#### **DATASHEET - LS-S02-ZB**



Safety position switch, 2 N/C, insulated material, +actuator ZB, screw connection

Powering Business Worldwide

LS-S02-ZB Part no. Catalog No. 106874 Eaton Catalog No. LS-S02-ZB **EL-Nummer** 0004356195 (Norway)

#### **Delivery program**

Basic function		Position switches Safety position switches
Part group reference		LS(4)ZB
Product range		Safety position switches
Degree of Protection		IP66
Features		Complete unit
Ambient temperature	°C	-25 - +70
Description		With the actuator inserted, the N/O contact is open and the NC contact is closed.
Approval		ET 12009 Sicherheit geprüft tested safety
Contacts		
N/C = Normally closed		2 NC ⊕
Notes		⊖ = safety function, by positive opening to IEC/EN 60947-5-1
Contact sequence		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
Housing		Insulated material
Connection type		Screw terminal

**Notes** Switch must never be used as a mechanical stop!

Actuator can be repositioned for horizontal or vertical mounting.

The operating heads can be turned manually in 90° steps to suit the specified level of actuation.

With the actuator inserted, the N/O contact is open and the N/C contact is closed.

For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length.

## **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
Terminal capacities	mm <sup>2</sup>	
Solid		1 x (0.5 - 1.5) 2 x (0.5 - 1.5)
Flexible with ferrule		1 x (0.5 - 1.5) 2 x (0.5 - 1.5)

Terminal screw			PH1
Tightening torque for terminal screw		Nm	0.4
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	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	l <sub>e</sub>	Α	3
110 V	I <sub>e</sub>	Α	0.6
220 V	I <sub>e</sub>	Α	0.3
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>	1.5
Mechanical shock resistance (half-sinusoidal shock, 20 ms)			
Standard-action contact		g	25
Operating frequency	Operations/h		≦ 1800
Actuation			
Mechanical			
Actuating force at beginning/end of stroke		N	10/5 (plug-in/pull-out)

## **Design verification as per IEC/EN 61439**

Technical data for design verification			
		^	6
Rated operational current for specified heat dissipation	I <sub>n</sub>	A	
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
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			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)

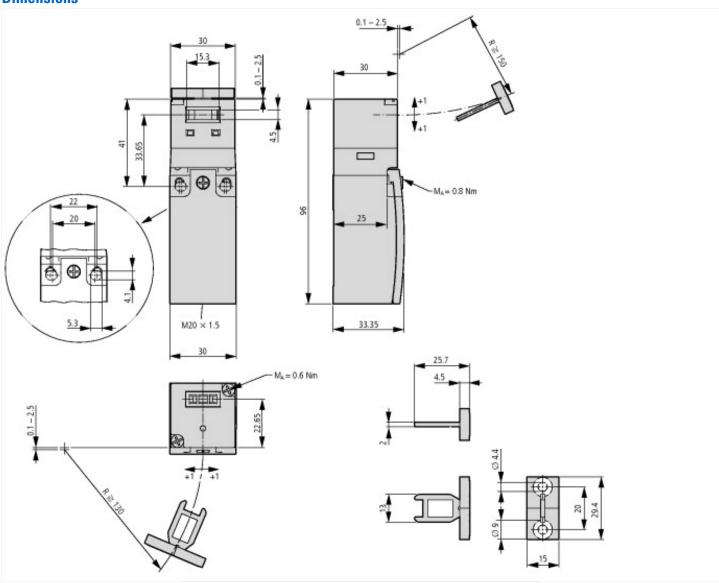
Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Position switch / Position switch (Type 1)

