# Specifications





## Eaton 034104

Eaton Moeller® series T0 Reversing multi-speed switch, 20 A, service distr. board mounting, 5 contact units, Contacts: 10, 60 °, maintained, 0 (Off) position, 2-1-0-1-2

| General specifications | |
|---|---|
| **PRODUCT NAME** | Eaton Moeller® series T0 Reversing multi-speed switch |
| **CATALOG NUMBER** | 034104 |
| **MODEL CODE** | T0-5-8453/IVS |
| **EAN** | 4015080341048 |
| **PRODUCT LENGTH/DEPTH** | 120 mm |
| **PRODUCT HEIGHT** | 55 mm |
| **PRODUCT WIDTH** | 54 mm |
| **PRODUCT WEIGHT** | 0.205 kg |
| **CERTIFICATIONS** | CSA-C22.2 No. 60947-4-1-14<br>UL Category Control No.: NLRV<br>UL File No.: E36332<br>CE<br>UL 60947-4-1<br>IEC/EN 60947<br>UL<br>CSA Class No.: 3211-05<br>VDE 0660<br>CSA<br>CSA-C22.2 No. 94<br>CSA File No.: 012528<br>IEC/EN 60204<br>IEC/EN 60947-3 |
| **CATALOG NOTES** | Rated Short-time Withstand Current (Icw) for a time of 1 second |
| **GLOBAL CATALOG** | 034104 |
| **PRODUCT TYPE** | Reversing multi-speed switch |

## Product specifications

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| **TYPE** | Reversing multi-speed switch |
| **PRODUCT CATEGORY** | Control switches |
| **ACTUATOR FUNCTION** | Maintained<br>With 0 (Off) position |
| **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. |
| **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** | 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** | Is the panel builder's |

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| **ELECTRICAL CIRCUITS AND CONNECTIONS** | 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. |
| **FITTED WITH:** | 0 (off) position<br>Black thumb grip and front plate |
| **OPERATING FREQUENCY** | 1200 Operations/h |
| **POLLUTION DEGREE** | 3 |
| **CLIMATIC PROOFING** | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| **ENCLOSURE MATERIAL** | Plastic |
| **RATED IMPULSE WITHSTAND VOLTAGE (UIMP)** | 6000 V AC |
| **ACTUATOR TYPE** | Short thumb-grip |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 50 °C |
| **AMBIENT OPERATING TEMPERATURE - MIN** | -25 °C |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX** | 40 °C |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN** | -25 °C |
| **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 |

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| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 0 W |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 0.6 W |
| **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 CONTACT UNITS** | 5 |
| **RATED SHORT-TIME WITHSTAND CURRENT (ICW)** | 320 A, Contacts, 1 second |
| **ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT** | Screw connection |
| **MOUNTING POSITION** | As required |
| **RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)** | 6 kA |
| **MOUNTING METHOD** | Service distribution board mounting |
| **OVERVOLTAGE CATEGORY** | III |
| **CONTROL CIRCUIT RELIABILITY** | 1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA) |
| **NUMBER OF POLES** | 3 |
| **DEGREE OF PROTECTION** | IP30 |
| **NUMBER OF CONTACTS** | 10 |
| **MODEL** | Pole switch |
| **DEGREE OF PROTECTION (FRONT SIDE)** | IP30<br>NEMA 2 |
| **INSCRIPTION** | 2-1-0-1-2 |
| **SWITCH FUNCTION TYPE** | 2 speeds, 2 separate windings |
| **LIFESPAN, MECHANICAL** | 400,000 Operations |
| **SAFE ISOLATION** | 440 V AC, Between the contacts, According to EN 61140 |
| **RATED OPERATIONAL CURRENT (IE)** | 20 A at AC-3, 230 V star-delta<br><br>15.6 A at AC-3, 500 V star-delta<br>20 A at AC-3, 400 V star-delta<br><br>8.5 A at AC-3, 690 V star- |

