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



Part no. LSM-11D Catalog No. 266149 Alternate Catalog LSM-11D

No.

**EL-Nummer** 4356144

(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
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
Positive opening (ZW)		yes
Colour		
Enclosure covers		Yellow
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** Standards

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 <sup>2</sup>	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 <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	l <sub>e</sub>	Α	0.6

IEC/EN 60947

220 V	l <sub>e</sub>	Α	0.3		
Control circuit reliability					
at 24 V DC/5 mA	H <sub>F</sub>	Fault probabilit	$< 10^{-7}, < 1$ fault in $10^7$ operations ty		
at 5 V DC/1 mA	H <sub>F</sub>	Fault probabilit	$< 5 \times 10^{-6}$ , $< 1$ 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**

Design verification as per IEG/EN 61439			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	6
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0.17
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	0
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
EC/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 ${\sf effects}$			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 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 8.0**

Sensors (EG000026) / End switch (EC000030)

Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Safety-related position switch / Safety position switch (Type 1) (ecl@ss10.0.1-27-27-26-01 [AKE640013])

With sensor         Imm         31           Diemotor sensor         mm         0           Langth of sensor         mm         33           Rate do peration current le at AC-15, 24 V         A         6           Rated operation current le at AC-15, 230 V         A         6           Rated operation current le at OC-13, 24 V         A         3           Rated operation current le at OC-13, 25 V         A         8           Rated operation current le at OC-13, 25 V         A         8           Rated operation current le at OC-13, 25 V         A         8           Rated operation current le at OC-13, 25 V         A         8           Rated operation current le at OC-13, 25 V         A         8           Rated operation current le at OC-13, 25 V         A         8           Rated operation current le at OC-13, 25 V         A         A           Svitching function latching         Forest operation current le at OC-13, 25 V         A           Svitching function latching         Forest operation current le at OC-13, 25 V         A           Number of subtractic as normally olased contact         Forest operation current le at OC-13, 25 V         A           Number of contact as a charge-over contact         Forest operation current le at OC-15, 25 V         A	(ecl@ss10.0.1-27-27-26-01 [AKE640013])		
Height of sensor         mm         31           Length of sensor         mm         325           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 AC-13,24 V         A         8           Rated operation current le at AC-13,250 V         A         8           Rated operation current le at AC-13,250 V         A         8           Switching function         B         1         8           Switching function         B         1         1         8           Switching function latching         B         1 <td< td=""><td>Width sensor</td><td>mm</td><td>31</td></td<>	Width sensor	mm	31
Length of sensor         nm         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 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           Switching function         Switching function         Non-0.0           Switching function         Non-0.0         Non-0.0           Switching function latching         Non-0.0         Non-0.0           Output electronic         Non-0.0         Non-0.0           Forced opening         Non-0.0         Non-0.0           Number of cafacty auxiliary contacts         Non-0.0         Non-0.0           Number of contacts as normally closed contact         Non-0.0         Non-0.0           Number of contacts as change-over contact         Non-0.0         Non-0.0           Type of interface for safety communication         Non-0.0         Cubic           Construction hype housing         Cubic         Unber           Continuity of the control element         Non-0.0	Diameter sensor	mm	0
Rated operation current le at AC-15, 25 V         A         6           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, 25 V         A         0           Rated operation current le at DC-13, 25 V         A         0           Rated operation current le at DC-13, 250 V         A         0           Switching function         Slow-action switch           Switching function latching         No         No           Output electroric         No         No           Forced opening         No         No           Number of cortacts as normally closed contact         1         1           Number of contacts as normally open contact         1         1           Number of contacts as normally open contact         No         No           Number of contacts as charge-over contact         No         No           Type of interface for safety communication         No         No           Construction type housing         No         No           Material housing         No         No           Coling housing         No         No           Appear of electric connection         No         <	Height of sensor	mm	61
Rated operation current le at AC-15, 230 V         A         6           Rated operation current le at AC-15, 230 V         A         3           Rated operation current le at DC-13, 24 V         A         0           Rated operation current le at DC-13, 125 V         A         0           Rated operation current le at DC-13, 230 V         A         0           Switching function         Switching function         Slow-action switch           Switching function         No         No           Output electronic         No         No           Forced opening         No         No           Number of safety auxiliary contacts         1         0           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         None           Type of interface for safety communication         None         Construction type housing         Metal           Material housing         Metal         Metal           Coating housing         Metal         Metal           Alignment of the control element         Plunger         Roller can straight           Vih status indication         None         Cable ent	Length of sensor	mm	33.5