Weth samor         Immediate sensor	(ecl@ss10.0.1-27-27-06-01 [AGZ382015])	 3.2.30	
Height of sensor         mm         98           Length of sensor         mm         33.55           Rated operation current le at AC-15, 24 V         A         10           Rated operation current le at AC-15, 250 V         A         6           Rated operation current le at AC-15, 220 V         A         3           Rated operation current le at DC-13, 24 V         A         8           Rated operation current le at DC-13, 250 V         A         8           Rated operation current le at DC-13, 250 V         A         8           Switching function latching         B         9         8           Output electronic         B         Yes         8           Visithing function latching         B         Yes         9           Visithing function latching         B         Yes         9           Number of self-y auxiliary contacts         B         Yes         9           Number of contacts as normally closed contact         B         Yes         9           Number of contacts as normally closed contact         B         Yes         9           Number of contacts as normally closed contact         B         Yes         9           Normatrace         Yes         1         1         1	Width sensor	mm	30
Length of sensor         mm         33 58           Rated operation current le at AC-15, 24 V         A         10           Rated operation current le at AC-15, 25 V         A         6           Rated operation current le at AC-15, 25 V         B         3           Rated operation current le at AC-15, 24 V         B         3           Rated operation current le at DC-13, 25 V         B         3           Rated operation current le at DC-13, 25 V         B         3           Rated operation current le at DC-13, 25 V         B         0           Rated operation current le at DC-13, 25 V         B         0           Switching function         SWITCHING function latching         B         0           Switching function         SWITCHING function latching         B         0           Switching function latching         B         0         0           Number of contacts as normally closed contact         B         0         0           Number of contacts as change-over contact         B         0         No	Diameter sensor	mm	0
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         3           Rated operation current le at DC-13,240 V         A         0           Rated operation current le at DC-13,250 V         A         0           Rated operation current le at DC-13,250 V         B         N           Switching function         Solve-action switch           Switching function latching         N         N           Output electronic         N         N           Number of sainty auxiliary contacts         2         2           Number of contacts as normally closed contact         2         2           Number of contacts as normally open contact         0         None           Type of interface         None         None           Type of interface for safety communication         None         None           Construction type housing         Cubic         Distriction type housing           Material housing         Cubic         Distriction type of interface for safety communication         None         Cubic           Conting beautiful to control element         P         Cubic         Distriction type of control element         C	Height of sensor	mm	96
Rated operation current le at AC-15, 230 V         A         6           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, 125 V         A         0           Switching function         Switching function         Switching function         No           Switching function         No         No           Output electronic         No         No           Forced opening         Yes         No           Number of safety auxiliary contacts         2         2           Number of contacts as normally closed contact         Yes         No           Number of contacts as normally copen contact         Yes         No           Number of contacts as change-over contact         Yes         No           Type of interface         No         No           Type of interface for safety communication         Yes         No           Construction type housing         Yes         No           Material housing         Yes         No           Coating housing         Yes         Wer           Yep of electric connection         Yes         No           With status indication         Yes </td <td>Length of sensor</td> <td>mm</td> <td>33.35</td>	Length of sensor	mm	33.35
Rated operation current le at AC-15, 230 V         A         6           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         B         A           Switching function activing         No         No           Switching function latching         No         No           Output electronic         No         No           Forced opening         Yes         No           Number of contacts as normally closed contact         2         2           Number of contacts as normally open contact         0         0           Number of contacts as normally open contact         0         None           Type of interface         None         0           Type of interface for safety communication         None         Cubuld           Construction type housing         Cubul Cubul         Cubul           Material housing         Cubul         Cubul           Type of cortonal element         Cubul         Cubul           Type of cortonal element         Cubul         Cubul           Type of electric connection         Cubul         Cubul           With status indication         Cubul<	Rated operation current le  at AC-15, 24 V	Α	10
Rated operation current le at DC-13, 24 V         A         3           Rated operation current le at DC-13, 125 V         A         0.8           Switching function         A         0.3           Switching function furcing function latching         No.         No.           Output alectronic         No.         No.           Forced opening         Yes         No.           Number of safety auxiliary contacts         Yes         2           Number of contacts as normally closed contact         Yes         0.0           Number of contacts as normally open contact         No.         No.           Number of contacts as change-over contact         No.         No.           Type of interface         No.         No.           Type of interface for safety communication         Yes         No.           Construction type housing         Yes         Cuboid           Material housing         Yes         Cuboid           Construction type housing         Yes         Other           Alignment of the control element         Yes         Other           Alignment of the control element         Yes         Yes           With status indication         Yes         Yes           Explosion safety category for dust <t< td=""><td>Rated operation current le  at AC-15, 125 V</td><td>Α</td><td>6</td></t<>	Rated operation current le  at AC-15, 125 V	Α	6
