Changeoverswitches, T0, 20 A, surface mounting, 2 contact unit(s), Contacts: 4, 90  $^{\circ}$ , maintained, Without 0 (Off) position, 1-2, Design number 8221



Part no. T0-2-8221/I1

207104

**EL Number** 1456273

(Norway)

General specifications	
Product name	Eaton Moeller® series TO Changeover switch
Part no.	T0-2-8221/I1
EAN	4015082071042
Product Length/Depth	137 millimetre
Product height	102 millimetre
Product width	80 millimetre
Product weight	0.264 kilogram
Certifications	IEC/EN 60947-3 IEC/EN 60204 VDE 0660 IEC/EN 60947
Product Tradename	ТО
Product Type	Changeover switch
Product Sub Type	None
Catalog Notes	Rated Short-time Withstand Current (Icw) for a time of 1 second
Features & Functions	
Enclosure material	Plastic
Features	Complete device in housing
Fitted with:	Black thumb grip and front plate
Inscription	1-2
Number of poles	2
General information	
Degree of protection	IP65
Degree of protection (front side)	IP65 NEMA 12
Lifespan, mechanical	400,000 Operations
Model	Reverser
Mounting method	Surface mounting
Mounting position	As required
Number of contact units	2
Operating frequency	1200 Operations/h
Overvoltage category	III
Pollution degree	3
Rated impulse withstand voltage (Uimp)	6000 V AC
Safe isolation	440 V AC, Between the contacts, According to EN 61140
Safety parameter (EN ISO 13849-1)	B10d values as per EN ISO 13849-1, table C.1
Shock resistance	15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms
Suitable for	Ground mounting
Switching angle	90 °
Туре	Changeover switch
Climatic environmental conditions	
	-25 °C
Ambient operating temperature - min  Ambient operating temperature - max	-25 °C 40 °C
	-25 °C
Ambient operating temperature (enclosed) - min	-25 °C 40 °C
Ambient operating temperature (enclosed) - max	40 C

Terminal capacities	
Terminal capacity (flexible with ferrule)	1 x (0.75 - 2.5) mm², ferrules to DIN 46228
Terminal capacity (solid/stranded)	2 x (0.75 - 2.5) mm <sup>2</sup> , ferrules to DIN 46228
	2 x (1 - 2.5) mm <sup>2</sup>
Screw size	M3.5, Terminal screw
Tightening torque	1 Nm, Screw terminals 8.8 lb-in, Screw terminals
Electrical rating	
Rated breaking capacity at 220/230 V (cos phi to IEC 60947-3)	100 A
Rated breaking capacity at 400/415 V (cos phi to IEC 60947-3)	110 A
Rated breaking capacity at 500 V (cos phi to IEC 60947-3)	80 A
Rated breaking capacity at 660/690 V (cos phi to IEC 60947-3)	60 A
Rated operational current (le)	20 A at AC-3, 400 V star-delta 15.6 A at AC-3, 500 V star-delta 8.5 A at AC-3, 690 V star-delta 20 A at AC-3, 230 V star-delta
Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V	11.5 A
Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V	11.5 A
Rated operational current (Ie) at AC-3, 500 V	9 A
Rated operational current (Ie) at AC-3, 660 V, 690 V	4.9 A
Rated operational current (Ie) at AC-21, 440 V	20 A
Rated operational current (Ie) at AC-23A, 230 V	13.3 A
Rated operational current (Ie) at AC-23A, 400 V, 415 V	13.3 A
Rated operational current (Ie) at AC-23A, 500 V	13.3 A
Rated operational current (Ie) at AC-23A, 690 V	7.6 A
Rated operational current (le) at DC-1, load-break switches I/r = 1 ms	10 A
Rated operational current (Ie) at DC-13, control switches L/R = 50 ms	10 A
Rated operational current (Ie) at DC-21, 240 V	1 A
Rated operational current (Ie) at DC-23A, 24 V	10 A
Rated operational current (Ie) at DC-23A, 48 V	10 A
Rated operational current (Ie) at DC-23A, 60 V	10 A
Rated operational current (Ie) at DC-23A, 120 V	5 A
Rated operational current (Ie) at DC-23A, 240 V	5 A
Rated operational power at AC-3, 380/400 V, 50 Hz	4 kW
Rated operational power at AC-3, 415 V, 50 Hz	5.5 kW
Rated operational power at AC-3, 690 V, 50 Hz	4 kW
Rated operational power at AC-23A, 220/230 V, 50 Hz	3 kW
Rated operational power at AC-23A, 400 V, 50 Hz	5.5 kW
Rated operational power at AC-23A, 500 V, 50 Hz	7.5 kW
Rated operational power at AC-23A, 690 V, 50 Hz	5.5 kW
Rated operational power star-delta at 220/230 V, 50 Hz	5.5 kW
Rated operational power star-delta at 380/400 V, 50 Hz	7.5 kW
Rated operational power star-delta at 500 V, 50 Hz	7.5 kW
Rated operational power star-delta at 690 V, 50 Hz	5.5 kW
Rated operational voltage (Ue) at AC - max	690 V
Rated uninterrupted current (Iu)	20 A
Uninterrupted current	Rated uninterrupted current lu is specified for max. cross-section.
