# **DATASHEET - LS-11/F**



# Position switch, 1N/O+1N/C, rounded plunger

Part no. LS-11/F Catalog No. 290176 Eaton Catalog No. LS-11-F



### **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, not expandable
Ambient temperature	°C	-25 - +70
Contacts		
N/0 = Normally open		1 N/0
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		Insulated material
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

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		$\text{mm}^2$	1 x (0.5 - 1.5)
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	l <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	
at 5 V DC/1 mA	H <sub>F</sub>	Fault probabilit	$< 10^{-6}$ , $< 1$ failure at 5 x $10^{6}$ operations
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
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

# Design verification as per IEC/EN 61439

Notes

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	$P_{vs}$	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.

for angle of actuation  $\alpha$  = 0°/30°

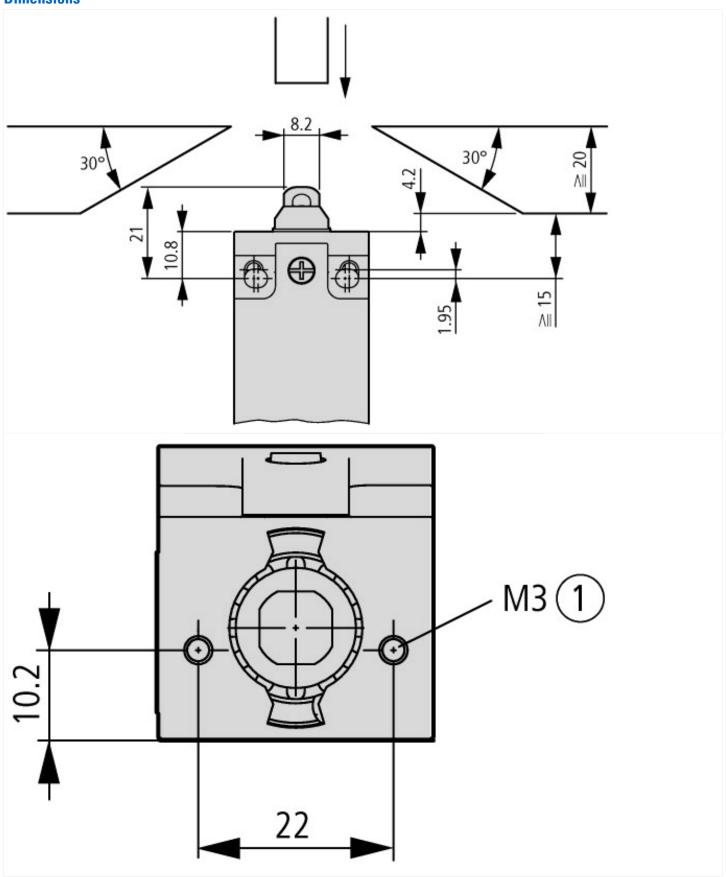
10.2.7 Inscriptions	Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.5 Protection against electric shock	Does not apply,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

