DATASHEET - LS-S02/F



Position switch, 2 N/C, rounded plunger

Part no.LS-S02/FCatalog No.106780Eaton Catalog No.LS-S02-F



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/C = Normally closed		2 NC 🕀
Notes		Θ = safety function, by positive opening to IEC/EN 60947-5-1
Contact sequence		\circ
Contact travel = Contact closed = Contact open		0 3.0 6.1 11-12 21-22 3.0 Zw = 4.5 mm
Positive opening (ZW)		yes
Colour		
Enclosure covers		Yellow
Enclosure covers		
Housing		Insulated material
Connection type		Screw terminal

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 ²	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 _{imp}	V AC	4000
Rated insulation voltage	Ui	V	400

Rate operational currentImage: Participation of the section of the sect	Overvoltage category/pollution degree			111/3
ActionInterfact <th< td=""><td></td><td>1</td><td>٨</td><td>11/5</td></th<>		1	٨	11/5
24V160625V 230 V240 V415 VIG380 V400 V415 VIGDC-1II24VIG10 VIG24VIG20 VIG20 VIG20 VIG20 VIG20 VIG20 VIG20 VIG20 VII20 VII20 VII20 VII20 VII20 VII20 VII10 VII11 VII12 V D(5 IIAII13 V D(7 IIAII14 V D(5 IIAII15 V D(7 IIAII16 V IIAII17 V IIAII18 V IIAII19 V IIAII19 V IIAII10 V IIAII10 V IIAII10 V IIAII10 V IIAII10 V IIAII10 V IIAII<	•	I _e	A	
202 V20 V240 V i i i 300 V40 V15 V i i i 24 V i i i i 24 V i i i i i 24 V i	AC-15			
300 400 V415VAAA300 V400 V415VA	24 V	le	A	6
DC-13Image: set of the set of	220 V 230 V 240 V	le	А	6
2 VIn <td>380 V 400 V 415 V</td> <td>le</td> <td>А</td> <td>4</td>	380 V 400 V 415 V	le	А	4
الال الح >	DC-13			
Zov Ico Main Main 20V Ico Ico Ico at 24 V DC/5 mA Ico Ico Ico at 24 V DC/5 mA Ico Ico Ico Ico at 24 V DC/5 mA Ico Ico <t< td=""><td>24 V</td><td>le</td><td>А</td><td>3</td></t<>	24 V	le	А	3
at 24 V DC/5 mA HF Fault probability Fault probability 10 ⁷ , < 1 fault in 107 operations	110 V	l _e	А	0.6
a t2 V DC/5 mA a t2 V DC/5 mA b 5 V DC/1 mA b 6 V DC/1 mA b 6 V DC/1 mA b 6 V DC/1 mA b 7 V DC/1 mA b 6 V DC/1 mA b 7 V DC/1 mA b	220 V	le	А	0.3
a 5 V DC/1 mA HF Faults For bability For bability<	Control circuit reliability			
Suply frequencyHzNa. 400Nax. fuseA gG/uA gG/uA gG/uRepetition accuracyA gG/uA gG/u10Rated conditional short-circuit currentName1010Actuating frequencyMaxName10Standard-action contactMaxName10Standard-action contactName1010Standard-action contactMaxName10Actuating force at beginning/end of strokeMaxName10Max. operating speed with DIN camNameName10Max. operating Speed with DIN camNameName10 <tr <td="">Name<</tr>	at 24 V DC/5 mA	H _F	probabilit	γ
Short-circuit rating to IEC/EN 60947-5-1 Image in the second	at 5 V DC/1 mA	H _F	Fault probabilit	< 10 ⁻⁶ , < 1 failure at 5 x 10 ⁶ operations Y
max.fuseA gG/dA gG/dA gG/dRepetition accuracymm0.15Rated conditional short-circuit currentkA0Acchanical variablesvkA0Acchanical variablesvssContact temperature of roller headPerationsssMechanical shock resistance (half-sinusoidal shock, 20 ms)vssStandard-action contactOperationssssOperation gfuquencyOperationssssActuating force at beginning/end of strokeINmssActuating torque of roltary drivesm/ssssMax. operating speed with DIN camm/sm/sss	Supply frequency		Hz	max. 400
Repetition accuracy nm 0.15 Rated conditional short-circuit current kA 1 Actuational short-circuit current Vertainsa kA 1 Mechanical variables vertainsa s10 ⁶ 8 Contact temperature of roller head Perations s10 ⁶ 100 Mechanical shock resistance (half-sinusoidal shock, 20 ms) g 100 100 Standard-action contact Vertainsa/ g 200 </td <td>Short-circuit rating to IEC/EN 60947-5-1</td> <td></td> <td></td> <td></td>	Short-circuit rating to IEC/EN 60947-5-1			
Rated conditional short-circuit current kA kA indext conditional short-circuit current Mechanical variables x 10 ⁶ S S S Contact temperature of roller head y 10 ⁶ S S <t< td=""><td>max. fuse</td><td></td><td>A gG/gL</td><td>6</td></t<>	max. fuse		A gG/gL	6
Mechanical variables Lifespan, mechanical Perations × 10 ⁶ ² <td>Repetition accuracy</td> <td></td> <td>mm</td> <td>0.15</td>	Repetition accuracy		mm	0.15
Lifespan, mechanicalOperations x 10 ⁶ x 10 ⁶ 8Contact temperature of roller headPP100Mechanical shock resistance (half-sinusoidal shock, 20 ms)PP2Standard-action contactOperations/P6000Operating frequencyOperations/60006000ActuationIIIActuating force at beginning/end of strokeII108.0Actuating torque of rotary drivesINm1.08.0Max. operating speed with DIN camINmI.05.0	Rated conditional short-circuit current		kA	1
Contact temperature of roller head **** **** **** Mechanical shock resistance (half-sinusoidal shock, 20 ms) **** **** **** Standard-action contact g 25 Operating frequency Operations/n **** ***** Actuation ****** ************************************	Mechanical variables			
Arrow Arrow Arrow Arrow Standard-action contact Operations/no g 25 Operating frequency Operations/no 6000 Actuation Image: Standard Stan	Lifespan, mechanical	Operations	x 10 ⁶	8
Standard-action contact g g g Deperating frequency Operations/n ideob ideob Actuation Ideob Ideob ideob Actuating force at beginning/end of stroke Ideob Ideob Ideob Actuating force at beginning/end of stroke Ideob Ideob Ideob Max. operating speed with DIN cam Ideob Ideob Ideob	Contact temperature of roller head		°C	≦ 100
Operating frequency Operations/h ≤ 6000 Actuation Mechanical Image: Second Seco	Mechanical shock resistance (half-sinusoidal shock, 20 ms)			
Actuation Mechanical Image: Constraint of stroke Actuating force at beginning/end of stroke Image: Constraint of stroke Actuating torque of rotary drives Image: Constraint of stroke Max. operating speed with DIN cam Image: Constraint of stroke	Standard-action contact		g	25
Mechanical Mechanical Actuating force at beginning/end of stroke N Actuating torque of rotary drives Nm Max. operating speed with DIN cam Mm	Operating frequency	Operations/h		≦ 6000
Actuating force at beginning/end of strokeN1.0/8.0Actuating torque of rotary drivesNm0.2Max. operating speed with DIN camMm1/0.5	Actuation			
Actuating torque of rotary drives Nm 0.2 Max. operating speed with DIN cam m/s 1/0.5	Mechanical			
Max. operating speed with DIN cam m/s 1/0.5	Actuating force at beginning/end of stroke		Ν	1.0/8.0
	Actuating torque of rotary drives		Nm	0.2
Notes for angle of actuation α = 0°/30°	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	А	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