Short-circuit rating	
Rated conditional short-circuit current (Iq)	6 kA
Rated short-time withstand current (Icw)	320 A, Contacts, 1 second
Short-circuit protection rating	20 A gG/gL, Fuse, Contacts
Switching capacity	
Load rating	1.6 x l# (with intermittent operation class 12, 40 % duty factor) 1.3 x l# (with intermittent operation class 12, 60 % duty factor) 2 x l# (with intermittent operation class 12, 25 % duty factor)
Number of contacts in series at DC-21A, 240 V	1

observed.	Number of contacts in series at DC-23A, 48 V	2
Number of contacts in series at IDC-203, 240 V Reated making capacity up to 600 V (cos pla in IEC/TN 89847-31  Voltage per contact pair in series  Control:	Number of contacts in series at DC-23A, 60 V	3
Rated making capacity up to 860 V (cos phi to EC/EN 60947-3)  Voltage per contact to pair in series  Control Cricol resiliability  I failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA/  Number of auxiliary contacts (change-over contacts)  Number of oral auxiliary contacts (change-over contacts)  Number of oral auxiliary contacts (change-over contacts)  Actuator  Actuator Function  Actuator type  Besign verification  Exapinement bead dissipation, current-dependent Pvid  Heat dissipation capacity Pidiss  Need of dissipation accurrent dependent Pvid  Heat dissipation on projec, current dependent Pvid  Heat dissipation on projec, current dependent Pvid  Nated operational current for specificial those dissipation (pia)  Static heat dissipation, non-current dependent Pvis  Need operational on thermal stability of enclosures  Meets the product standard's requirements.  10.2.3.1 Verification of resistance of insulation materials to normal heat  10.2.3.2 Verification of resistance or insulation materials to normal heat  10.2.3.2 Verification of resistance or insulation materials to normal heat  10.2.3.1 Verification of resistance or insulation materials to normal heat  10.2.3.1 Verification of resistance to the vinident (IV) radiation  10.2.5 Lilling  Does not apply, since the entire switchigear needs to be evaluated.  10.2.7 Inscriptions  10.2.8 Degree of protection of assemblies  Does not apply, since the entire switchigear needs to be evaluated.  10.2.1 Personal electric accurates and compensate to the product standard's requirements.  10.2.1 Personal electric accurates and compensate to the evaluated of the product standard's requirements.  10.2.1 Personal electric accurates and compensate to the evaluated.  10.2 Personal electric accurates and compensate to the evaluated.  10.3 Internated electrical circuits and comections  1	Number of contacts in series at DC-23A, 120 V	3
Control circuit raliability Control circuit raliability Number of auxiliary contracts (change-over contacts) Number of auxiliary contracts (change-over contacts) Number of auxiliary contracts (change-over contacts) Number of rounding contracts (normally closed contracts) Number of rounding contracts (normally closed contracts) Number of rounding contracts (normally open contracts) Number of rounding contracts (normally open contracts) Number of contracts Actuator runcition Actuator function Actuator runcition Actuator ru	Number of contacts in series at DC-23A, 240 V	5
Control circuit raliability Control circuit raliability Number of auxiliary contracts (change-over contacts) Number of auxiliary contracts (change-over contacts) Number of auxiliary contracts (change-over contacts) Number of rounding contracts (normally closed contracts) Number of rounding contracts (normally closed contracts) Number of rounding contracts (normally open contracts) Number of rounding contracts (normally open contracts) Number of contracts Actuator runcition Actuator function Actuator runcition Actuator ru	Rated making capacity up to 690 V (cos phi to IEC/EN 60947-3)	130 A
Control circuit reliability  I failure per 100,000 switching operations statistically determined, at 24 V Dc, 10 mA  Number of auxiliary contacts (change-over contacts)  Number of auxiliary contacts (normally closed contacts)  Number of auxiliary contacts (normally closed contacts)  Number of contacts  Actuator  Actuator  Actuator Without D (Off) pastion  Equipment heat dissipation, current-dependent Pvid  Actuator ype  Design verification  Equipment heat dissipation, current-dependent Pvid  Neutrolisispation reports, current-dependent Pvid  Neutrolisispation reports, current-dependent Pvid  Retard operations or poin, current fvid pendent Pvid  Retard operations or point or poin		60 V
