#### DATASHEET - LS-S20A/F



Position switch, Rounded plunger, Basic device, not expandable, 2 N/O, Screw terminal, Yellow, Insulated material, -25 - +70 °C, version A



Part no.LS-S20A/FCatalog No.106811Alternate CatalogLS-S20A-FNo.No.

#### **Delivery program**

Basic function		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/O = Normally open		2 N/O
Contact sequence		- + + + + + + + + + + + + + + + + + + +
Contact travel = Contact closed = Contact open		0 2.1 6.1 13-14 NO 23-24 2.1 NO
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 <sup>2</sup>	
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 <sub>imp</sub>	V AC	4000
Rated insulation voltage	Ui	V	400
Overvoltage category/pollution degree			111/3
Rated operational current	le	А	

AC-15			
24 V	l <sub>e</sub>	A	6
220 V 230 V 240 V	le	А	6
380 V 400 V 415 V	l <sub>e</sub>	А	4
DC-13			
24 V	le	А	3
110 V	le	А	0.6
220 V	l <sub>e</sub>	А	0.3
Control circuit reliability			
at 24 V DC/5 mA	H <sub>F</sub>	Fault probabilit	< 10 <sup>-7</sup> , < 1 fault in 10 <sup>7</sup> operations ty
at 5 V DC/1 mA	H <sub>F</sub>	Fault probabilit	< 5 x 10 <sup>-6</sup> , < 1 failure at 5 x 10 <sup>6</sup> 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		Ν	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	А	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
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) (ecl@ss10.0.1-27-27-06-01 [AGZ382015])

