

# Changeoverswitches, Contacts: 10, 20 A, front plate: 1-2, 90 $^{\circ}$ , maintained, centre mounting



Part no. T0-5-8369/EZ Article no. 024610

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	ILLOPI	I DE	ogram
116	IIVEIN	, ,,,,	

Delivery program			
Product range			Control switches
Part group reference			ТО
Basic function			Changeoverswitches
			with black thumb grip and front plate
Contacts			10
Degree of Protection			Front IP65
Design			centre mounting
Contact sequence			
Switching angle		0	90
Switching performance			maintained Without 0 (Off) position
Front plate no.			1 2
			FS 943
front plate			1-2
Motor rating AC-23A, 50 - 60 Hz			
400 V	Р	kW	5.5
Rated uninterrupted current	I <sub>u</sub>	Α	20
Number of contact units		contact unit(s)	5

### **Technical data**

#### General

20110101			
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	$U_{\text{imp}}$	V AC	6000
Mechanical shock resistance		g	15
Mounting position			As required
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Contacts			

### Contacts

Electrical characteristics			
Rated operational voltage	U <sub>e</sub>	V AC	690

Rated uninterrupted current	I <sub>u</sub>	Α	20
	'u	Α	
Note on rated uninterrupted current !u			Rated uninterrupted current lu is specified for max. cross-section.
Load rating with intermittent operation, class 12			
AB 25 % DF		x I <sub>e</sub>	2
AB 40 % DF		x I <sub>e</sub>	1.6
AB 60 % DF		x l <sub>e</sub>	1.3
Short-circuit rating			
Fuse		A gG/gL	20
Rated short-time withstand current (1 s current)	I <sub>cw</sub>	A <sub>rms</sub>	320
Note on rated short-time withstand current lcw			Current for a time of 1 second
Rated conditional short-circuit current	Iq	kA	6
Switching capacity			100
cos φ rated making capacity as per IEC 60947-3		A	130
Rated breaking capacity cos φ to IEC 60947-3		A	400
230 V		A	100
400/415 V		A	110
500 V		A	80
690 V Safe isolation to EN 61140		A	60
between the contacts		V AC	440
Current heat loss per contact at I <sub>e</sub>		W	0.6
Current heat loss per auxiliary circuit at I <sub>e</sub> (AC-15/230 V)		CO	0.6
	Operations		
Lifespan, mechanical	Operations	x 10 <sup>6</sup>	> 0.4
Maximum operating frequency	Operations/h		1200
AC			
AC-3			
Rating, motor load switch	P	kW	
220 V 230 V	P	kW	3
230 V Star-delta 400 V 415 V	P P	kW	5.5
	P	kW	5.5
400 V Star-delta 500 V	P	kW	7.5 5.5
500 V Star-delta	P	kW	7.5
690 V	P	kW	4
690 V Star-delta	P	kW	5.5
Rated operational current motor load switch	r	KVV	3.3
230 V	ı	A	11.5
230 V star-delta	l <sub>e</sub>	A	20
	l <sub>e</sub>		
400V 415 V	l <sub>e</sub>	A	11.5
400 V star-delta	l <sub>e</sub>	Α	20
500 V	l <sub>e</sub>	Α	9
500 V star-delta	l <sub>e</sub>	Α	15.6
690 V	l <sub>e</sub>	Α	4.9
690 V star-delta	I <sub>e</sub>	Α	8.5
AC-21A			
Rated operational current switch			
440 V	I <sub>e</sub>	Α	20
AC-23A			
Motor rating AC-23A, 50 - 60 Hz	P	kW	
230 V	P	kW	3
400 V 415 V	P	kW	5.5
500 V	P	kW	7.5
690 V	P	kW	5.5
Rated operational current motor load switch			

230 V	l <sub>e</sub>	Α	13.3
400 V 415 V	I <sub>e</sub>	Α	13.3
500 V	I <sub>e</sub>	Α	13.3
690 V	I <sub>e</sub>	A	7.6
DC	'e	^	7.0
DC-1, Load-break switches L/R = 1 ms			
Rated operational current	1	Α	10
Voltage per contact pair in series	l <sub>e</sub>	V	60
DC-21A		A	00
	l <sub>e</sub>		1
Rated operational current	l <sub>e</sub>		1
Contacts		Quantity	1
DC-23A, motor load switch L/R = 15 ms			
Rated operational current		Α	10
·	l <sub>e</sub>		
Contacts 48 V		Quantity	
		Α	10
Rated operational current	l <sub>e</sub>		
Contacts 60 V		Quantity	2
		Α	10
Rated operational current	l <sub>e</sub>		
Contacts		Quantity	3
120 V		Α	5
Rated operational current	l <sub>e</sub>		
Contacts		Quantity	3
240 V		^	-
Rated operational current	l <sub>e</sub>	Α	5
Contacts		Quantity	5
DC-13, Control switches L/R = 50 ms  Rated operational current		۸	10
	l <sub>e</sub>	A V	
Voltage per contact pair in series	Fle		32
Control circuit reliability at 24 V DC, 10 mA	Fault probability	H <sub>F</sub>	$< 10^{-5}, < 1$ fault in 100000 operations
Terminal capacities			
Solid or stranded		$mm^2$	1 x (1 - 2,5) 2 x (1 - 2,5)
Flexible with ferrules to DIN 46228		mm <sup>2</sup>	1 x (0.75 - 2.5)
		111111	2 x (0.75 - 2.5)
Terminal screw			M3.5
Max. tightening torque		Nm	1
Technical safety parameters: Notes			R10. values as par EN ISO 19940 1 table C1
Rating data for approved types			B10 <sub>d</sub> values as per EN ISO 13849-1, table C1
Contacts			
Rated operational voltage	U <sub>e</sub>	V AC	600
Rated uninterrupted current max.			
Main conducting paths			
General use	l <sub>U</sub>	Α	16
Auxiliary contacts			
General Use	I <sub>U</sub>	Α	10
Pilot Duty			A 600
			P 600
Switching capacity			
Maximum motor rating			
Single-phase			
120 V AC		HP	0.5
200 V AC		HP	1