Number of auxiliary contacts (change-over contacts)  Number of auxiliary contacts (normally closed contacts)  Number of contacts  Actuator  Actuator  Actuator function  Actuator type  Design verification  Equipment heat dissipation, current-dependent Pvid  National dissipation part of packing the strength of the stre		
Number of auxiliary contacts (change-over contacts)  Number of auxiliary contacts (normally closed contacts)  Number of contacts  Actuator  Actuator  Actuator function  Actuator type  Design verification  Equipment heat dissipation, current-dependent Pvid  National dissipation part of packing the strength of the stre	Control circuit reliability	1 failure per 100 000 switching operations statistically determined at 24 V DC 10
Number of auxiliary contacts (normally closed contacts)  Unable of auxiliary contacts (normally open contacts)  Unable of contacts  Actuator function  Actuator function  Actuator rype  Design verification  Equipment heat dissipation, current-dependent Pvid  Heat dissipation capacity Pdiss  OW  Heat dissipation capacity Pdiss  OW  Rated operational current for specified heat dissipation (nor extract dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  OB W  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operational current for specified heat dissipation (nor current-dependent Pvid  Rated operation of sessionance of insulating material elect. effects  Design of product standard's requirements.  Design of product standard's requirements.  Refers the product standard's requirements.  Design of product standard's requirements.  Design of product standard's requirements.  Refers the product standard's requirement	Control of Color Condumity	
Number of auxiliary contacts (normally apen contacts)  Actuator  Actuator Actuator S  Actuator S  Actuator S  Actuator S  Actuator Pye Short function Short	Number of auxiliary contacts (change-over contacts)	0
Actuator Actuator function Actuator function Actuator function Actuator function Actualor type Short thumb-grip  Design verification Equipment heat dissipation, current-dependent Pvid Heat dissipation, current for specified heat dissipation (In)  20 A Static heat dissipation, current-dependent Pvid Heat dissipation, current-dependent Pvid Heat dissipation, current-dependent Pvid Heat dissipation, current for specified heat dissipation (In)  20 A Static heat dissipation, current-dependent Pvid Heat dissipation resistance of Invited Pvid Heat dissipation distored of requirements. Heat the product standard's requirements. Heat the unitive avoit requirements. Heat the unitive avo	Number of auxiliary contacts (normally closed contacts)	0
Actuator function  Actuator type  Design verification  Equipment heat dissipation, current-dependent Pvid  Heat dissipation, capacity Pdiss  Read operateonal current of specified heat dissipation (In)  Static heat dissipation, non-current-dependent Pvid  Rated operateonal current for specified heat dissipation (In)  Static heat dissipation, non-current-dependent Pvs  10.2.2 Corrosion resistance  Meets the product standard's requirements.  10.2.3.1 Verification of thermal stability of enclosures  10.2.3.2 Verification of resistance of insulating materials to normal heat  10.2.3.3 Resist of insul. mat. to abnormal heat/fire by internal elect. effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Mechanical impact  10.2.6 Mechanical impact  10.2.7 Inscriptions  Meets the product standard's requirements.  10.2.8 Operator apply, since the entire switchgear needs to be evaluated.  10.2.1 Inscriptions  Meets the product standard's requirements.  10.3 Operator of protection of assemblies  10.3 Operator apply, since the entire switchgear needs to be evaluated.  10.4 Clearances and creapage distances  Meets the product standard's requirements.  10.5 Protection against electric stock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Incorporation of switching devices and components  10.9 Protection against electric stock  10.9 Connections for external conductors  10.9 Protection against electric stock  10.9 Roser-frequency electric stock  10.9 Roser-frequency electric strength  10.1 Temperature rise  10.1 Temperature rise  10.2 Power-frequency electric strength  10.3 Impulse withstand voltage  10.4 It is panel builder's responsibility.  10.5 Incorporation of switc	Number of auxiliary contacts (normally open contacts)	0