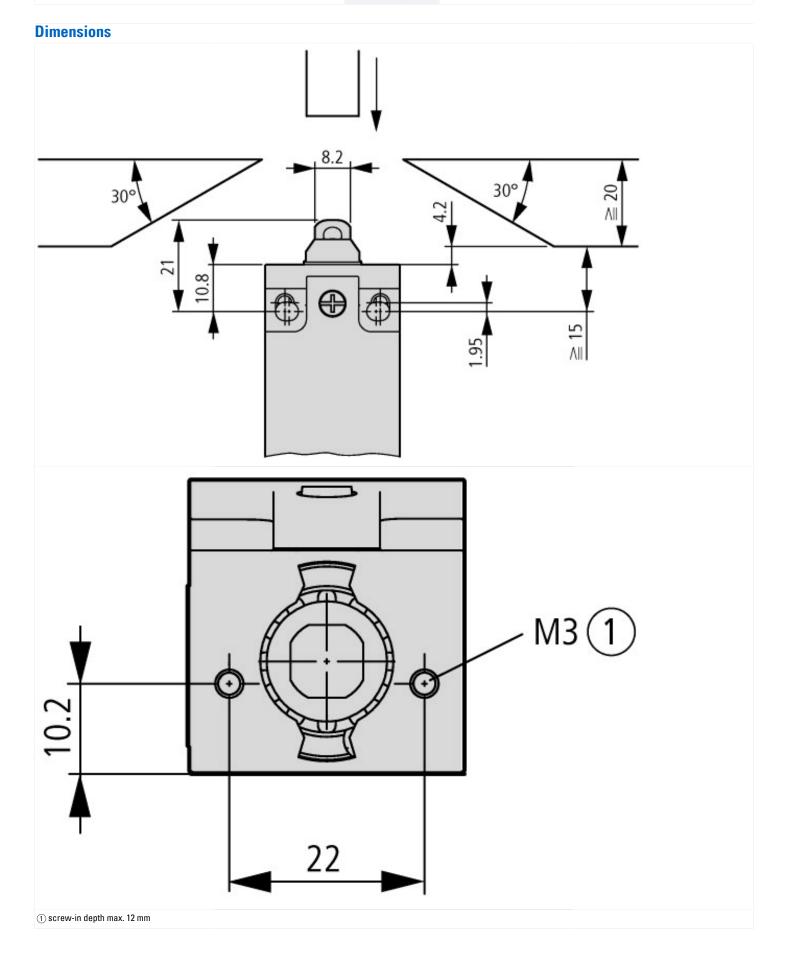
Diameter sensornm0Height of sensornm61Length of sensornm35Rated operation current le at AC-15,24 VA6Rated operation current le at AC-15,230 VA6Rated operation current le at CD-13,24 VA8Rated operation current le at DC-13,24 VA8Rated operation current le at DC-13,250 VA9Switching functionM9Switching functionM9Switching functionM9Switching functionM9Number of contacts as normally closed contactMNNumber of contacts as normally closed contactM9Type of interfaceMNonType of interfaceNonType of interfaceNonType of interface </th <th>(eci@SS10.0.1-27-27-00-01 [A02362013])</th> <th></th> <th></th>	(eci@SS10.0.1-27-27-00-01 [A02362013])		
High of sonsorImm	Width sensor	mm	31
Langin of sensor     nm     3.5.       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 AC-15, 25 V     A     3       Rated operation current le at DC-13, 25 V     A     3       Switching function     B     B     B       Switching function     B     B     B       Switching function latching     M     B     B       Output electronic station saving     M     B     B       Number of contacts as normally open contact     M     B     B       Number of contacts as normally open contact     M     B     B       Number of contacts as normally closed contect     M     B     B       Number of contacts as normally closed contect     M     B     B       Number of contacts as normally closed contect     M     B     B       Number of contacts as normally closed contact     M     B     B     B       Number of contacts as normal	Diameter sensor	mm	0
Act operation current le at AC-15,24V     A     6       Rated operation current le at AC-15,25V     A     6       Rated operation current le at DC-13,25V     A     8       Rated operation current le at DC-13,25V     A     0       Switching function     A     0     3       Switching function     A     0     3       Switching function     A     0     3       Number of stery axiliary contacts     A     0     A       Number of contacts as normally closed contact     A     0     A       Number of contacts as normally closed contact     A     A     A       Number of contacts as normally closed contact     A     A     A       Number of contacts as normally closed contact     A     A     A       Number of contacts as normally closed contact     A     A     A       Number of contacts as normally closed contact     A	Height of sensor	mm	61
Rated operation current le at AC-15, 125 V   A   6     Rated operation current le at AC-15, 230 V   A   6     Rated operation current le at DC-13, 24 V   B   8     Rated operation current le at DC-13, 250 V   B   6     Switching function   Switching function   Switching function     Switching function   Switching function   Switching function     Dutp at electronic   Switching function   Switching function     Number of contacts as normally closed contact   Switching function   Switching function     Number of contacts as normally closed contact   Switching function   Switching function     You of interface   You of interface   Switching function   Switching function     You of interface for safety communication   You of interface   Switching function   Switching function     You of interface for safety communication   You of interface   Switching function   Switching function     You of interface for safety communication   You of interface   Switching function   Switching function     You of interface for safety communication   You of interface   Switching function   Switching function     You of interface   You of interface	Length of sensor	mm	33.5
Rated operation current le at DC-13, 24 V   A   9     Rated operation current le at DC-13, 25 V   A   0     Rated operation current le at DC-13, 250 V   A   0     Switching function   Some action switch   0     Switching function   Some action switch   No     Output electronic   No   No     Switching function   No   No     Number of safety swillary contacts   No   No     Number of contacts as normally closed contact   No   No     Number of contacts as change-over contact   No   No     You of interface   No   No   No     Type of interface for safety communication   No   No   No     You of of interface   No   No   No   No     You of interface for safety communication   No   No <td>Rated operation current le at AC-15, 24 V</td> <td>А</td> <td>6</td>	Rated operation current le at AC-15, 24 V	А	6