	lechnical data Ellivi 7.0			
Accident   10   12   12   13   13   13   13   13   13	Sensors (EG000026) / End switch (EC000030)			
Demonter sensor   mm   0   1   1   1   1   1   1   1   1   1	Electric engineering, automation, process control engineering / Binary sensor techn (ecl@ss10.0.1-27-27-06-01 [AGZ382015])	nology, safety-re	elated sei	nsor technology / Position switch / Position switch (Type 1)
In the sensor	Width sensor	n	mm	31
any of sensor         mm         33.5           lated operation current le at AC-15, 25V         A         6           lated operation current le at AC-15, 25V         A         6           lated operation current le at AC-15, 23V         A         6           lated operation current le at AC-15, 23V         A         3           lated operation current le at DC-13, 24V         A         0.8           lated operation current le at DC-13, 23V         A         0.8           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         A         0.3           lated operation current le at DC-13, 23V         0.3	Diameter sensor	n	mm	0
lated operation current le at AC-15, 125 V         A         6           lated operation current le at AC-15, 125 V         A         6           lated operation current le at AC-15, 230 V         A         0           lated operation current le at DC-13, 24 V         A         0.3           lated operation current le at DC-13, 125 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           lated operation current le at DC-13, 220 V         A         0.3           later late	Height of sensor	n	mm	61
Attend operation current le at AC-15, 125 V         A         6           Attend operation current le at AC-15, 230 V         A         3           Attend operation current le at DC-13, 24 V         A         0.3           Attend operation current le at DC-13, 125 V         A         0.3           Switching function le at DC-13, 230 V         A         0.3           Switching function latching         No         No           Switching function latching         No         No           Switching function safety auxiliary contacts         1         No           Switching function safety auxiliary contacts         1         1           Switching function safety communication         None         1           Switching function safety communication         None         1           Switching function safety communication	Length of sensor	n	mm	33.5
Alated operation current le at DC-13, 25 V         A         3           Nated operation current le at DC-13, 125 V         A         0.8           Nated operation current le at DC-13, 125 V         A         0.3           Note disperation current le at DC-13, 230 V         A         0.3           Witching function         No         No           Witching function latching         No         No           Witching function san smally closed contact         1         1           Witching function san smally closed contact         1         1           Witching function san smally open contact         1         1           Witching function sylve of interface for safety communication         None         1           Witching function sylve of interface for safety communication         Witching function sylve of interface for safety communication         Witching function sylve of interface for safety communication         Witch	Rated operation current le at AC-15, 24 V	Į.	4	6
Asted operation current le at DC-13, 24 V Asted operation current le at DC-13, 250 V Asted operation current le at DC-13, 250 V Asted operation current le at DC-13, 230 V Asted operation current le at DC-13, 250 V Asted operation current le	Rated operation current le at AC-15, 125 V	Į.	4	6
Asted operation current le at DC-13, 125 V Asted operation current le at DC-13, 230 V Astel operation contacts as Charge-operation Astel operation current le at DC-13, 230 V Astel operation subject operation le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operation subject le Charge current le at DC-13, 230 V Astel operat	Rated operation current le at AC-15, 230 V	Į.	4	6
A Bated operation current le at DC-13, 230 V A Solviching function Current le at DC-13, 230 V A Solviching function latching No	Rated operation current le at DC-13, 24 V	Į.	4	3
Switching function latching Switching function Switching function latching Switching function latching Switching function Switching function latching Switching function Switch f	Rated operation current le at DC-13, 125 V	Į.	4	0.8
Switching function latching Output electronic Ou	Rated operation current le at DC-13, 230 V	A	4	0.3
Author of safety auxiliary contacts Author of contacts as normally closed contact Author of contacts as normally open contact Author of contacts as change-over contact Author	Switching function			Slow-action 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  None  Onstruction type of interface for safety communication  None  Construction type housing  Number of control element  Nitignment of the control element  None  None  None  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 Number of contacts as normally open contacts Number of contacts as normally open contacts Number of contacts as normally open contacts Numbe	Output electronic			No
Aumber of contacts as normally closed contact  Number of contacts as change-over contact  None  None  Construction type of interface for safety communication  None  Construction type housing  Note  Control closed  None  None  None  None  Note  Other  None  None  None  Other  None  None  None  None  None  None  None  Suitable for safety functions  Suitable for safety category for gas  Explosion safety category for dust  None	Forced opening			Yes
Number of contacts as change-over contact Number of contacts as change-over contact Number of contacts as change-over contact None None None None None None None None	Number of safety auxiliary contacts			1
Number of contacts as change-over contact  Yeye of interface (rype of interface for safety communication (rype of control of the	Number of contacts as normally closed contact			1
Type of interface Type of interface for safety communication Construction type housing Coating	Number of contacts as normally open contact			1
Vige of interface for safety communication Construction type housing Coating h	Number of contacts as change-over contact			0
Construction type housing Material housing Coating housing Coa	Type of interface			None
Material housing Coating housing Coating housing Cype of control element Cype of control element Cype of electric connection Cype of electric	Type of interface for safety communication			None
Coating housing Coating housin	Construction type housing			Cuboid
Figure of control element  Alignment of the control element  Figure of electric connection  With status indication  Suitable for safety functions  Explosion safety category for gas  Ambient temperature during operating  Plunger  Other  Other  No  No  No  Ves  None  Ambient temperature during operating  °C  25 - 70  IP67	Material housing			Plastic
Alignment of the control element Type of electric connection With status indication With status indication Suitable for safety functions Explosion safety category for gas Ambient temperature during operating Other No	Coating housing			Other
Type of electric connection  With status indication  No  Suitable for safety functions  Explosion safety category for gas  Ambient temperature during operating  Degree of protection (IP)  Other  Other  Other  Other  No  No  Yes  None  None  25 - 70  IP67	Type of control element			Plunger
With status indication  No Suitable for safety functions  Explosion safety category for gas  Ambient temperature during operating  CC  Degree of protection (IP)  No	Alignment of the control element			Other
Suitable for safety functions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Oegree of protection (IP)  Yes  None  None  1 25 - 70  1P67	Type of electric connection			Other
Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Compared of protection (IP)  None  Compared of protection (IP)  None  1967	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	o	°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 screw-in depth max. 12 mm

# **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