Actuator function  Actuator type  Design verification  Equipment heat dissipation, current-dependent Pvid  Hoat dissipation apacity Pdriss  Not W  Read dissipation per pole, current-dependent Pvid  Static heat dissipation, non-current-dependent Pvid  10.2.2 Corresion resistance  Meets the product standard's requirements.  10.2.3.1 Verification of resistance of insulating materials to normal heat  10.2.3.2 Verification or resistance of insulating materials to normal heat  10.2.3.3 Resist of insul, mat, to abnormal heat/fire by internal elect, effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Meets the product standard's requirements.  10.2.7 Inscriptions  Meets the product standard's requirements.  10.2.8 Despendence only in connection with protective shield.  10.2.1 Resistance to ultra-violet (UV) radiation  10.2.2 Forestion of assembles  10.3 Designation of switching and easier the product standard's requirements.  10.4 Clearances and creepage distances  10.5 Protection of assembles  10.6 Designation of switching devices and components  10.7 Intranal electrical circuits and connections  10.8 Incorporation of switching devices and components  10.9 Reproduct standard's requirements.  10.9 Reproduct standard's requirements.  10.1 Reproduct standard's requirements.  10.8 Connections for exernal conductors  10.9 Reproduct standard's requirements.  10.9 Reproduct standard's repose switchpear needs to be evaluated.  10.9 Reproduct standard's requirements.  10.9 Reproduct standard's requirements.  10.9 Reproduct standard's requirements.  10.9 Reproduct standard's repose switchpear needs to be evaluated.  10.1 Reproduct stand	Number of contacts	4
Actuator type  Short thumb-grip  Design verification  Equipment heat dissipation, current-dependent Pvid  Heat dissipation capacity Pdias  Heat dissipation per pole, current-dependent Pvid  Bated operational current for specified heat dissipation (In)  Static heat dissipation, non-current-dependent Pvid  Design verification  Rated operational current for specified heat dissipation (In)  20 A  Static heat dissipation, non-current-dependent Pvis  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  10.2.3.3 Resist, of insul. mat. to abnormal heat fire by internal elect, effects  Meets the product standard's requirements.  10.2.4 Resistance to ultra-violet (IVI) radiation  10.2.5 Lifting  Does not apply, since the entire switchgear needs to be evaluated.  10.2.5 Inscriptions  Meets the product standard's requirements.  10.2.1 Inscriptions  Meets the product standard's requirements.  10.2.2 Power-from the entire switchgear needs to be evaluated.  10.3.1 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 Honcoproration of switching devices and components  Does not apply, since the entire switchgear needs to be evaluated.  10.7 Internal electric strength  10.8 Connections of external conductors  10.9 Protection against electric strength  10.9 Protection of external conductors  10.9 Protection of externa	Actuator	
Design verification  Equipment heat dissipation, current-dependent Pvid 0W  Heat dissipation especity Pdiss 0W  Heat dissipation especity Pdiss 0W  Rated operational current for specified heat dissipation (In) 20 A  Static heat dissipation, non-current-dependent Pvid 0W  10.22 Corrosion resistance 0West the product standard's requirements.  10.23.1 Verification of thermal stability of enclosures 0West the product standard's requirements.  10.23.2 Verification of resistance of insulating materials to normal heat 10.23.3 Resist of insul. mat. to abnormal heat/fire by internal elect. effects 10.24.2 Resistance to ultra-violet (UV) radiation 0UV resistance only in connection with protective shield.  10.25.2 Lifting 0Des not apply, since the entire switchgear needs to be evaluated.  10.26.6 Mechanical impact 0Des not apply, since the entire switchgear needs to be evaluated.  10.27.1 Inscriptions 10.3 Degree of protection of assemblies 0Des not apply, since the entire switchgear needs to be evaluated.  10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.7 Internal electric shock 10.8 Incorporation of switching devices and components 10.8 Connections for external conductors 10.8 Engage 10.1 Internal electric shock 10.8 Internal electric shock 10.8 Internal electric shock 10.8 Internal electric alternation internal electric shock 10.8 Internal electric shock 10.8 Internal electric shock 10.8 Internal electric shock 10.8 Internal electric shock 10	Actuator function	
