



**Changeoverswitches, T0, 20 A, centre mounting, 6 contact unit(s),
Contacts: 12, 90 °, maintained, Without 0 (Off) position, HAND-AUTO,
Design number 8529**

Part no. T0-6-8529/EZ
Catalog No. 015789

Similar to illustration

Delivery program

Product range		Control switches																																																																																																				
Part group reference		T0																																																																																																				
Basic function		Changeoverswitches with black thumb grip and front plate																																																																																																				
Contacts		12																																																																																																				
Degree of Protection		Front IP65																																																																																																				
Design		centre mounting																																																																																																				
Contact sequence		<table border="1" style="margin-left: 20px;"> <tr> <td></td> <td></td> <td>HAND</td> <td>AUTO</td> </tr> <tr> <td>1</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>○</td> <td>X</td> <td></td> </tr> <tr> <td>3</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>○</td> <td></td> <td>X</td> </tr> <tr> <td>5</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>○</td> <td>X</td> <td></td> </tr> <tr> <td>7</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>8</td> <td>○</td> <td></td> <td>X</td> </tr> <tr> <td>9</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>10</td> <td>○</td> <td>X</td> <td></td> </tr> <tr> <td>11</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>12</td> <td>○</td> <td></td> <td>X</td> </tr> <tr> <td>13</td> <td>○</td> <td>X</td> <td></td> </tr> <tr> <td>14</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>15</td> <td>○</td> <td></td> <td>X</td> </tr> <tr> <td>16</td> <td>○</td> <td>X</td> <td></td> </tr> <tr> <td>17</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>18</td> <td>○</td> <td>X</td> <td></td> </tr> <tr> <td>19</td> <td>○</td> <td></td> <td>X</td> </tr> <tr> <td>20</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>21</td> <td>○</td> <td>X</td> <td></td> </tr> <tr> <td>22</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>23</td> <td>○</td> <td></td> <td>X</td> </tr> <tr> <td>24</td> <td>○</td> <td></td> <td>X</td> </tr> </table>			HAND	AUTO	1	○			2	○	X		3	○			4	○		X	5	○			6	○	X		7	○			8	○		X	9	○			10	○	X		11	○			12	○		X	13	○	X		14	○			15	○		X	16	○	X		17	○			18	○	X		19	○		X	20	○			21	○	X		22	○			23	○		X	24	○		X
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Switching angle	°	90																																																																																																				
Switching performance		maintained Without 0 (Off) position																																																																																																				
Design number		8529																																																																																																				
Front plate no.		<p>FS 19334</p>																																																																																																				
front plate		HAND-AUTO																																																																																																				
Motor rating AC-23A, 50 - 60 Hz																																																																																																						

400 V	P	kW	5.5
Rated uninterrupted current	I_u	A	20
Note on rated uninterrupted current I_u			Rated uninterrupted current I_u is specified for max. cross-section.
Number of contact units		contact unit(s)	6

Technical data

General

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

Electrical characteristics			
Rated operational voltage	U_e	V AC	690
Rated uninterrupted current	I_u	A	20
Note on rated uninterrupted current I_u			Rated uninterrupted current I_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 I_e	1.6
AB 60 % DF		x I_e	1.3
Short-circuit rating			
Fuse		A gG/gL	20
Rated short-time withstand current (1 s current)	I_{cw}	A_{rms}	320
Note on rated short-time withstand current I_{cw}			Current for a time of 1 second
Rated conditional short-circuit current	I_q	kA	6

Switching capacity

cos φ rated making capacity as per IEC 60947-3		A	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
Lifespan, mechanical	Operations	x 10^6	> 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	P	kW	5.5
400 V 415 V	P	kW	5.5
400 V Star-delta	P	kW	7.5
500 V	P	kW	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			
230 V	I _e	A	11.5
230 V star-delta	I _e	A	20
400V 415 V	I _e	A	11.5
400 V star-delta	I _e	A	20
500 V	I _e	A	9
500 V star-delta	I _e	A	15.6
690 V	I _e	A	4.9
690 V star-delta	I _e	A	8.5
AC-21A			
Rated operational current switch			
440 V	I _e	A	20
AC-23A			
Motor rating AC-23A, 50 - 60 Hz			
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	I _e	A	13.3
400 V 415 V	I _e	A	13.3
500 V	I _e	A	13.3
690 V	I _e	A	7.6
DC			
DC-1, Load-break switches L/R = 1 ms			
Rated operational current			
	I _e	A	10
Voltage per contact pair in series			
		V	60
DC-21A			
Rated operational current			
	I _e	A	1
Contacts			
		Quantity	1
DC-23A, motor load switch L/R = 15 ms			
24 V			
Rated operational current			
	I _e	A	10
Contacts			
		Quantity	1
48 V			
Rated operational current			
	I _e	A	10
Contacts			
		Quantity	2
60 V			
Rated operational current			
	I _e	A	10
Contacts			
		Quantity	3
120 V			
Rated operational current			
	I _e	A	5
Contacts			
		Quantity	3
240 V			
Rated operational current			
	I _e	A	5
Contacts			
		Quantity	5
DC-13, Control switches L/R = 50 ms			
Rated operational current			
	I _e	A	10
Voltage per contact pair in series			
		V	32
Control circuit reliability at 24 V DC, 10 mA			
	Fault probability	H _F	< 10 ⁻⁵ , < 1 failure in 100,000 switching 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 ²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Terminal screw			M3.5
Tightening torque for terminal screw		Nm	1

