DATASHEET - T0-2-8211/XZ



Changeoverswitches, Contacts: 4, 20 A, 60 $^{\circ}$, rear mounting, Basic switch



Powering Business Worldwide

Part no. T0-2-8211/XZ Catalog No. 011736

EL-Nummer (Norway) 0001456660

Delivery program

Delivery program			
Product range			Control switches
Part group reference			ТО
Basic function			Changeoverswitches
Contacts			4
Design			rear mounting Basic switch
Contact sequence			2
Switching angle		o	60
Design number			8211
Front plate no.			FS 684
Motor rating AC-23A, 50 - 60 Hz			
400 V	P	kW	5.5
Rated uninterrupted current	I _u	Α	20
Note on rated uninterrupted current !u			Rated uninterrupted current $\mathbf{I}_{\mathbf{u}}$ is specified for max. cross-section.
Number of contact units		contact unit(s)	2

Technical data

General

Standards			IEC/EN 60947, VDE 0660, IEC/EN 60204 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	Α	20
Note on rated uninterrupted current $\mathbf{I}_{\mathbf{u}}$			Rated uninterrupted current $\mathbf{I}_{\mathbf{u}}$ 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

A 6 8 5 0 F Short-circuit rating Fise	
Fuse A 60/04 20 Rated short-time withstand current I is current Icw Arms 20 Note on rated short-time withstand current I current Iq Na 20 Switching capacity 3 A 30 Switching capacity as per IEC 60947-3 A 100 Rated breaking capacity cas q to IEC 60947-3 A 100 400/415 V A 100 500 V A 100 689 V B A 699 V A 40 Current heat loss per contact at I ₀ VAC 440 Current heat loss per contact at I ₀ (AC-15/230 V) YAC 440 Maximum operating frequency Operations 100 AC-3 Reting, motor load switch P KW Reting, motor load switch P KW 5 220 V 230 V 3 P KW 5 400 V 51 V 1 P KW 5 6 690 V Sur-delta P KW 5 6 690 V Sur-delta <td< td=""><td></td></td<>	
Rated short-time withstand current (low I _{cov} A _{max} A _{max} 20 Current for a time of 1 second Rated conditional short-time withstand current (low I _q A Current for a time of 1 second Switching capacity Switching capacity Switching capacity Switching capacity cos q rated making capacity as per IEC 60947-3 A 10 220 V A 10 650 V A 10 650 V A 10 650 V A 10 650 V A 40 650 V A 10 650 V A 10 650 V A 40 650 V A 40 Current beat loss per contact st VAC 40 Current heat loss per contact at I _q Operations VAC 40 Maximum operating frequency Operations YAC 40 AC-3 S 3 3 Reting, motor load switch P kW 5 AWO V Star-delta	
Note on rated short-time withstand current (cw Iq NA 6 Rated conditional short-circuit current Iq NA 6 Switching capacity sper IEC 60947-3 A 130 Rated breaking capacity as per IEC 60947-3 A 100 400415 V A 110 500 V A 60 Current heat loss per contact at I ₀ VX A Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) C 0 Maximum operating frequency Operations x 10 ⁸ > 0.4 AC-3 1 200 2 AC-3 2 2 2 2 2 2 2 2 2 2	
Rated conditional short-circuit current Iq KA E	
Switching capacity cos or rated making capacity as per IEC 60947-3 A 130 Rated breaking capacity cos o to IEC 60947-3 A 100 400415 V A 110 500 V B A 80 680 V B B B Safe isolation to EN 61140 VAC 440 B between the contacts VAC 40 B Current heat loss per contact at I ₀ VAC 40 B Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) C 0 0 Maximum operating frequency Operations x 1g8 > 0.4 Maximum operating frequency Operations x 1g8 > 0.4 AC-3 Bating, motor load switch P kW 5.5 230 V Star-delta P kW 5.5 400 V Star-delta P kW 5.5 500 V Star-delta P kW 5.5 680 V S 5 680 V Star-delta P kW </td <td></td>	
ccs or rated making capacity as per IEC 60947-3 A 30 Rate breaking capacity cos q to IEC 60947-3 A 100 400415 V A 10 500 V A 80 690 V A 80 Safe isolation to EN 61140 V V between the contacts V V 40 Current heat loss per contact at I ₀ V V 0 Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) Operations X 16° >0 AC-3 S V V 0 Basing, motor load switch P WW 5 0 AC-3 S V V 5 AC-3 S V V V AC-3 S V V V AC-3 S V	
Rated breaking capacity cos φ to IEC 60947-3 A 100 220 V 400415 V A 110 500 V A 80 690 V A 60 Safe isolation to EN 61140 V C between the contacts VAC 440 Current heat loss per contact at I ₀ W 0.6 Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) CO 0.6 Lifespan, mechanical Operations, h 1200 AC-3 Rating, motor load switch P kW 3 2 230 V 230 V P kW 3.5 4 000 V 315 V P kW 5.5 4 000 V 51ar-delta P kW 5.5 500 V P kW 5.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 5.5 690 V Star-delta P kW 5.5 690 V Star-delta P kW 5.5 690 V Star-delta P <td></td>	
230 V	
A00/415 \	
Solicy S	
Egg	
Safe isolation to EN 61140 VAC 440 between the contacts VAC 440 Current heat loss per contact at I _e VAC 0.6 Current heat loss per auxiliary circuit at I _e (AC-15/230 V) Operations/ x 10 ⁶ >0.4 Maximum operating frequency Operations/ 1200 AC-3 AC-3 AC-3 AC-3 AC-3 Rating, motor load switch P kW 3 AC-3 220 V 230 V P kW 5.5 AC-3 400 V 415 V P kW 5.5 AC-3 400 V 5tar-delta P kW 7.5 AC-3 500 V P kW 7.5 AC-3 AC-3<	
between the contacts V AC 440 Current heat loss per contact at I _θ W 0.6 Current heat loss per auxiliary circuit at I _θ (AC-15/230 V) CO 0.6 Lifespan, mechanical Operations x 10 ⁶ > 0.4 Maximum operating frequency Operations x 10 ⁶ > 0.4 AC-3 I 200 AC-3 V W I 200 AC-3 V W I W 220 V 230 V P kW 3 230 V Star-delta P kW 3.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 7.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch I _e A 11.5 230 V	
Current heat loss per contact at I ₀ W 0.6 Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) CO 0.6 Lifespan, mechanical Operations/x x 10 ⁶ > 0.4 Maximum operating frequency Operations/x 1200 AC-3 Value 1200 Rating, motor load switch P kW 3 220 V 230 V 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 7.5 690 V P kW 7.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch I ₀ A 11.5 230 V star-delta I ₀ A 11.5 400 V 415 V I ₀ A 10.5 400 V 5tar-delta I ₀ <t< td=""><td></td></t<>	
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-3 Taxing, 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 5.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch I _e A 11.5 230 V star-delta I _e A 20 400 V 415 V I _e A 20 400 V 5tar-delta I _e A 20	
Lifespan, mechanical Operations / Maximum operating frequency Value > 0.4 AC - 3 Rating, motor load switch P kW W 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 7.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 4 230 V star-delta Ie A 11.5 230 V star-delta Ie A 20 400 V 415 V Ie A 20	
Maximum operating frequency Operations/h 1200 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 7.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V 5tar-delta Ie A 11.5 400 V 5tar-delta <t< td=""><td></td></t<>	
Maximum operating frequency Operations/h 1200 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 7.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V 5tar-delta Ie A 11.5 400 V 5tar-delta <t< td=""><td></td></t<>	
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 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V star-delta Ie A 20 400 V 415 V Ie A 11.5 400 V star-delta Ie A 20	
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 Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V star-delta Ie A 11.5 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20	
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 7.5 500 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 Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V star-delta Ie A 11.5 400 V star-delta Ie A 11.5	
220 V 230 V 230 V Star-delta P	
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 7.5 500 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	
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 le A 11.5 230 V star-delta le A 20 400 V star-delta le A 20	
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 20 400 V Star-delta I _e A 20	
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 Ie A 11.5 230 V Star-delta Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20	
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 Ie A 11.5 230 V Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20	
690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20	
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 20 400 V 415 V I _e A 11.5 400 V star-delta I _e A 20	
Rated operational current motor load switch Ie A 11.5 230 V star-delta Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20	
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	
230 V star-delta	
400V 415 V	
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 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	
400 V 415 V I _e A 13.3	
500 V I _e A 13.3	
690 V I _e A 7.6	
DC C	

