)
Width sensor	mm	31
Diameter sensor	mm	0
Height of sensor	mm	61
Length of sensor	mm	33.5
Rated operation current le at AC-15, 24 V	А	6
Rated operation current le at AC-15, 125 V	А	6
Rated operation current le at AC-15, 230 V	А	6
Rated operation current le at DC-13, 24 V	А	3
Rated operation current le at DC-13, 125 V	А	0.8
Rated operation current le at DC-13, 230 V	А	0.3
Switching function		Slow-action switch
Switching function latching		No
Output electronic		No
Forced opening		Yes
Number of safety auxiliary contacts		0
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		Metal
Coating housing		Other
Type of control element		Plunger
Alignment of the control element		Other
Type of electric connection		Cable entry metrical
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)		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_UI /CSA Tyne 3R_4X (indoor use only)_12_13

Dimensions



- ① Tightening torque of cover screws: 0.8 Nm ±0.2 Nm ② only with LS (insulated version) ③ Fixing screws 2 x M4 ≧ 30 M_A = 1.5 Nm



Additional product information (links)

IL053001ZU LS-Titan position switch: basic device

IL053001ZU LS-Titan position switch: basic device

https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL053001ZU2018_06.pdf