Technical safety parameters:

Notes			B10 _d values as per EN ISO 13849-1, table C1
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Rating data for approved types

Contacts			
Rated operational voltage	U _e	V AC	600
Rated uninterrupted current max.			
Main conducting paths			
General use		A	16
Auxiliary contacts			
General Use	I _U	A	10
Pilot Duty			A 600 P 300
Switching capacity			
Maximum motor rating			
Single-phase			
120 V AC		HP	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		HP	7.5
600 V AC		HP	7.5
Short Circuit Current Rating			
Basic Rating			
Basic Rating		kA	5
max. Fuse		A	50
High fault rating			
High fault rating		kA	10
max. Fuse		A	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

Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	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 min.		°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			
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 switchgear must be observed.
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

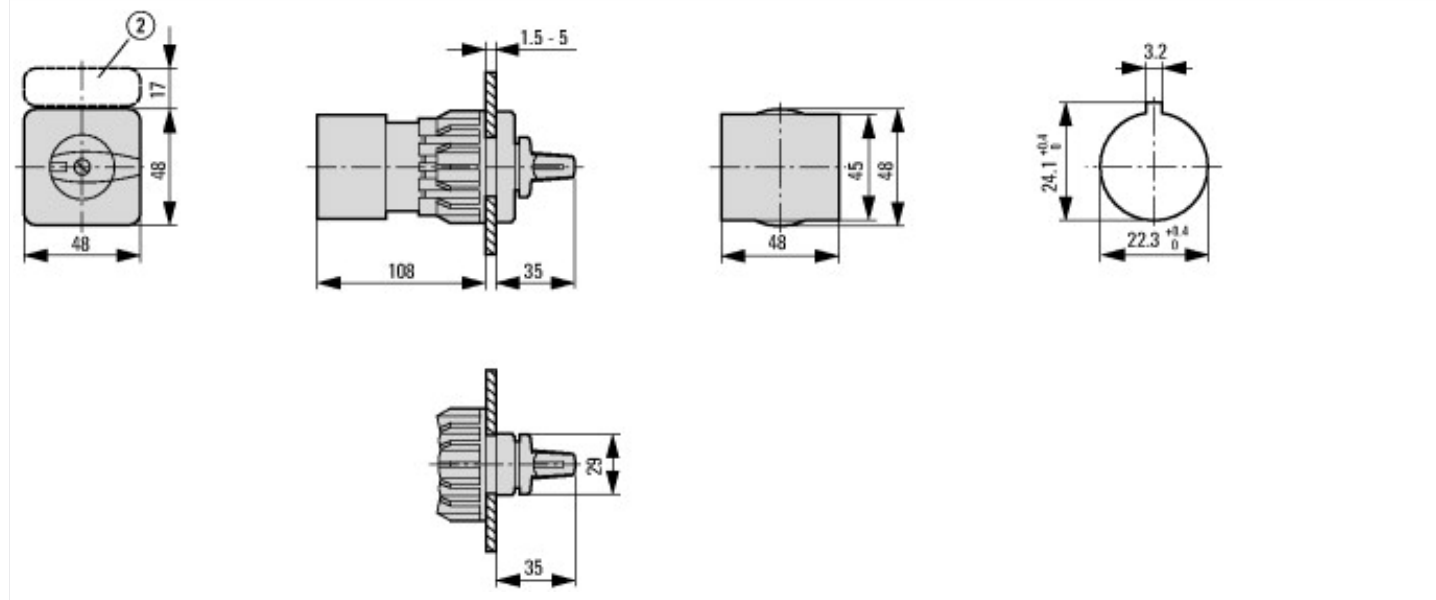
Technical data ETIM 7.0

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 (ec@ss10.0.1-27-37-14-14 [ACN998011])		
Type of switch		Reverser
Number of poles		6
Max. rated operation voltage Ue AC	V	690
Rated permanent current Iu	A	20
Number of switch positions		2
With 0 (off) position		No
With retraction in 0-position		No
Device construction		Built-in device
Width in number of modular spacings		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		Toggle
Front shield size		48x48 mm
Degree of protection (IP), front side		IP65
Degree of protection (NEMA), front side		12

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



② ZFS-... Label mount not included as standard

Assets (links)

Declaration of CE Conformity

00003075

Instruction Leaflets

IL03801020Z2018_05

Additional product information (links)

IL03801020Z (AWA1150-0586) Cam switches: flush mounting

IL03801020Z (AWA1150-0586) Cam switches: flush mounting	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03801020Z2018_05.pdf
Display flip catalog page.	http://ecat.moeller.net/flip-cat/?edition=K115A&startpage=109
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
Ordering form for SOND switches and SOND front plates(DE_EN)	ftp://ftp.moeller.net/DOCUMENTATION/PDF/MZ008005ZU_Orderform_Customized_Switch.pdf
Ordering form for SOND switches and SOND front plates(DE_EN)	ftp://ftp.moeller.net/DOCUMENTATION/PDF/MZ008006ZU_Orderform_Customized_Switch.pdf