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Heat dissipation capacity Pdiss Heat dissipation propole, current-dependent Pvid Rated operational current for specified heat dissipation (In) Static heat dissipation, non-current-dependent Pvs  0 W  10.22 Corrosion resistance 10.23.1 Verification of thermal stability of enclosures Meets the product standard's requirements.  10.23.2 Verification of resistance of insulating materials to normal heat Meets the product standard's requirements.  10.23.3 Resist, of insul. mat. to abnormal heat/fire by internal elect. effects Meets the product standard's requirements.  10.24.8 Resistance to ultra-violet (UV) radiation UV resistance only in connection with protective shield.  10.25 Lifting Does not apply, since the entire switchgear needs to be evaluated.  10.27 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 creapage distances Meets the product standard's requirements.  10.5 Incorporation of switching devices and components 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.  10.9.2 Power-frequency electric strength Is the panel builder's responsibility.  10.9.3 Inpulse withstand voltage Is the panel builder's responsibility.  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise The panel builder's responsibility.  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction	Design verification	
Heat dissipation per pole, current-dependent Pvid  Rated operational current for specified heat dissipation (In)  Static heat dissipation, non-current-dependent Pvs  0 W  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  10.2.3.2 Verification of resistance of insulating materials to normal heat  10.2.3.3 Resistance to ultra-violet (UV) radiation  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 Segree of protection of assemblies  10.4 Clearances and creepage distances  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Power-frequency electric strength  10.9 Power-frequency electric strength  10.9 Internal electrical circuits are defining material  10.10 Temperature rise  The panel builder's responsibility.  10.9 Testing of enclosures made of insulating material  10.10 Temperature rise  The panel builder's responsibility.  10.10 Temperature rise  The panel builder's responsibility.  10.11 Short-circuit rating  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction observed.	Equipment heat dissipation, current-dependent Pvid	0 W
Rated operational current for specified heat dissipation (In)  Static heat dissipation, non-current-dependent Pvs  0 W  10.22 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 Nerification of resistance of insulating materials to normal heat  10.2.3.3 Resists, of insul. mat. to abnormal heat/fire by internal elect. effects  10.2.4 Resistance to ultra-violet (IV) radiation  10.2.5 Lifting  10.2.5 Lifting  10.2.5 Lifting  10.2.7 Inscriptions  10.3.0 Begree of protection of assemblies  10.3.1 Resistances and creepage distances  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Power-frequency electric strength  10.9 Power-frequency electric strength  10.9 Inpulse withstand voltage  10.9.1 Resisting of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  Let be panel builder's responsibility.  10.10 Temperature rise  10.11 Short-circuit rating  Let be panel builder's responsibility. The specifications for the switchgear must be observed.  10.11 Short-circuit rating  Let be panel builder's responsibility. The specifications for the switchgear must be observed.  10.11 Short-circuit rating  Let be 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	Heat dissipation capacity Pdiss	0 W
Static heat dissipation, non-current-dependent Pvs  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  10.2.3.3 Resists of insul. mat. to abnormal heat/fire by internal elect. effects  10.2.4 Resistance of insulating materials to normal heat  10.2.5 Lifting  10.2.5 Lifting  10.2.5 Mechanical impact  10.2.7 Inscriptions  10.3 Degree of protection of assemblies  10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Power-frequency electric strength  10.9.2 Power-frequency electric is rength  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  10.14 Mechanical function  10.15 Incorporation of switching devices and components  10.10 Temperature rise  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.14 Mechanical function  10.15 Mechanical function  10.16 Revice meets the requirements.  10.17 Incorporation of switching devices and connections and connections are such passed an	Heat dissipation per pole, current-dependent Pvid	0.6 W