240 V AC	НР	1.5
Three-phase		
200 V AC	HP	3
240 V AC	HP	3
480 V AC	HP	7.5
600 V AC	HP	7.5
Short Circuit Current Rating	SCCR	
Basic Rating	kA	5
max. Fuse	Α	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

observed.	Technical data for design verification			
Equipment heat dissipation, current-dependent Programment Programment Programment Programment Product standard's requirements.    Possion   Product standard's requirements.   Product standard	Rated operational current for specified heat dissipation	In	Α	20
Static heat dissipation, non-current-dependent P <sub>vs</sub> W 0    Host dissipation capacity P <sub>diss</sub> W 0   Operating ambient temperature min. P <sub>c</sub> S 5   Operating ambient min. P <sub>c</sub> S 5   Operating ambient min. P <sub>c</sub>	Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0.6
Heat dissipation capacity  Operating ambient temperature min.  Operating the tempe	Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	0
Operating ambient temperature min.  Operating ambient temperature max.  C 50  Operating ambient temperature max.  C 50  CEC/EN 61439 design verification  10.2 Strength of materials and parts  10.2.2 Verification of thermal stability of enclosures  10.2.3.1 Verification of resistance of insulating materials to normal heat and fire due to internal electric effects  10.2.3.2 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects  10.2.4. Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Machanical impact  10.2.7 Inscriptions  10.3.0 agree of protection of ASSEMBLIES  10.4. Clearances and creepage distances  Meets the product standard's requirements.  Meets the product standard's requirements on the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  Meets the product standard's requirements.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Some not apply, since the entire switchgear needs to be evaluated.  In 10 Internal electric alcircuit and connections  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's re	Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Deparating ambient temperature max.  10.2 Strength of materials and parts  10.2 Strength of materials and parts  10.2 Strength of materials and parts  10.2.2 Corrosion resistance  10.2.3 Verification of thermal stability of enclosures  10.2.3 Verification of resistance of insulating materials to normal heat  10.2.3 Verification of resistance of insulating materials to normal heat  10.2.3 Verification of resistance of insulating materials to abnormal heat  10.2.4 Resistance to ultra-violet (UV) radiation  10.2 Fixed materials and fire due to internal electric effects  10.2 Resistance to ultra-violet (UV) radiation  10.2 Fixed materials impact  10.2 Fixed materials impact  10.2 Fixed materials impact  10.2 Fixed part of the entire switchgar needs to be evaluated.  10.2 Inscriptions  10.3 Degree of protection of ASSEMBLIES  10.4 Clearances and creapage distances  10.5 Protection against electric shock  10.5 Incorporation of switching devices and components  10.5 Incorporation of switching devices and components  10.5 Incorporation of switching devices and components  10.9 Insulation properties  10.1 Thermal electrical circuits and connections  10.2 Insulation properties  10.3 Impulse withstand voltage  10.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.13 Mechanical function  10.14 Mechanical function  10.15 Mechanical function  10.16 Meets the product standard's requirements.  10.17 Meets the product standard's requirements.  10.18 Meets the product standard's requirements.  10.19 Meets the product standard's requirements.  10.19 Meets the product standard's requirements.  10.19 Meets the product standard	Heat dissipation capacity	P <sub>diss</sub>	W	0
ECEN 61439 design verification  10.2 Strength of materials and parts  10.2.2 Corrosion resistance 10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3.2 Verification of resistance of insulating materials to abnormal heat 10.2.3.2 Verification of resistance of insulating materials to abnormal heat 10.2.3.3 Verification of resistance of insulating materials to abnormal heat 10.2.4.3 Resistance to ultra-violet (UV) radiation 10.2.5 Litting 10.3.5 Litting 10.4.6 Learness and crepage distances 10.5 Litting 10.5 Litting 10.6 Learness and crepage distances 10.7 Internal electric shock 10.8 Learness and crepage distances 10.9 Learness and crepage distances 1	Operating ambient temperature min.		°C	-25
10.2 Strength of materials and parts  10.2.2 Corrosion resistance  10.2.3.1 Verification of thermal stability of enclosures  10.2.3.2 Verification of resistance of insulating materials to normal heat and fire due to internal electric effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Mechanical impact  10.2.7 Inscriptions  10.2.8 Mechanical impact  10.2.9 Inscriptions  10.3 Degree of protection of ASSEMBLIES  10.4 Gearances and creepage distances  10.4 Gearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.9 Insulation properties  10.9 Power-frequency electric strength  10.9 Insulation properties  10.9 Insulation properties  10.9 Insulation properties  10.9 Insulation properties  10.9 Insulation discovers made of insulating material  10.9 Internal electrical circuits and connections  10.9 Insulation properties	Operating ambient temperature max.		°C	50
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10.7 Internal electrical circuits and connections  1s the panel builder's responsibility.  10.8 Connections for external conductors  1s the panel builder's responsibility.  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Is the panel builder's responsibility.  1b the panel builder's responsibility.  1c the panel builder's responsibility. The specifications for the switchgear must be observed.  1c the panel builder's responsibility. The specifications for the switchgear must be observed.  1c the panel builder's responsibility. The specifications for the switchgear must be observed.  1c the panel builder's responsibility. The specifications for the switchgear must be observed.  1c the panel builder's responsibility. The specifications for the switchgear must be observed.  1c the panel builder's responsibility. The specifications for the switchgear must be observed.	10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.13 Mechanical function  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	10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.13 Mechanical function  Is the panel builder's responsibility.  Is the panel builder is responsibility. The specifications for the switchgear must be observed.  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction	10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Is the panel builder's responsibility.  Is the panel builder's responsibility.  The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.  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	10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Is the panel builder's responsibility.  The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  The device meets the requirements, provided the information in the instruction	10.9 Insulation properties			
10.9.4 Testing of enclosures made of insulating material  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	10.9.2 Power-frequency electric strength			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	10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
provide heat dissipation data for the devices.  10.11 Short-circuit rating  1s the panel builder's responsibility. The specifications for the switchgear must be observed.  10.12 Electromagnetic compatibility  1s 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	10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
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	10.10 Temperature rise			
observed.  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction	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. $\label{eq:specifications}$
	10.13 Mechanical function			

