DATASHEET - T0-2-99/Z



Spring-return switch, Contacts: 4, 20 A, front plate: START>2-0-1<START, 45 $^{\circ}$, momentary/maintained, rear mounting



Part no. T0-2-99/Z Catalog No. 012253



Similar to illustration

Similar to illustration			
Delivery program			
Product range			Control switches
Part group reference			ТО
Basic function			Spring-return switch
			with black thumb grip and front plate
Contacts			4
Degree of Protection			Front IP65
Design			rear mounting
Contact sequence			
Switching angle		0	45
Switching performance			momentary/maintained With 0 (Off) position with spring-return from both directions
Front plate no.			FS 41409
front plate			START>2-0-1 <start< td=""></start<>
Motor rating AC-23A, 50 - 60 Hz			
400 V	P	kW	5.5
Rated uninterrupted current	I _u	Α	20
Number of contact units		contact unit(s)	2

Technical data General

UCHCIAI			
Standards			IEC/EN 60947, VDE 0660, IEC/EN 60204, CSA, UL Switch-disconnector according to IEC/EN 60947-3
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +50
Enclosed		°C	-25 - +40
Overvoltage category/pollution degree			III/3
Rated impulse withstand voltage	U_{imp}	V AC	6000
Mechanical shock resistance		g	15
Mounting position			As required

Contacts

Contacts			
Electrical characteristics			
Rated operational voltage	U _e	V AC	690
Rated uninterrupted current	lu	Α	20
Note on rated uninterrupted current !u			Rated uninterrupted current $I_{\rm u}$ is specified for max. cross-section.
Load rating with intermittent operation, class 12			
AB 25 % DF		x I _e	2
AB 40 % DF		x l _e	1.6
AB 60 % DF		x I _e	1.3
Short-circuit rating		e	
Fuse		A gG/gL	20
Rated short-time withstand current (1 s current)	ı	A yo/yL	320
Note on rated short-time withstand current lcw	I _{cw}	rms	Current for a time of 1 second
Rated conditional short-circuit current		kA	6
Switching capacity	Iq	KA	U
cos φ rated making capacity as per IEC 60947-3		Α	130
Rated breaking capacity cos φ to IEC 60947-3		A	
230 V		A	100
400/415 V		A	110
500 V		A	80
690 V		A	60
Safe isolation to EN 61140		,,	
between the contacts		V AC	440
Current heat loss per contact at I _e		W	0.6
Current heat loss per auxiliary circuit at I _e (AC-15/230 V)		CO	0.6
	0		
Lifespan, mechanical	Operations	x 10 ⁶	> 0.4
Maximum operating frequency	Operations/h		1200
AC			
AC-3			
Rating, motor load switch	Р	kW	
220 V 230 V	Р	kW	3
230 V Star-delta	Р	kW	5.5
400 V 415 V	Р	kW	5.5
400 V Star-delta	Р	kW	7.5
500 V	Р	kW	5.5
500 V Star-delta	Р	kW	7.5
690 V	Р	kW	4
690 V Star-delta	Р	kW	5.5
Rated operational current motor load switch			
230 V	l _e	Α	11.5
230 V star-delta	l _e	Α	20
400V 415 V	l _e	Α	11.5
400 V star-delta	le	Α	20
500 V	l _e	Α	9
500 V star-delta	l _e	Α	15.6
690 V	I _e	A	4.9
690 V star-delta	I _e	A	8.5
AC-21A	-6		
Rated operational current switch			
440 V	I.	Α	20
	I _e	^	20
AC-23A	D	14/07	
Motor rating AC-23A, 50 - 60 Hz	P	kW	
230 V	P	kW	3
400 V 415 V	Р	kW	5.5

