

## Eaton 013129

Eaton Moeller® series T0 step switch for heating, T0, 20 A, flush mounting, 3 contact unit(s), Contacts: 6, 60 °, maintained, With 0 (Off) position, 0-1-2-1+2, Design number 197

|                             |                                                                                                                                                                                                                                                           |
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|                             |                                                                                                                                                                                                                                                           |
| <b>PRODUCT NAME</b>         | Eaton Moeller® series T0 Step switch                                                                                                                                                                                                                      |
| <b>CATALOG NUMBER</b>       | 013129                                                                                                                                                                                                                                                    |
| <b>PRODUCT LENGTH/DEPTH</b> | 95 mm                                                                                                                                                                                                                                                     |
| <b>PRODUCT HEIGHT</b>       | 48 mm                                                                                                                                                                                                                                                     |
| <b>PRODUCT WIDTH</b>        | 48 mm                                                                                                                                                                                                                                                     |
| <b>PRODUCT WEIGHT</b>       | 0.127 kg                                                                                                                                                                                                                                                  |
| <b>CERTIFICATIONS</b>       | UL<br>CE<br>CSA<br>IEC/EN 60947<br>IEC/EN 60947-3<br>CSA Class No.: 3211-05<br>CSA-C22.2 No. 94<br>UL Category Control No.: NLRV<br>VDE 0660<br>CSA File No.: 012528<br>CSA-C22.2 No. 60947-4-1-14<br>IEC/EN 60204<br>UL 60947-4-1<br>UL File No.: E36332 |
| <b>CATALOG NOTES</b>        | Rated Short-time Withstand Current (Icw) for a time of 1 second                                                                                                                                                                                           |

| <b>TYPE</b>                                                                             | Step switch for heating                                                                                                          |
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| <b>ACTUATOR FUNCTION</b>                                                                | Maintained<br>With 0 (Off) position                                                                                              |
| <b>10.10 TEMPERATURE RISE</b>                                                           | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| <b>10.11 SHORT-CIRCUIT RATING</b>                                                       | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>                                              | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.13 MECHANICAL FUNCTION</b>                                                        | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |
| <b>10.2.2 CORROSION RESISTANCE</b>                                                      | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>                         | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>       | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b> | Meets the product standard's requirements.                                                                                       |
| <b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>                                 | UV resistance only in connection with protective shield.                                                                         |
| <b>10.2.5 LIFTING</b>                                                                   | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| <b>10.2.6 MECHANICAL IMPACT</b>                                                         | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| <b>10.2.7 INSCRIPTIONS</b>                                                              | Meets the product standard's requirements.                                                                                       |

|  | <a href="#">IL03801020Z</a>                                                      |
|--|----------------------------------------------------------------------------------|
|  | <a href="#">eaton-rotary-switches-t0-step-switch-wiring-diagram-013.eps</a>      |
|  | <a href="#">eaton-rotary-switches-t0-step-switch-wiring-diagram-014.eps</a>      |
|  | <a href="#">eaton-rotary-switches-mounting-t0-step-switch-dimensions-026.eps</a> |
|  | <a href="#">eaton-rotary-switches-front-plate-t0-step-switch-symbol-002.eps</a>  |