10.2.2 Corrosion resistance 10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of thermal stability of enclosures 10.2.3.2 Nerification of resistance of insulating materials to normal heat 10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.6 Mechanical impact 10.2.6 Mechanical impact 10.3.0 pose not apply, since the entire switchgear needs to be evaluated. 10.2.7 Inscriptions 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.8 Connections for external conductors 10.9 Power-frequency electric strength 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  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.  Is the panel builder's responsibility.  10.9.2 Power-frequency electric strength 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function  Meets the product standard's requirements.  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.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  10.13 Mechanical function	Rated operational current for specified heat dissipation (In)	20 A
10.2.3.1 Verification of thermal stability of enclosures  10.2.3.2 Verification of resistance of insulating materials to normal heat  10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Mechanical impact  10.2.7 Inscriptions  10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Power-frequency electric strength  10.9.1 Despire the panel builder's responsibility.  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  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.  10.6 Incorporation of switching devices and components  Does not apply, since the entire switchgear needs to be evaluated.  10.8 Lepanel builder's responsibility.  10.9 Power-frequency electric strength  Is the panel builder's responsibility.  10.9 Power-frequency electric strength  Is the panel builder's responsibility.  10.10 Temperature rise  The panel builder's responsibility. The specifications for the switchgear must be observed.  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  The device meets the requirements, provided the information in the instruction of the switchgear must be observed.	Static heat dissipation, non-current-dependent Pvs	0 W
10.2.32 Verification of resistance of insulating materials to normal heat 10.2.33 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.6 Mechanical impact 10.2.7 Inscriptions 10.3 Degree of protection of assemblies 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Power-frequency electric strength 10.9.1 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  Meets the product standard's requirements. 10.2 Does not apply, since the entire switchgear needs to be evaluated. 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Power-frequency electric strength 10.9 Incorporation of switching devices and engage distances 10.9 Power-frequency electric strength 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.14 Meets the product standard's requirements. 10.15 Meets the product standard's requirements. 10.16 meets the product standard's requirements. 10.17 Internal electric switchgear must be observed. 10.18 mechanical function 10.19 Mechanical function 10.19 Mechanical function 10.19 Mechanical function 10.10 Temperature rise requirements, provided the information in the instruction	10.2.2 Corrosion resistance	Meets the product standard's requirements.
10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Mechanical impact  10.2.6 Mechanical impact  10.2.7 Inscriptions  10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 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  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.  10.6 Incorporation of switching devices and components  Does not apply, since the entire switchgear needs to be evaluated.  10.6 Incorporation of switching devices and components  Is the panel builder's responsibility.  10.8 Connections for external conductors  Is the panel builder's responsibility.  10.9.1 The panel builder's responsibility.  10.9.2 Power-frequency electric strength  Is the panel builder's responsibility.  10.10 Temperature rise  10.11 Short-circuit rating  Is the panel builder's responsibility.  10.12 Electromagnetic compatibility  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction	10.2.3.1 Verification of thermal stability of enclosures	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.  10.2.7 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.  10.9.2 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's responsibility. The specifications for the switchgear must be observed.  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.	10.2.3.2 Verification of resistance of insulating materials to normal heat	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.  10.9.2 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 responsibility. The specifications for the switchgear must be observed.  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.	10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects	Meets the product standard's requirements.