Sensors (EG000026) / End switch (EC000030)

 Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Position switch / Position switch (Type 1)

 Width sensor
 mm
 31

 Diameter sensor
 mm
 0

 Height of sensor
 mm
 61

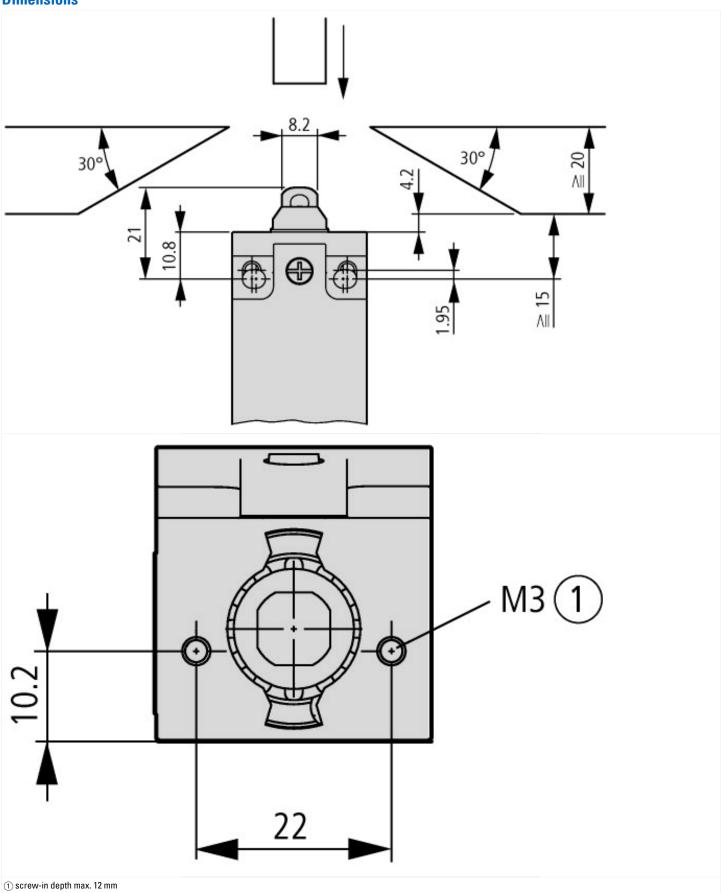
Length of sensor	mm	33.5
Rated operation current le at AC-15, 24 V	А	6
Rated operation current le at AC-15, 125 V	А	6
Rated operation current le at AC-15, 230 V	А	6
Rated operation current le at DC-13, 24 V	А	3
Rated operation current le at DC-13, 125 V	А	0.8
Rated operation current le at DC-13, 230 V	А	0.3
Switching function		Slow-action switch
Switching function latching		No
Output electronic		No
Forced opening		Yes
Number of safety auxiliary contacts		2
Number of contacts as normally closed contact		2
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		Cuboid
Material housing		Plastic
Coating housing		Other
Type of control element		Plunger
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)		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



Additional product information (links)

IL053001ZU LS-Titan position switch: basic device

IL053001ZU LS-Titan position switch: basic ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL053001ZU2018_06.pdf device