

Changeoverswitches, TM, 10 A, centre mounting, 2 contact unit(s),  
Contacts: 4, 60 °, maintained, Without 0 (Off) position, 1-2, Design number  
8221



Part no. **TM-2-8221/EZ**  
**015197**

<b>General specifications</b>		
Product name		Eaton Moeller® series TM Changeover switch
Part no.		TM-2-8221/EZ
EAN		4015080151975
Product Length/Depth		87 millimetre
Product height		30 millimetre
Product width		30 millimetre
Product weight		0.043 kilogram
Certifications		IEC/EN 60947-3 UL CE VDE 0660 IEC/EN 60947-5-1 CSA UL report applies to both US and Canada IEC/EN 60947 UL Category Control No.: NLRV Certified by UL for use in Canada CSA-C22.2 No. 94 UL File No.: E36332 CSA-C22.2 No. 14-05 UL 508
Product Tradename		TM
Product Type		Changeover switch
Product Sub Type		None
<b>Features &amp; Functions</b>		
Enclosure material		Plastic
Fitted with:		Black thumb grip and front plate
Inscription		1-2
Number of poles		2
<b>General information</b>		
Degree of protection		IP65
Degree of protection (front side)		IP65 NEMA 12
Lifespan, mechanical		1,000,000 Operations
Model		Reverser
Mounting method		Center 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)		4000 V AC
Suitable for		Front mounting
Switching angle		60 °
Type		Changeover switch
<b>Climatic environmental conditions</b>		
Ambient operating temperature - min		-25 °C
Ambient operating temperature - max		50 °C
Climatic proofing		Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
<b>Terminal capacities</b>		
Terminal capacity (flexible with ferrule)		2 x 1.0 mm <sup>2</sup> , ferrules to DIN 46228

		1 x 1.0 mm <sup>2</sup> , ferrules to DIN 46228
Terminal capacity (flexible)		1 x 1.5 mm <sup>2</sup> 2 x 1.5 mm <sup>2</sup>
Terminal capacity (solid/flexible with ferrule AWG)		14
Terminal capacity (solid/stranded)		2 x 1,5 mm <sup>2</sup> 1 x 1.5 mm <sup>2</sup>
Screw size		M2.5, Terminal screw
Tightening torque		0.4 Nm, Screw terminals 3.5 lb-in, Screw terminals
<b>Electrical rating</b>		
Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V		0 A
Rated operational power at AC-3, 380/400 V, 50 Hz		2.2 kW
Rated operational power at AC-23A, 400 V, 50 Hz		3 kW
Rated operational voltage (Ue) at AC - max		500 V
Rated uninterrupted current (Iu)		10 A
Uninterrupted current		Rated uninterrupted current Iu is specified for max. cross-section.
<b>Short-circuit rating</b>		
Short-circuit protection rating		10 A gG/gL, Fuse, Contacts
<b>Switching capacity</b>		
Switching capacity (main contacts, general use)		10 A, Rated uninterrupted current max. (UL/CSA)
Switching capacity (auxiliary contacts, general use)		10A, IU, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)		A300 (UL/CSA)
<b>Motor rating</b>		
Assigned motor power at 115/120 V, 60 Hz, 1-phase		0.33 HP
Assigned motor power at 115/120 V, 60 Hz, 3-phase		0.75 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase		0.75 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase		1 HP
Assigned motor power at 277 V, 60 Hz, 1-phase		0.75 HP
<b>Contacts</b>		
Control circuit reliability		1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA)
Number of auxiliary contacts (change-over contacts)		0
Number of auxiliary contacts (normally closed contacts)		0
Number of auxiliary contacts (normally open contacts)		0
Number of contacts		4
<b>Actuator</b>		
Actuator function		Maintained Without 0 (Off) position
Actuator type		Short thumb-grip
<b>Design verification</b>		
Equipment heat dissipation, current-dependent Pvid		0 W
Heat dissipation capacity Pdis		0 W
Heat dissipation per pole, current-dependent Pvid		0.15 W
Rated operational current for specified heat dissipation (In)		10 A
Static heat dissipation, non-current-dependent Pvs		0 W
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 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 (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.
10.9.2 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 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 (ec!@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 I <sub>u</sub>		A	10
Rated operation current I <sub>e</sub> at AC-3, 400 V		A	0
Rated operation power at AC-3, 400 V		kW	2.2
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			No
Suitable for front mounting			Yes
Suitable for distribution board installation			No
Suitable for intermediate mounting			No
Complete device in housing			No
Housing material			Plastic
Type of control element			Short thumb-grip
Type of electrical connection of main circuit			Screw connection