Specifications





Eaton 091047

Eaton Moeller® series T0 Reversing switch, 20 A, flush mounting, 3 contact units, Contacts: 5, 60 °, maintained, 0 (Off) position, 1-0-2, Design number 8401

General specifications	
PRODUCT NAME	Eaton Moeller® series T0 Reversing switch
CATALOG NUMBER	091047
MODEL CODE	T0-3-8401/E
EAN	4015080910473
PRODUCT LENGTH/DEPTH	95 mm
PRODUCT HEIGHT	48 mm
PRODUCT WIDTH	48 mm
PRODUCT WEIGHT	0.121 kg
CERTIFICATIONS	UL File No.: E36332 CSA-C22.2 No. 94 IEC/EN 60204 UL IEC/EN 60947 UL Category Control No.: NLRV CSA File No.: 012528 CSA Class No.: 3211-05 CE UL 60947-4-1 IEC/EN 60947-3 CSA-C22.2 No. 60947-4-1-14 CSA VDE 0660
CATALOG NOTES	Rated Short-time Withstand Current (Icw) for a time of 1 second

Features & Functions

ENCLOSURE MATERIAL	Plastic
FITTED WITH:	0 (off) position Black thumb grip and front plate
INSCRIPTION	1-0-2
NUMBER OF POLES	3

General

DEGREE OF PROTECTION	IP65 NEMA 12 NEMA 1
DEGREE OF PROTECTION (FRONT SIDE)	IP65 NEMA 12
LIFESPAN, MECHANICAL	400,000 Operations
MODEL	Reversing switch
MOUNTING METHOD	Flush mounting
MOUNTING POSITION	As required
NUMBER OF CONTACT UNITS	3
OPERATING FREQUENCY	1200 Operations/h
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	3
PRODUCT CATEGORY	Control switches
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	Branch circuits, suitable as motor disconnect, (UL/CSA) Front mounting
SWITCHING ANGLE	60 °
TYPE	Reversing switch

Climatic environmental conditions

AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX	40 °C
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

Terminal capacities

TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	1 x (0.75 - 2.5) mm², ferrules to DIN 46228 2 x (0.75 - 2.5) mm², ferrules to DIN 46228
TERMINAL CAPACITY (SOLID/FLEXIBLE WITH FERRULE AWG)	18 - 14
TERMINAL CAPACITY (SOLID/STRANDED)	1 x (1 - 2.5) mm² 2 x (1 - 2.5) mm²
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 (IE)	20 A at AC-3, 400 V star-delta 8.5 A at AC-3, 690 V star-delta 20 A at AC-3, 230 V star-delta 15.6 A at AC-3, 500 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, 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 (IE) AT DC-1, LOAD-BREAK SWITCHES L/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-	10 A

Short-circuit rating

RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)	6 kA
SHORT-CIRCUIT CURRENT RATING (BASIC RATING)	5 kA, SCCR (UL/CSA) 50A, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT)	10 kA, SCCR (UL/CSA) 20 A, Class J, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT PROTECTION RATING	20 A gG/gL, Fuse, Contacts

23A, 48 V	
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 Iu is specified for max. cross-section.

Switching capacity

LOAD RATING	1.6 x I_e (with intermittent operation class 12, 40 % duty factor) 2 x I_e (with intermittent operation class 12, 25 % duty factor) 1.3 x I_e (with intermittent operation class 12, 60 % duty factor)
NUMBER OF CONTACTS IN SERIES AT DC-21A, 240 V	1
NUMBER OF CONTACTS IN SERIES AT DC-23A, 24 V	1
NUMBER OF CONTACTS IN SERIES AT DC-23A, 48 V	2
NUMBER OF CONTACTS IN SERIES AT DC-23A, 60 V	3
NUMBER OF CONTACTS IN SERIES AT DC-23A, 120 V	3
NUMBER OF CONTACTS IN SERIES AT DC-23A, 240 V	5
SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	16 A, Rated uninterrupted current max. (UL/CSA)
SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	16 A, Rated uninterrupted current max. (UL/CSA)
SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)	P300 (UL/CSA) A600 (UL/CSA)
RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947-3)	130 A
VOLTAGE PER CONTACT PAIR IN SERIES	60 V

Motor rating

ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE	0.5 HP
ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 1-PHASE	1 HP
ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE	3 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE	1.5 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE	3 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	7.5 HP
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE	7.5 HP

Contacts

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	5

Actuator

ACTUATOR FUNCTION	Maintained With 0 (Off) position
ACTUATOR TYPE	Short thumb-grip

Design verification

HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0.6 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	20 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.

Resources

BROCHURES	Brochure - T Rotary Cam switch and P Switch-disconnector
CATALOGUES	P Switch-disconnectors and T Rotary cam switches catalogue CA042001EN
DECLARATIONS OF CONFORMITY	eaton-step-switch-declaration-of-conformity-eu260187en.pdf eaton-step-switch-declaration-of-conformity-uk260198en.pdf
DRAWINGS	eaton-rotary-switches-mounting-t0-step-switch-dimensions-026.eps eaton-general-rotary-switch-t0-step-switch-symbol-002.eps eaton-rotary-switches-front-plate-t0-changeover-switch-symbol-009.eps eaton-rotary-switches-mounting-t0-changeover-switch-3d-drawing-002.eps
ECAD MODEL	ETN.091047.edz
INSTALLATION INSTRUCTIONS	IL03801020Z
INSTALLATION VIDEOS	Eaton's P Switch-disconnectors used in a factory
MCAD MODEL	DA-CS-t0_3_e
PRODUCT NOTIFICATIONS	MZ008006ZU_Orderform_Customized_Switch.pdf MZ008005ZU_Orderform_Customized_Switch.pdf
WIRING DIAGRAMS	eaton-rotary-switches-reversing-switch-t0-reversing-switch-wiring-diagram-002.eps

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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