Read operational current multi look wheth		_		
Related paperational carment mater load sauseth 270	500 V	Р	kW	7.5
201		Р	kW	5.5
400 V 415 V				
SOL SOL	230 V	l _e	Α	13.3
	400 V 415 V	l _e	Α	13.3
DC-1, Land-brank switchish L/R - 1 ms Raised coverational current	500 V	le	Α	13.3
DOI: 1, Lead brank switches UR = 1 ms	690 V	l _e	Α	7.6
Matination operations and current Value	DC			
	DC-1, Load-break switches L/R = 1 ms			
DC-21A	Rated operational current	I _e	Α	10
Rated operational current V	Voltage per contact pair in series		٧	60
Contacts	DC-21A	I _e	Α	
DC-2224, motor load savich L/Fl = 15 ms 24 V 10 10 10 10 10 10 10	Rated operational current	le	Α	1
DC-2224, motor load savich L/Fl = 15 ms 24 V 10 10 10 10 10 10 10	Contacts		Quantity	1
Rated operational current	DC-23A, motor load switch L/R = 15 ms			
Contacts	24 V			
Contacts	Rated operational current	l _e	Α	10
ABAIR do operational current	Contacts		Quantity	1
Contacts	48 V			
Contacts	Rated operational current	le	Α	10
Redd operational current			Quantity	2
Contacts			,	
Contacts	Rated operational current	l _e	Α	10
120 V Rated operational current			Quantity	3
Rated operational current Part			,	
Contacts Atted operational current Atted operational current Contacts DC-13, Control switches L/R = 50 ms Atted operational current Atted operational current Atted operational current Atter (Poblish) Atte		l _e	A	5
240 V Rated operational current Contacts DC-13, Control switches L/R = 50 ms Rated operational current max. Rated operational current Rated operational voltage Rated operat		ŭ	Quantity	3
Rated operational current I I I I I I I I I I I I I I I I I I I				
Contacts DC-13, Control switches L/R = 50 ms Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Terminal capacities Solid or stranded Main conducting barden series Rated operational voltage Rated poperational voltage Rated poperat		ام	Α	5
DC-13, Control switches L/R = 50 ms Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Pault probability Fault probability Ferminal capacities Flexible with ferrules to DIN 46228 Solid or stranded Flexible with ferrules to DIN 46228 Flexible	·	C	Quantity	
Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Ferminal capacities Solid or stranded Fiexible with ferrules to DIN 46228 mm² 1 1 1 1 2 2 5 2 2 (0.75 - 2.5) M3.5 Fiexible with ferrules to DIN 46228 M3.5 Fiexible with ferrules to DIN 462			,	
Votage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Fault p		l _e	A	10
Control circuit reliability at 24 V DC, 10 mA Feurinal capacities Solid or stranded So	Voltage per contact pair in series	ŭ	V	32
Terminal capacities Solid or stranded mm² 1x (1 - 2.5) 2x (1 - 2.5) 2x (0.75 - 2.5) 2x (0.7		Fault		
Solid or stranded mm² 2 1x (1 - 2.5) Flexible with ferrules to DIN 46228 Flexible with ferrules to DIN 46228 Terminal screw Tightening torque for terminal screw Tightening torque for terminal screw Toots Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use General use General Use Flot Duty Switching capacity Switching capacity Main Conducting capacity A GOO Plot Duty A GOO Pood A 600 Pood Pood A 600 A 600 Pood A 600 A			'	< 10 , < 1 radii. III 100000 operations
Flexible with ferrules to DIN 46228 mm² 1 x (0.75 - 2.5) 2 x (-			. (4.07)
Terminal screw Ma.5 Tightening torque for terminal screw Nm M.5 Technical safety parameters: Notes Blod values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts Again and a spera of the same of th	Solid or stranded		mm ²	1 x (1 - 2,5) 2 x (1 - 2,5)
Terminal screw Tightening torque for terminal screw Technical safety parameters: Notes Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity Ma.5 Ma.5 Ma.5 Ma.5 Ma.5 Ma.1 4.0 Mo.0	Flexible with ferrules to DIN 46228		mm ²	1 x (0.75 - 2.5)
Tightening torque for terminal screw Technical safety parameters: Notes B10 _d values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts B200 V AC B200 B200 B200 B200 B200 B200 B200 B20				
Notes B10 _d values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity B10 _d values as per EN ISO 13849-1, table C1 B00 B10 _d values as per EN ISO 13849-1, table C1 B10	Terminal screw			
Notes B10d values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity B10d values as per EN ISO 13849-1, table C1 B10d values as per EN ISO 13849-1, table C			Nm	1
Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity V AC 600 600 AC				R10a values as ner FN ISO 13849-1 table C1
Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity Ue V AC 600 600 600 600 600 600 600 60				2.5g .3dd0 d0 p0. E11300 10070 1, table 01
Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity V AC 600 1	Contacts			
Rated uninterrupted current max. Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity A 600 P 600 A 600 P 600 A 600 P 600		U _e	V AC	600
Main conducting paths General use Auxiliary contacts General Use Pilot Duty Switching capacity A 16 A 10 A 600 P600 A A600 P600				
General use Auxiliary contacts General Use Pilot Duty Switching capacity A 16 A 10 A 600 P600 A 600 P600				
General Use Pilot Duty Switching capacity IU A 10 A 600 P 600			Α	16
General Use Pilot Duty Switching capacity IU A 10 A 600 P 600	Auxiliary contacts			
Pilot Duty A 600 P 600 Switching capacity		lu	Α	10
Switching capacity P 600	Pilot Duty			A 600
Maximum motor rating	Switching capacity			
	Maximum motor rating			