Rated operation current le at DC-13, 24 V         A         3           Rated operation current le at DC-13, 24 V         A         3           Rated operation current le at DC-13, 125 V         A         0           Rated operation current le at DC-13, 230 V         A         0           Switching function         Slow-action switch           Switching function latching         No         No           Output electronic         Po         No           Forced opening         Ves         No           Number of safety auxiliary contacts         0         0           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         1           Type of interface         None         1           Type of interface for safety communication         1         None           Construction type housing         Metal         Metal           Material housing         Metal         Metal           Coating housing         Metal         Plunger           Alignment of the control element         None         Cable entry metrical           With status indication         None         <	Rated operation current le at AC-15, 24 V	Α	6
Rated operation current le at DC-13, 24V         A         3           Rated operation current le at DC-13, 25V         A         0.8           Bated operation current le at DC-13, 230V         A         0.3           Switching function         Blow-action switch           Switching function latching         No         No           Output electronic         No         No           Forced opening         Yes         No           Number of safety auxiliary contacts         0         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         None           Type of interface         None         None           Construction type housing         Metal         Cuboid           Material housing         Metal         Cuboid           Control element         Plunger         Metal           Alignment of the control element         Plunger         Roller cam straight           Type of centrol element         Plunger         Roller cam straight           Suitable for safety functions         Pe         No           Suitable for safety functions         Pe	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  Switching function  Switching function latching  Output electronic  Output electronic  Number of safety auxiliary 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 normally open contact  Number of contacts as change-over contact  Type of interface  Type of interface for safety communication  Construction type housing  Metal  Coating housing  Coating housing  Coating housing  Coating housing  Coating for control element  Alignment of the control element  Type of electric connection  With status indication  With status indication  Constructions  Explosion safety category for dust  Ambient temperature during operating  Pic 6, 25-70  [P66/P67]	Rated operation current le at AC-15, 230 V	Α	6
Rated operation current le at DC-13, 230 V  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 normally open contact  Number of contacts as normally open contact  Type of interface or safety communication  Construction type housing  Material housing  Coating housing  A 0.3  No  No  Output electronic  No  No  No  No  No  No  No  No  No  N	Rated operation current le at DC-13, 24 V	Α	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 normally open contact         0           Number of contacts as change-over contact         0           Type of interface         None           Type of interface for safety communication         None           Construction type housing         Metal           Material housing         Metal           Coating housing         Other           Type of control element         Plunger           Alignment of the control element         Coalle 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         Yes           Explosion safety category for dust         None           Ambient temperature during operating         IP68/IP67	Rated operation current le at DC-13, 125 V	Α	0.8
Switching function latching  Output electronic  Forced opening  No  No  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  Number of contacts as change-over contact  Number of contacts as change-over contact  Type of interface  None  None  Construction type housing  Material housing  Metal  Coating housing  Note  Plunger  Alignment of the control element  Type of electric connection  With status indication  Suitable for safety functions  Explosion safety category for dust  Ambient temperature during operating  Person and the control element  Fixed of protection (IP)  Robic material during operating  PC 25-70  Interface housing  No  No  No  No  No  No  No  No  No  N	Rated operation current le at DC-13, 230 V	Α	0.3
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         Metal           Type of control element         Plunger           Alignment of the control element         Roller cam straight           Type of electric connection         Roller cam straight           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         Yes           Degree of protection (IP)         IP66/IP67	Switching function		Slow-action switch