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| <b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>                  | Does not apply, since the entire switchgear needs to be evaluated.             |
| <b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>                   | Meets the product standard's requirements.                                     |
| <b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>                   | Does not apply, since the entire switchgear needs to be evaluated.             |
| <b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>   | Does not apply, since the entire switchgear needs to be evaluated.             |
| <b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>        | Is the panel builder's responsibility.                                         |
| <b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>                 | Is the panel builder's responsibility.                                         |
| <b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>                 | Is the panel builder's responsibility.                                         |
| <b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>                         | Is the panel builder's responsibility.                                         |
| <b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b> | Is the panel builder's responsibility.                                         |
| <b>FITTED WITH:</b>                                             | Black thumb grip and front plate<br>0 (off) position                           |
| <b>OPERATING FREQUENCY</b>                                      | 1200 Operations/h                                                              |
| <b>POLLUTION DEGREE</b>                                         | 3                                                                              |
| <b>CLIMATIC PROOFING</b>                                        | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>                   | 6000 V AC                                                                      |
| <b>RATED UNINTERRUPTED CURRENT (IU)</b>                         | 20 A                                                                           |
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>       | 0 W                                                                            |
| <b>SWITCHING ANGLE</b>                                          | 60 °                                                                           |
| <b>VOLTAGE PER CONTACT PAIR IN SERIES</b>                       | 60 V                                                                           |
| <b>WIDTH IN NUMBER OF MODULAR SPACINGS</b>                      | 0                                                                              |
| <b>PRODUCT CATEGORY</b>                                         | Control switches                                                               |

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| <b>NUMBER OF POLES</b>                                    | Three-pole                |
| <b>RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ</b>      | 5.5 kW                    |
| <b>DEVICE CONSTRUCTION</b>                                | Built-in device           |
| <b>SWITCH TYPE</b>                                        | Level switch              |
| <b>RATED SHORT-TIME WITHSTAND CURRENT (ICW)</b>           | 320 A, Contacts, 1 second |
| <b>ACTUATOR TYPE</b>                                      | Toggle                    |
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b>                | 50 °C                     |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b>                | -25 °C                    |
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b>     | 40 °C                     |
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b>     | -25 °C                    |
| <b>ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE</b>  | 0.5 HP                    |
| <b>ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 1-PHASE</b>  | 1 HP                      |
| <b>ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE</b>  | 3 HP                      |
| <b>ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE</b>  | 1.5 HP                    |
| <b>ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE</b>  | 3 HP                      |
| <b>ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE</b>  | 7.5 HP                    |
| <b>ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE</b>  | 7.5 HP                    |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b> | 0 W                       |
| <b>MOUNTING POSITION</b>                                  | As required               |
| <b>MOUNTING METHOD</b>                                    | Flush mounting            |
| <b>RATED CONDITIONAL SHORT-CIRCUIT CURRENT</b>            | 6 kA                      |

|                                                          |                                                                                         |
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| <b>(IQ)</b>                                              |                                                                                         |
| <b>DEGREE OF PROTECTION</b>                              | NEMA 12<br>NEMA 1<br>IP65                                                               |
| <b>OVERVOLTAGE CATEGORY</b>                              | III                                                                                     |
| <b>CONTROL CIRCUIT RELIABILITY</b>                       | 1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA) |
| <b>DEGREE OF PROTECTION (FRONT SIDE)</b>                 | IP65<br>NEMA 12                                                                         |
| <b>NUMBER OF CONTACTS</b>                                | 6                                                                                       |
| <b>SUITABLE FOR</b>                                      | Branch circuits, suitable as motor disconnect, (UL/CSA)<br>Front mounting               |
| <b>HEAT DISSIPATION CAPACITY PDISS</b>                   | 0 W                                                                                     |
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b> | 0.6 W                                                                                   |
| <b>NUMBER OF CONTACT UNITS</b>                           | 3                                                                                       |
| <b>NUMBER OF CONTACTS IN SERIES AT DC-21A, 240 V</b>     | 1                                                                                       |
| <b>NUMBER OF CONTACTS IN SERIES AT DC-23A, 120 V</b>     | 3                                                                                       |
| <b>NUMBER OF CONTACTS IN SERIES AT DC-23A, 24 V</b>      | 1                                                                                       |
| <b>NUMBER OF CONTACTS IN SERIES AT DC-23A, 240 V</b>     | 5                                                                                       |
| <b>FRONT SHIELD SIZE</b>                                 | 48x48 mm                                                                                |
| <b>SAFE ISOLATION</b>                                    | 440 V AC, Between the contacts, According to EN 61140                                   |
| <b>SCREW SIZE</b>                                        | M3.5, Terminal screw                                                                    |
| <b>INSCRIPTION</b>                                       | 0-1-2-1+2                                                                               |
| <b>SHOCK RESISTANCE</b>                                  | 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms           |
| <b>LIFESPAN, MECHANICAL</b>                              | 400,000 Operations                                                                      |
| <b>NUMBER OF SWITCH POSITIONS</b>                        | 5                                                                                       |