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| | delta |
| **SCREW SIZE** | M3.5, Terminal screw |
| **SHOCK RESISTANCE** | 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms |
| **LOAD RATING** | 1.6 x $I_e$ (with intermittent operation class 12, 40 % duty factor)<br>1.3 x $I_e$ (with intermittent operation class 12, 60 % duty factor)<br>2 x $I_e$ (with intermittent operation class 12, 25 % duty factor) |
| **SWITCHING CAPACITY (AUXILIARY CONTACTS, GENERAL USE)** | 10A, IU, (UL/CSA) |
| **TIGHTENING TORQUE** | 8.8 lb-in, Screw terminals<br>1 Nm, Screw terminals |
| **SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)** | A600 (UL/CSA)<br>P300 (UL/CSA) |
| **NUMBER OF CONTACTS IN SERIES AT DC-21A, 240 V** | 1 |
| **NUMBER OF CONTACTS IN SERIES AT DC-23A, 120 V** | 3 |
| **NUMBER OF CONTACTS IN SERIES AT DC-23A, 24 V** | 1 |
| **NUMBER OF CONTACTS IN SERIES AT DC-23A, 240 V** | 5 |
| **NUMBER OF CONTACTS IN SERIES AT DC-23A, 48 V** | 2 |
| **NUMBER OF CONTACTS IN SERIES AT DC-23A, 60 V** | 3 |
| **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 MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947-3)** | 130 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-21, 440 V** | 20 A |
| **RATED OPERATIONAL** | 13.3 A |

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| **CURRENT (IE) AT AC-23A, 230 V** | |
| **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 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 |
| **SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)** | 16 A, Rated uninterrupted current max. (UL/CSA) |
| **SAFETY PARAMETER (EN ISO 13849-1)** | B10d values as per EN ISO 13849-1, table C.1 |
| **SHORT-CIRCUIT PROTECTION RATING** | 20 A gG/gL, Fuse, Contacts |
| **TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)** | 1 x (0.75 - 2.5) mm², ferrules to DIN 46228<br>2 x (0.75 - 2.5) mm², ferrules to DIN 46228 |
| **SUITABLE FOR** | Distribution board installation<br>Ground mounting<br>Branch circuits, suitable as motor disconnect, (UL/CSA)<br>Front mounting |
| **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, 120 V** | 5 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-23A, 24 V** | 10 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-23A, 240 V** | 5 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-** | 10 A |

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| **23A, 48 V** | |
| **RATED OPERATIONAL CURRENT (IE) AT DC-23A, 60 V** | 10 A |
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 20 A |
| **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 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 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 |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 0 W |
| **SWITCHING ANGLE** | 60 ° |
| **VOLTAGE PER CONTACT PAIR IN SERIES** | 60 V |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT)** | 20 A, Class J, max. Fuse, SCCR (UL/CSA)<br>10 kA, SCCR (UL/CSA) |
| **SHORT-CIRCUIT CURRENT RATING (BASIC RATING)** | 5 kA, SCCR (UL/CSA)<br>50A, max. Fuse, SCCR (UL/CSA) |
| **TERMINAL CAPACITY** | 18 - 14 |

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| **(SOLID/FLEXIBLE WITH FERRULE AWG)** | |
| **TERMINAL CAPACITY (SOLID/STRANDED)** | 2 x (1 - 2.5) mm²<br>1 x (1 - 2.5) mm² |
| **UNINTERRUPTED CURRENT** | Rated uninterrupted current Iu is specified for max. cross-section. |
| **DESIGN** | 8453 |

## Resources

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| **BROCHURES** | Brochure - T Rotary Cam switch and P Switch-disconnector |
| **CATALOGS** | P Switch-disconnectors and T Rotary cam switches catalogue CA042001EN |
| **DECLARATIONS OF CONFORMITY** | eaton-step-switch-declaration-of-conformity-eu260187en.pdf<br><br>eaton-step-switch-declaration-of-conformity-uk260198en.pdf |
| **DRAWINGS** | eaton-rotary-switches-mounting-t0-step-switch-dimensions-006.eps<br><br>eaton-general-rotary-switch-t0-step-switch-symbol-005.eps<br><br>eaton-rotary-switches-front-plate-t0-step-switch-symbol-007.eps |
| **ECAD MODEL** | eaton-t0-reversing-multi-speed-switch-eplan-034104.edz |
| **INSTALLATION INSTRUCTIONS** | IL03801006Z |
| **INSTALLATION VIDEOS** | Eaton's P Switch-disconnectors used in a factory |
| **MCAD MODEL** | eaton-cam-switches-mcad-drawings-t0-5-ivs.dwg<br><br>DA-CS-t0_5_ivs |
| **PRODUCT NOTIFICATIONS** | MZ008006ZU_Orderform_Customized_Switch.pdf<br><br>MZ008005ZU_Orderform_Customized_Switch.pdf |
| **WIRING DIAGRAMS** | eaton-rotary-switches-t0-wiring-diagram-011.eps<br><br>eaton-rotary-switches-t0-wiring-diagram-012.eps |

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| **PROJECT NAME:** | |
| **PROJECT NUMBER:** | |
| **PREPARED BY:** | |
| **DATE:** | |

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