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         Mone           Type of interface for safety communication         Mone           Construction type housing         Cuboid           Material housing         Metal           Coating housing         Other           Type of control element         Plunger           Alignment of the control element         Plunger           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         PC         -25 - 70           Degree of protection (IP)         Ple6/P67	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 change-over contact  Number of contacts as change-over contact  Type of interface  Type of interface for safety communication  Construction type housing  Material housing  Metal  Coating housing  Control element  Type of element  Alignment of the control element  Type of electric connection  With satus indication  Suitable for safety functions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Per of the control element  None  Per of electric connection  Per of electric connection  None  Per of electric connection  Per of electric connect	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 or safety communication  Construction type housing  Material housing  Coating housing  Coating housing  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)  In 1  1   1  1  1  1  1  1  1  1  1  1  1	Forced opening		Yes
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 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  Coating to ordinate in temperature during operating  Coating housing  1	Number of safety auxiliary contacts		0
Number of contacts as change-over contact Type of interface None Type of interface for safety communication None Construction type housing Material housing Coating 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 Coating housing Coating housing Coating housing Cubic Where Plunger Roller cam straight Cable entry metrical No No Suitable for safety functions Yes None Explosion safety category for dust Ambient temperature during operating Coating housing Coating housing Cubic Roller cam straight No Cable entry metrical No No Suitable for safety functions Yes None None None None Plunger Roller cam straight Roller cam straight Type of electric connection No Cable entry metrical No No Cable entry metrical No No Suitable for safety functions Fes Fes Fes Fes Fes Fes Fes Fes Fes Fe	Number of contacts as normally closed contact		1
Type of interface for safety communication  Construction type housing  Material housing  Coating housing  Coating housing  Cotortrol 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)  None  None  None  None  None  None  None  Plunger  Alignment of the control element  No  Cable entry metrical  No  Yes  None  None  Plunger  Able of cam straight  No  Cable entry metrical  No  Yes  None  None  None  Plunger  Able of cam straight  None  Pere of protection (IP)  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  Explosion safety category for dust  Ambient temperature during operating  Degree of protection (IP)  None	Number of contacts as change-over contact		0
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  Explosion safety category for dust  Ambient temperature during operating  Degree of protection (IP)  Cuboid  Metal  Cuboid  Metal  Cuboid  Metal  Cable  Roller cam straight  Cable entry metrical  No  Cable entry metrical  No  No  Ves  None  Explosion safety category for gas  None  Polocity category for dust  None	Type of interface		None
Material housing Coating housing Other Type of control element Alignment of the control element Type of electric connection Cable entry metrical With status indication No Suitable for safety functions Explosion safety category for gas None Explosion safety category for dust Ambient temperature during operating  Degree of protection (IP)  Metal  Metal  Other  Chee  Chee  Roller cam straight Cable entry metrical  No  No  No  Yes  Yes  None  Pologie of protection (IP)  IP66/IP67	Type of interface for safety communication		None
Coating housing Type of control element Alignment of the control element Type of electric connection Cable entry metrical With status indication No Suitable for safety functions Explosion safety category for gas None Explosion safety category for dust Ambient temperature during operating Degree of protection (IP)  Other Plunger Roller cam straight Cable entry metrical No Substance No Substance No Yes None None PC -25 - 70 IP66/IP67	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  Explosion safety category for dust  Ambient temperature during operating  Degree of protection (IP)  Plunger  Roller cam straight  Cable entry metrical  No  No  No  No  Yes  None  None  Plunger  Roller cam straight  Cable entry metrical  No  Yes  Yes  Plunger  Roller cam straight  Cable entry metrical  No  Yes  Yes  Explosion safety category for gas  None  None  Plunger  Roller cam straight  Cable entry metrical  No  Yes  Explosion safety category for gas  None  Plunger  IP66/IP67	Material housing		Metal
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)  Roller cam straight  Cable entry metrical  No  No  No  Yes  None  None  Pore  None  None  Pore  1P66/IP67	Coating housing		Other
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)  Cable entry metrical  No  No  Yes  Yes  None  Cable entry metrical  No  Yes  Yes  Pes  None  None  None  Pec -25 - 70  Pegree of protection (IP)	Type of control element		Plunger
With status indication  No Suitable for safety functions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  CC -25 - 70  Degree of protection (IP)  No	Alignment of the control element		Roller cam straight
Suitable for safety functions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  CC -25 - 70  Degree of protection (IP)  Yes  None  None  P66/IP67	Type of electric connection		Cable entry metrical
Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  CC -25 - 70  Degree of protection (IP)  None  1P66/IP67	With status indication		No
Explosion safety category for dust  Ambient temperature during operating  °C -25 - 70  Degree of protection (IP)  IP66/IP67	Suitable for safety functions		Yes
Ambient temperature during operating  °C -25 - 70  Degree of protection (IP)  IP66/IP67	Explosion safety category for gas		None
Degree of protection (IP)  IP66/IP67	Explosion safety category for dust		None
	Ambient temperature during operating	°C	-25 - 70
Degree of protection (NEMA) Other	Degree of protection (IP)		IP66/IP67
	Degree of protection (NEMA)		Other