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| <b>LOAD RATING</b>                                                   | 1.3 x I <sub>e</sub> (with intermittent operation class 12, 60 % duty factor)<br>1.6 x I <sub>e</sub> (with intermittent operation class 12, 40 % duty factor)<br>2 x I <sub>e</sub> (with intermittent operation class 12, 25 % duty factor) |
| <b>SWITCHING CAPACITY (AUXILIARY CONTACTS, GENERAL USE)</b>          | 10A, IU, (UL/CSA)                                                                                                                                                                                                                             |
| <b>SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)</b>           | A600 (UL/CSA)<br>P300 (UL/CSA)                                                                                                                                                                                                                |
| <b>NUMBER OF CONTACTS IN SERIES AT DC-23A, 48 V</b>                  | 2                                                                                                                                                                                                                                             |
| <b>NUMBER OF CONTACTS IN SERIES AT DC-23A, 60 V</b>                  | 3                                                                                                                                                                                                                                             |
| <b>RATED BREAKING CAPACITY AT 220/230 V (COS PHI TO IEC 60947-3)</b> | 100 A                                                                                                                                                                                                                                         |
| <b>RATED BREAKING CAPACITY AT 400/415 V (COS PHI TO IEC 60947-3)</b> | 110 A                                                                                                                                                                                                                                         |
| <b>RATED BREAKING CAPACITY AT 500 V (COS PHI TO IEC 60947-3)</b>     | 80 A                                                                                                                                                                                                                                          |
| <b>RATED BREAKING CAPACITY AT 660/690 V (COS PHI TO IEC 60947-3)</b> | 60 A                                                                                                                                                                                                                                          |
| <b>RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947-3)</b> | 130 A                                                                                                                                                                                                                                         |
| <b>RATED OPERATING VOLTAGE (UE) AT AC - MAX</b>                      | 690 V                                                                                                                                                                                                                                         |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-21, 440 V</b>                | 20 A                                                                                                                                                                                                                                          |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-23A, 230 V</b>               | 13.3 A                                                                                                                                                                                                                                        |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-23A, 400 V, 415 V</b>        | 13.3 A                                                                                                                                                                                                                                        |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-23A, 500 V</b>               | 13.3 A                                                                                                                                                                                                                                        |

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| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-23A,<br/>690 V</b>                            | 7.6 A                                              |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-3,<br/>220 V, 230 V, 240 V</b>                | 11.5 A                                             |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-3,<br/>380 V, 400 V, 415 V</b>                | 11.5 A                                             |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-3,<br/>500 V</b>                              | 9 A                                                |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-3,<br/>660 V, 690 V</b>                       | 4.9 A                                              |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-1,<br/>LOAD-BREAK SWITCHES<br/>L/R = 1 MS</b> | 10 A                                               |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-13,<br/>CONTROL SWITCHES L/R<br/>= 50 MS</b>  | 10 A                                               |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-21,<br/>240 V</b>                             | 1 A                                                |
| <b>SWITCHING CAPACITY<br/>(MAIN CONTACTS,<br/>GENERAL USE)</b>                            | 16 A, Rated uninterrupted<br>current max. (UL/CSA) |
| <b>SAFETY PARAMETER (EN<br/>ISO 13849-1)</b>                                              | B10d values as per EN ISO<br>13849-1, table C.1    |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-23A,<br/>120 V</b>                            | 5 A                                                |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-23A,<br/>24 V</b>                             | 10 A                                               |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-23A,<br/>240 V</b>                            | 5 A                                                |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-23A,<br/>48 V</b>                             | 10 A                                               |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-23A,<br/>60 V</b>                             | 10 A                                               |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) STAR-<br/>DELTA AT AC-3, 230 V</b>                  | 20 A                                               |
| <b>RATED OPERATIONAL</b>                                                                  | 20 A                                               |