10.2.6 Mechanical impact  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.  10.9.2 Power-frequency electric strength  Is the panel builder's responsibility.  10.9.3 Impulse withstand voltage  Is the panel builder's responsibility.  10.10 Temperature rise  The panel builder's responsibility.  10.11 Short-circuit rating  Is the panel builder's responsibility.  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	10.2.4 Resistance to ultra-violet (UV) radiation	UV resistance only in connection with protective shield.
10.27 Inscriptions  10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 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  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.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  In panel builder's responsibility.  In panel builder's responsibility.  In panel builder's responsibility.  In panel builder's responsibility.  The panel builder's responsibility. The specifications for the switchgear must be observed.  In the panel builder's responsibility. The specifications for the switchgear must be observed.  In the panel builder's responsibility. The specifications for the switchgear must be observed.	10.2.5 Lifting	Does not apply, since the entire switchgear needs to be evaluated.
10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  Meets the product standard's requirements.  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 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  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  In panel builder's responsibility.  Is the panel builder's responsibility.  In the panel	10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
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10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  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  10.15 Protection against electric shock  Does not apply, since the entire switchgear needs to be evaluated.  10.16 Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  The panel builder's responsibility.  The panel builder is responsibility.  Is the panel builder is responsibility.  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	10.3 Degree of protection of assemblies	Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components  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.  10.9.2 Power-frequency electric strength  1s the panel builder's responsibility.  1s the panel builder's responsibility. The specifications for the switchgear must be observed.  1s the panel builder's responsibility. The specifications for the switchgear must be observed.  1s the panel builder's responsibility. The specifications for the switchgear must be observed.  1s the panel builder's responsibility. The specifications for the switchgear must be observed.  1s the panel builder's responsibility. The specifications for the switchgear must be observed.	10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.7 Internal electrical circuits and connections  1.8 the panel builder's responsibility.  10.8 Connections for external conductors  1.9 the panel builder's responsibility.  10.9.2 Power-frequency electric strength  1.9 the panel builder's responsibility.  1.0 sthe panel builder is responsibility.  1.0 sthe panel builder's responsibility. The specifications for the switchgear must be observed.  1.0 sthe panel builder's responsibility. The specifications for the switchgear must be observed.  1.0 sthe panel builder's responsibility. The specifications for the switchgear must be observed.  1.0 sthe panel builder's responsibility. The specifications for the switchgear must be observed.  1.0 sthe panel builder's responsibility. The specifications for the switchgear must be observed.  1.0 sthe panel builder's responsibility. The specifications for the switchgear must be observed.  1.0 sthe 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  10.9.2 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  1 Is the panel builder's responsibility.  1 Is the panel builder's responsibility.  1 Is the panel builder's responsibility.  1 Is the panel builder is responsibility.  1 Is the panel builder is responsibility.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.	10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
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  1 Is the panel builder's responsibility.  1 Is the panel builder's responsibility.  1 Is the panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.	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  1 Is the panel builder's responsibility.  1 Is the panel builder's responsibility.  1 Is the panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.	10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  The panel builder's 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.
10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  The panel builder's 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.
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		
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	The panel builder is responsible for the temperature rise calculation. Eaton will
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 switchgear must be observed.
	10.13 Mechanical function	

## **Technical data ETIM 9.0**

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 / Load-break switch (ecl@ss13-27-37-14-05 [AKF062018])

Model		Reverser
Number of poles		2
With zero (off) position		No
With retraction in 0-position		No
Rated permanent current lu	А	20

Rated operation current le at AC-3, 400 V	А	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		12
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 floor mounting		Yes
Suitable for front mounting		No
Suitable for distribution board installation		No
Suitable for intermediate mounting		No
Complete device in housing		Yes
Housing material		Plastic
Type of control element		Short thumb-grip
Type of electrical connection of main circuit		Screw connection