Rated operation current le at DC-13, 125 V         A         0.8           Rated operation current le at DC-13, 230 V         A         0.3           Switching function         Switching function latching         No           Output electronic         No         No           Output electronic         Yes           Number of safety auxiliary contacts         2         2           Number of contacts as normally closed contact         2         2           Number of contacts as normally open contact         0         None           Type of interface         None         None           Onstruction type housing         None         None           Construction type housing         None         Plastic           Cotating housing         Plastic         Other           Cotating housing         Other         Other           Type of control element         Other         Other           Villed control element         Other         Other           With status indication         Other         Other           Studiels for safety functions         Other         Other           Explosion safety category for dust         One         Other           Explosion safety category for dust         One         Other </td <td>Rated operation current le  at AC-15, 230 V</td> <td>Α</td> <td>6</td>	Rated operation current le  at AC-15, 230 V	Α	6
Rated operation current leat DC-13,230 V         A         3         3           Switching function         Switching function latching         Image: Control of the properties of the prop	Rated operation current le  at DC-13, 24 V	Α	3
Switching function         Sow-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         Post of the control element           Coating housing         Post of the control element           Alignment of the control element         0           Alignment of the control element         0           Vipe of interface connection         0           With status indication         0           Suitable for safety functions         0           Explosion safety category for gas         0           Explosion safety category for dust         0           Alignment of the control element         0	Rated operation current le  at DC-13, 125 V	Α	0.8
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         None           Costing housing         None           Coating housing         Other           Alignment of the control element         Other           Alignment of the control element         Other           Type of electric connection         Other           With status indication         Other           Suitable for safety functions         Ves           Explosion safety category for gas         None           Explosion safety category for dust         None           Amient temperature during operating         Yes           Amient temperature during operating         Yes           Amient temperature during operating         Yes           Amient temperature during operating         Yes <t< td=""><td>Rated operation current le at DC-13, 230 V</td><td>Α</td><td>0.3</td></t<>	Rated operation current le at DC-13, 230 V	Α	0.3
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         Description           Type of control element         Other           Type of control element         Other           Signment of the control element         Other           Type of electric connection         Other           With status indication         No           Suitable for safety functions         Yes           Explosion safety category for gas         No           Explosion safety category for dust         None           Ambient temperature during operating         *C         25 - 70           Degree of protection (IP)         *C         25 - 70	Switching function		Slow-action switch
Forced opening Number of safety auxiliery 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 contacts Number of contacts as change-over contacts Number of c	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 normally open contacts as normal	Output electronic		No
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  Type of interface  Type of interface for safety communication  Construction type housing  Material housing  Coating housing  Coating housing  Control element  Type of electric connection  With status indication  Suitable for safety tunctions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Degree of protection (IP)  None  105  105  105  105  105  105  105  10	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  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)  Degree of protection (IP)  Other  Other	Number of safety auxiliary contacts		2
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 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  O Coating housing Coati	Number of contacts as normally closed contact		2
Type of interface Type of interface for safety communication  Construction type housing  Material housing  Coating housing  Coating housing  Type of control element  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  Degree of protection (IP)  None  None  None  None  Solitable for Safety category for dust  Ambient temperature during operating  Possible for Safety function (IP)	Number of contacts as normally open contact		0
Type of interface for safety communication  Construction type housing  Material housing  Coating housing  Coating housing  Type of control element  Alignment of the control element  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  Degree of protection (IP)  None  None  None  None  Selected Service of Servic	Number of contacts as change-over contact		0
Construction type housing  Material housing Coating housing Coating housing Coating housing 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 Plastic Cuboid Cuboid Plastic Plastic Plastic Other O	Type of interface		None
Material housing Coating housing 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)  Plastic Other Other Other Other Other No No Ves Suitable for Safety functions Yes None Explosion safety category for dust Ambient temperature during operating Plastic Other Oth	Type of interface for safety communication		None
Coating housing Type of control element Alignment of the control element Type of electric connection With status indication Suitable for safety category for gas Explosion safety category for dust Ambient temperature during operating Degree of protection (IP)  Other Other Other  No Other  No Other  No Other  O	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)  Other  Other  Other  Other  No  No  Ves  No  Yes  None  None  1 None  2 None  1 None  2 None  1	Material housing		Plastic
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)  Other  Other  No  Other  No  No  Ves  Yes  None  None  None  1 None  1 P65	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)  Other  No  No  No  Yes  None  None  25 - 70  IP65	Type of control element		Other
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)  No  No  No  No  No  PC  25 - 70  IP65	Alignment of the control element		Other
Suitable for safety functions  Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Degree of protection (IP)  Yes  None  None  1	Type of electric connection		Other
Explosion safety category for gas  Explosion safety category for dust  Ambient temperature during operating  Degree of protection (IP)  None  25 - 70  IP65	With status indication		No
Explosion safety category for dust  Ambient temperature during operating  °C 25 - 70  Degree of protection (IP)  IP65	Suitable for safety functions		Yes
Ambient temperature during operating  °C 25 - 70  Degree of protection (IP) IP65	Explosion safety category for gas		None
Degree of protection (IP)  IP65	Explosion safety category for dust		None
	Ambient temperature during operating	°C	25 - 70
Degree of protection (NEMA) 13	Degree of protection (IP)		IP65
	Degree of protection (NEMA)		13

# 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

#### **Dimensions**



Switch must not be used as a mechanical stop

Terminal marking according to EN 50 013

Travel [mm]

= Contact closed

= Contact open

Zw = Positive opening sequence

### **Additional product information (links)**

IL05208003Z (AWA1310-2374) Safety position switch

IL05208003Z (AWA1310-2374) Safety position switch

 $ftp://ftp.moeller.net/DOCUMENTATION/AWA\_INSTRUCTIONS/IL05208003Z2018\_06.pdf$