Single-phase		
120 V AC	НР	0.5
200 V AC	HP	1
240 V AC	HP	1.5
Three-phase		
200 V AC	HP	3
240 V AC	HP	3
480 V AC	НР	7.5
600 V AC	НР	7.5
Short Circuit Current Rating	SCCR	
Basic Rating	kA	5
max. Fuse	А	50
High fault rating	kA	10
max. Fuse	А	20, Class J
Terminal capacity		
Solid or flexible conductor with ferrule	AWG	18 - 14
Terminal screw		M3.5
Tightening torque	lb-in	8.8

Design verification as per IEC/EN 61439

2001gii 1011110441011 40 poi 120, 211 01 100			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	20
Heat dissipation per pole, current-dependent	P _{vid}	W	0.6
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 max.		°C	-25
Operating ambient temperature max.		°C	50
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			UV resistance only in connection with protective shield.
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 switch gear must be observed. $\label{eq:constraint}$
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 6.0

Low-voltage industrial components (EG000017) / Control switch (EC002611)

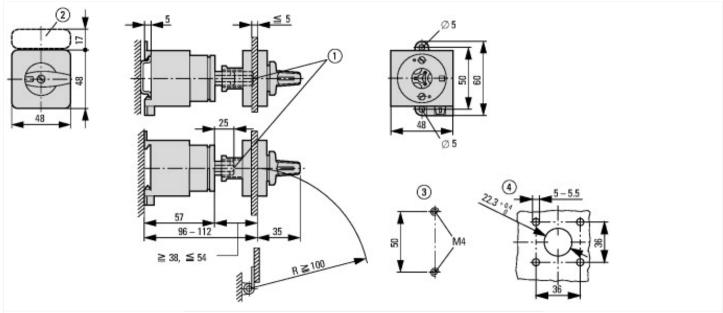
Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Control switch (ecl@ss8.1-27-37-14-14

Type of switch		On/Off switch
Number of poles		4
Max. rated operation voltage Ue AC	V	690
Rated permanent current lu	Α	20
Number of switch positions		5
With 0 (off) position		Yes
With retraction in 0-position		No
Device construction		Built-in device
Width in number of modular spacings		0
Suitable for ground mounting		Yes
Suitable for front mounting 4-hole		No
Suitable for distribution board installation		No
Suitable for intermediate mounting		Yes
Complete device in housing		No
Type of control element		Toggle
Front shield size		48x48 mm
Degree of protection (IP), front side		IP65

Approvals

••	
Product Standards	UL 60947-4-1;CSA - C22.2 No. 60947-4-1-14; CSA-C22.2 No. 94; IEC/EN 60947-3; CE marking
UL File No.	E36332
UL Category Control No.	NLRV
CSA File No.	12528
CSA Class No.	3211-05
North America Certification	UL listed, CSA certified
Suitable for	Branch circuits, suitable as motor disconnect
Degree of Protection	IEC: IP65; UL/CSA Type 1, 12

Dimensions



- Shaft extension with ZAV-T0 possible, max. 4 x 25 = 100 mm
 ZFS-... Label mount not included as standard
 Drilling dimensions base
 Drilling dimensions door

Additional product information (links)

IL03801021Z (AWA1150-0587) Cam switches: rear mounting

IL03801021Z (AWA1150-0587) Cam switches: rear mounting	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03801021Z2017_12.pdf
Display flip catalog page.	http://ecat.moeller.net/flip-cat/?edition=K115A&startpage=105
Technical overview cam switch, switch- disconnector	http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&startpage=4.2
System overview cam switch T	http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&startpage=4.4
System overview switch-disconnector P	http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&startpage=4.6
Key to part numbers Cam switch	http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&startpage=4.8
Key to part numbers Switch-disconnector	http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&startpage=4.8
Switches for ATEX	http://www.coopercrouse-hinds.eu/en/products/25-ex-safety-and-main-current-switches.html