### **Technical data ETIM 6.0**

Low-voltage industrial components (EG000017) / Off-load switch (EC001105)

Electric engineering, automation, process control engineering / Low-voltage s [AKF062010]) $ \label{eq:KF062010}$	witch technology / Of	ff-load switch	, circuit breaker, control switch / Changeover switch (ecl@ss8.1-27-37-14-05
Model		Rev	erser
Number of poles		5	
With 0 (off) position		No	
With retraction in 0-position		No	
Rated permanent current lu		A 20	
Rated operation current le at AC-3, 400 V	,	A 11.5	i
Rated operation power at AC-3, 400 V	ŀ	kW 4	
Degree of protection (IP), front side		IP6	5
Number of auxiliary contacts as normally closed contact		0	
Number of auxiliary contacts as normally open contact		0	
Number of auxiliary contacts as change-over contact		0	
Suitable for ground mounting		No	
Suitable for front mounting 4-hole		Yes	
Suitable for distribution board installation		No	
Suitable for intermediate mounting		No	
Complete device in housing		No	
Type of control element		Tog	gle

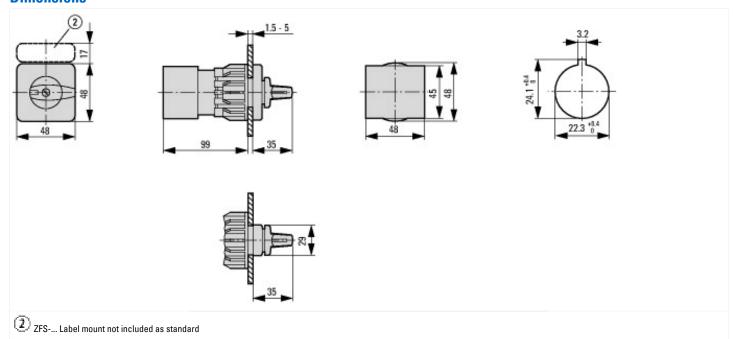
### **Approvals**

Type of electrical connection of main circuit

Product Standards	UL 508; CSA-C22.2 No. 14-05; 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

Screw connection

### **Dimensions**



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

IL03801020Z (AWA1150-0586) Cam switch: Mod	unting
IL03801020Z (AWA1150-0586) Cam switch: Mounting	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03801020Z2016_07.pdf
Form for ordering non-standard front plates	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=4.87
Display flip catalog page.	http://ecat.moeller.net/flip-cat/?edition=K115A&startpage=43

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