DC-1, Load-break switches L/R = 1 ms			
Rated operational current	l _e	Α	10
Voltage per contact pair in series		V	60
DC-21A	I _e	Α	
Rated operational current	I _e	Α	1
Contacts		Quantity	1
DC-23A, motor load switch L/R = 15 ms			
24 V			
Rated operational current	I _e	Α	10
Contacts		Quantity	1
48 V			
Rated operational current	I _e	Α	10
Contacts		Quantity	2
60 V			
Rated operational current	I _e	Α	10
Contacts		Quantity	3
120 V			
Rated operational current	I _e	Α	5
Contacts		Quantity	3
240 V			
Rated operational current	I _e	Α	5
Contacts		Quantity	5
DC-13, Control switches L/R = 50 ms			
Rated operational current	l _e	Α	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 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 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
Rating data for approved types			
Terminal capacity			
Torminal corow			M2 F

Terminal capacity		
Terminal screw	M3.5	

Design verification as per IEC/EN 61439Technical data for design verification

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 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			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 $ \frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{2} \left(\frac{1}{2} \right) \left($			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) / Off-load switch (EC001105)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Changeover switch (ecl@ss10.0.1-27-37-14-05 [AKF062013])

Model		Reverser
Number of poles		2
With 0 (off) position		Yes
With retraction in 0-position		No
Rated permanent current lu	Α	20
Rated operation current le at AC-3, 400 V	Α	11.5
Rated operation power at AC-3, 400 V	kW	4
Degree of protection (IP), front side		IP65
Degree of protection (NEMA), front side		Other
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		Yes
Suitable for front mounting 4-hole		No
Suitable for distribution board installation		No
Suitable for intermediate mounting		Yes
Complete device in housing		No
Material housing		Plastic
Type of control element		Other
Type of electrical connection of main circuit		Screw connection

Assets (links)

Declaration of CE Conformity

00003075