Rated operation current le at DC-13, 25 V   A   3     Bated operation current le at DC-13, 25 V   A   0.3     Switching function   Silve-action switch   Silve-action switch     Switching function   Silve-action switch   Silve-action switch     Switching function   Silve-action switch   Silve-action switch     Switching function latching   No   No     Dutput alectronic   Silve-action switch   Silve-action switch     Number of actety swillary contacts   Silve-action switch   Silve-action switch     Number of actety as normally open contact   Silve-action solve-action   Silve-action solve-action     Sylve of interface   Silve-action solve-action   Silve-action Silve-action   Silve-action Silve-action     Sylve of interface for safety communication   Silve-action   Silve-action   Silve-action     Sylve of interface for safety communication   Silve-action   Silve-action   Silve-action     Sylve of interface for safety communication   Silve-action   Silve-action   Silve-action     Sylve of interface for safety communication   Silve-action   Silve-action   Silve-action     Sylve of interface for safety communication   Silve-action	Rated operation current le at AC-15, 125 V	А	6
Rated operation current le at DC-13, 125 V   A   6     Rated operation current le at DC-13, 230 V   A   0.3     Switching function   Silve-action switch   Silve-action switch     Switching function latching   No   No     Output eletronic   No   No     Switching function latching   No   No     Number of safety auxiliary contacts   O   No     Number of contacts as normally open contact   No   No     Number of contacts as normally open contact   No   No     System of interface   No   No   No     System of interface for safety communication   No   No   No     Solution type housing   Pointerface   No   No   No     Solution type control element   No   No   No   No     Solution type control element   No   No   No   No   No     Solution type control element   No   No   No	Rated operation current le at AC-15, 230 V	А	6
Rate operation current le at DC-13,230 V   A   0     Svitching function   Svoracion switch   Svoracion switch     Svitching function latching   No   No     Output electronic   No   No     Forced opening   No   No     Number of contacts as normally closed contact   P   0     Number of contacts as change-over contact   P   0     Number of contacts as change-over contact   P   0     Type of interface   P   No     Solution interface   P   P     Raterial housing   P   P   No     Solution of sefery communication   P   P   P     Solution of sefery functions   P   P   P     Solution of sefery functions   P   P   P     Solution of sefery functions   P   P   P   P   P     Solution of sefery functions   P	Rated operation current le  at DC-13, 24 V	А	3
Switching functionImage: Switching functionSwitching function latchingSwitching function latchingSwitching function latchingSwitching functionSwitching function <t< td=""><td>Rated operation current le at DC-13, 125 V</td><td>А</td><td>0.8</td></t<>	Rated operation current le at DC-13, 125 V	А	0.8
Nuclei function latchingImage: state stat	Rated operation current le at DC-13, 230 V	А	0.3
Output electronic   Image: Section of Sectio	Switching function		Slow-action switch
Forced opening   No     Number of safey auxiliary contacts   I     Number of contacts as normally closed contact   I     Number of contacts as normally open contact   I     Number of contacts as normally open contact   I     Number of contacts as normally open contact   I     Number of contacts as change-over contact   I     Type of interface   I     None   I     Construction type housing   I     Naterial housindication	Switching function latching		No
Number of safety auxiliary contacts     Imper of contacts as normally closed contact     Imper of contacts as normally closed contact       Number of contacts as normally closed contact     Imper of contacts as normally closed contact     Imper of contacts as normally closed contact       Number of contacts as normally closed contact     Imper of contacts as normally closed contact     Imper of contacts as normally closed contact       Number of contacts as normally closed contact     Imper of contacts as change-over contact     Imper of contacts as change-over contact       Yue of contacts as change-over contact     Imper of contacts as change-over contact     Imper of contacts as change-over contact       Construction type housing     Imper of contacts as normally closed contact     Imper of contacts as normally closed contact       Contart control element     Imper of contact connection     Imper of contact connection     Imper of contact contact       Suitable for safety functions     Imper of contact contact     Imper of contact contact     Imper of contact contact       Suitable for safety functions     Imper of contact contact     Imper of contact contact     Imper contact       Suitable for safety functions     Imper of contact contact     Imper contact contact     Imper contact contact       Suitable for safety functions     Imper contact contact     Imp	Output electronic		No
Number of contacts as normally closed contact     Imper of contacts as normally open contact     Imper of contact     Imper	Forced opening		No
Number of contacts as normally open contact   Image: Sector Sec	Number of safety auxiliary contacts		0
Number of contacts as change-over contact     Image: Contacts as change-over contact     Imag	Number of contacts as normally closed contact		0