|                                                                      |                                                                                                                            |
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| <b>CURRENT (IE) STAR-DELTA AT AC-3, 400 V</b>                        |                                                                                                                            |
| <b>RATED OPERATIONAL CURRENT (IE) STAR-DELTA AT AC-3, 500 V</b>      | 15.6 A                                                                                                                     |
| <b>RATED OPERATIONAL CURRENT (IE) STAR-DELTA AT AC-3, 690 V</b>      | 8.5 A                                                                                                                      |
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 20 A                                                                                                                       |
| <b>RATED OPERATIONAL POWER AT AC-23A, 220/230 V, 50 HZ</b>           | 3 kW                                                                                                                       |
| <b>RATED OPERATIONAL POWER AT AC-23A, 400 V, 50 HZ</b>               | 5.5 kW                                                                                                                     |
| <b>RATED OPERATIONAL POWER AT AC-23A, 500 V, 50 HZ</b>               | 7.5 kW                                                                                                                     |
| <b>RATED OPERATIONAL POWER AT AC-23A, 690 V, 50 HZ</b>               | 5.5 kW                                                                                                                     |
| <b>RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ</b>                 | 5.5 kW                                                                                                                     |
| <b>RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ</b>                 | 4 kW                                                                                                                       |
| <b>RATED OPERATIONAL POWER STAR-DELTA AT 220/230 V, 50 HZ</b>        | 5.5 kW                                                                                                                     |
| <b>RATED OPERATIONAL POWER STAR-DELTA AT 380/400 V, 50 HZ</b>        | 7.5 kW                                                                                                                     |
| <b>RATED OPERATIONAL POWER STAR-DELTA AT 500 V, 50 HZ</b>            | 7.5 kW                                                                                                                     |
| <b>RATED OPERATIONAL POWER STAR-DELTA AT 690 V, 50 HZ</b>            | 5.5 kW                                                                                                                     |
| <b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>                     | 1 x (0.75 - 2.5) mm <sup>2</sup> ,<br>ferrules to DIN 46228<br>2 x (0.75 - 2.5) mm <sup>2</sup> ,<br>ferrules to DIN 46228 |
| <b>SHORT-CIRCUIT CURRENT RATING (BASIC RATING)</b>                   | 5 kA, SCCR (UL/CSA)<br>50A, max. Fuse, SCCR (UL/CSA)                                                                       |
| <b>SHORT-CIRCUIT CURRENT RATING (HIGH FAULT)</b>                     | 10 kA, SCCR (UL/CSA)<br>20 A, Class J, max. Fuse,                                                                          |

|                                                            |                                                                                 |
|------------------------------------------------------------|---------------------------------------------------------------------------------|
|                                                            | SCCR (UL/CSA)                                                                   |
| <b>SHORT-CIRCUIT PROTECTION RATING</b>                     | 20 A gG/gL, Fuse, Contacts                                                      |
| <b>TERMINAL CAPACITY (SOLID/FLEXIBLE WITH FERRULE AWG)</b> | 18 - 14                                                                         |
| <b>TERMINAL CAPACITY (SOLID/STRANDED)</b>                  | 1 x (1 - 2.5) mm <sup>2</sup><br>2 x (1 - 2.5) mm <sup>2</sup>                  |
| <b>TIGHTENING TORQUE</b>                                   | 1 Nm, Screw terminals<br>8.8 lb-in, Screw terminals                             |
| <b>UNINTERRUPTED CURRENT</b>                               | Rated uninterrupted current I <sub>u</sub> is specified for max. cross-section. |
| <b>DESIGN</b>                                              | 197                                                                             |

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| <b>PROJECT NAME:</b>   |
| <b>PROJECT NUMBER:</b> |
| <b>PREPARED BY:</b>    |
| :                      |



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