Type of interface     Mone       Type of interface for safety communication     Mone       Construction type housing     Mone       Material housing     Luboid       Coating housing     Mone       Coating housing     Mone       Type of control element     Mone       Alignment of the control element     Mone       Type of electric connection     Mone       With status indication     Mone       Suitable for safety functions     Mone       Explosion safety category for gas     Mone       Explosion safety category for dust     Mone       Ambient temperature during operating     Mone       Degree of protection (IP)     Mone	Number of contacts as normally open contact		2
Type of interface for safety communication   None     Type of interface for safety communication   Cobid     Construction type housing   Cubid     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   None     Suitable for safety functions   None     Explosion safety category for gas   None     Antient emperature during operating   Other     Plasters for safety (IPC)   None     Plasters for safety (IPC)   None     Suitable for safety (Inctions   Social     Explosion safety category for dust   None     Antient emperature during operating   Other     Plasters for the for the for the formation   None     Plasters for the formation   None     Plasters for the formation   None     Antient emperature during operating   Plasters formation     Plasters for the formation   Social     Plasters for the formation   Plasters formation     Plasters for the formation	Number of contacts as change-over contact		0
Construction type housing   Cubid     Material housing   Plastic     Coating housing   Other     Type of control element   Plunger     Alignment of the control element   Other     Yupe of electric connection   Other     With status indication   Other     Suitable for safety functions   Mon     Explosion safety category for gas   Mon     Anbient temperature during operating   Other     Parter   Non     Parter   Non     Parter   Parter     Proter   Parter     Parter	Type of interface		None
Material housingPlasticCoating housingOtherType of control elementPlungerAlignment of the control elementOtherType of electric connectionOtherWith status indicationOtherSuitable for safety functionsOtherExplosion safety category for gasOtherAnbient temperature during operatingOtherDegree of protection (IP)Other	Type of interface for safety communication		None
Coating housing   Cher     Type of control element   Plunger     Alignment of the control element   Plunger     Type of electric connection   Other     With status indication   Solone     Suitable for safety functions   Image: Solone     Explosion safety category for gas   Image: Solone     Ambient temperature during operating   Image: Solone     Partee of protection (IP)   Image: Solone	Construction type housing		Cuboid
Type of control element   Pluger     Alignment of the control element   Pluger     Type of electric connection   Other     With status indication   No     Suitable for safety functions   Image: Control element     Explosion safety category for gas   Image: Control element     Anbient temperature during operating   Image: Control element     Pagee of protection (IP)   Image: Control element	Material housing		Plastic
Alignment of the control elementOtherType of electric connectionOtherWith status indicationOtherSuitable for safety functionsImage: Control of the control	Coating housing		Other
Type of electric connection   Image: Connection     With status indication   Mo     Suitable for safety functions   Mo     Explosion safety category for gas   Mo     Ambient temperature during operating   Center     Pagree of protection (IP)   Image: Center	Type of control element		Plunger
With status indicationModelWith status indicationNoSuitable for safety functionsNoExplosion safety category for gasNoExplosion safety category for dustNoAmbient temperature during operating°CPegree of protection (IP)Image: Comparison of the second s	Alignment of the control element		Other
Suitable for safety functionsMoExplosion safety category for gasNoneExplosion safety category for dustNoneAmbient temperature during operating°CDegree of protection (IP)Implemented temperature during operating	Type of electric connection		Other
Explosion safety category for gasMoneExplosion safety category for dustMoneAmbient temperature during operatingCDegree of protection (IP)Implement temperature during operating	With status indication		No
Explosion safety category for dustNoneAmbient temperature during operating°C25 - 70Degree of protection (IP)Implement temperature during operation during temperature during	Suitable for safety functions		No
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

Degree of Protection

IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13



# Assets (links)

Declaration of CE Conformity 00003068 Instruction Leaflets IL053001ZU2018\_06

# 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