

# Specifications



Photo is representative



## Eaton 222628

Eaton Moeller® series T0 Step switch for heating, 20 A, surface mounting, 2 contact units, Contacts: 3, 60 °, maintained, 0 (Off) position, 0-3, Design number 96

### General specifications

|                             |                                                                 |
|-----------------------------|-----------------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller® series T0 Step switch                            |
| <b>CATALOG NUMBER</b>       | 222628                                                          |
| <b>MODEL CODE</b>           | T0-2-96/11                                                      |
| <b>EAN</b>                  | 4015082226282                                                   |
| <b>PRODUCT LENGTH/DEPTH</b> | 137 mm                                                          |
| <b>PRODUCT HEIGHT</b>       | 102 mm                                                          |
| <b>PRODUCT WIDTH</b>        | 80 mm                                                           |
| <b>PRODUCT WEIGHT</b>       | 0.264 kg                                                        |
| <b>CERTIFICATIONS</b>       | VDE 0660<br>IEC/EN 60947-3<br>IEC/EN 60947<br>IEC/EN 60204      |
| <b>CATALOG NOTES</b>        | Rated Short-time Withstand Current (Icw) for a time of 1 second |

## Actuator

|                          |                                     |
|--------------------------|-------------------------------------|
| <b>ACTUATOR FUNCTION</b> | Maintained<br>With 0 (Off) position |
| <b>ACTUATOR TYPE</b>     | Short thumb-grip                    |

## Contacts

|                                                                |                                                                                         |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>CONTROL CIRCUIT RELIABILITY</b>                             | 1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA) |
| <b>NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)</b>     | 0                                                                                       |
| <b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b> | 0                                                                                       |
| <b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>   | 0                                                                                       |
| <b>NUMBER OF CONTACTS</b>                                      | 3                                                                                       |

## Climatic environmental conditions

|                                                       |                                                                                |
|-------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b>            | 40 °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>CLIMATIC PROOFING</b>                              | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78 |

## Design verification

|                                                                                         |                                                                                                                                  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <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.                         |
| <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>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>            | 0 W                                                                |
| <b>HEAT DISSIPATION CAPACITY PDISS</b>                               | 0 W                                                                |
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>             | 0.6 W                                                              |
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 20 A                                                               |
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>            | 0 W                                                                |

## Electrical rating

|                                                                              |       |
|------------------------------------------------------------------------------|-------|
| <b>RATED BREAKING<br/>CAPACITY AT 220/230 V<br/>(COS PHI TO IEC 60947-3)</b> | 100 A |
|------------------------------------------------------------------------------|-------|

|                                                                              |       |
|------------------------------------------------------------------------------|-------|
| <b>RATED BREAKING<br/>CAPACITY AT 400/415 V<br/>(COS PHI TO IEC 60947-3)</b> | 110 A |
|------------------------------------------------------------------------------|-------|

|                                                                          |      |
|--------------------------------------------------------------------------|------|
| <b>RATED BREAKING<br/>CAPACITY AT 500 V (COS<br/>PHI TO IEC 60947-3)</b> | 80 A |
|--------------------------------------------------------------------------|------|

|                                                                              |      |
|------------------------------------------------------------------------------|------|
| <b>RATED BREAKING<br/>CAPACITY AT 660/690 V<br/>(COS PHI TO IEC 60947-3)</b> | 60 A |
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|                                           |                                                                                                                                                         |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RATED OPERATIONAL<br/>CURRENT (IE)</b> | 20 A at AC-3, 230 V star-<br>delta<br>20 A at AC-3, 400 V star-<br>delta<br>8.5 A at AC-3, 690 V star-<br>delta<br>15.6 A at AC-3, 500 V star-<br>delta |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                               |      |
|---------------------------------------------------------------|------|
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-21,<br/>440 V</b> | 20 A |
|---------------------------------------------------------------|------|

|                                                                |        |
|----------------------------------------------------------------|--------|
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-23A,<br/>230 V</b> | 13.3 A |
|----------------------------------------------------------------|--------|

|                                                                       |        |
|-----------------------------------------------------------------------|--------|
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-23A,<br/>400 V, 415 V</b> | 13.3 A |
|-----------------------------------------------------------------------|--------|

|                                                                |        |
|----------------------------------------------------------------|--------|
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT AC-23A,<br/>500 V</b> | 13.3 A |
|----------------------------------------------------------------|--------|

|                                                                |       |
|----------------------------------------------------------------|-------|
| <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</b> | 10 A |
|--------------------------|------|

## Features & functions

|                           |         |
|---------------------------|---------|
| <b>ENCLOSURE MATERIAL</b> | Plastic |
|---------------------------|---------|

|                 |                               |
|-----------------|-------------------------------|
| <b>FEATURES</b> | Complete device in<br>housing |
|-----------------|-------------------------------|

|                     |                                                         |
|---------------------|---------------------------------------------------------|
| <b>FITTED WITH:</b> | 0 (off) position<br>Black thumb grip and<br>front plate |
|---------------------|---------------------------------------------------------|

|                    |     |
|--------------------|-----|
| <b>INSCRIPTION</b> | 0-3 |
|--------------------|-----|

|                        |   |
|------------------------|---|
| <b>NUMBER OF POLES</b> | 1 |
|------------------------|---|

|                                                                       |        |
|-----------------------------------------------------------------------|--------|
| <b>CURRENT (IE) AT DC-13,<br/>CONTROL SWITCHES L/R<br/>= 50 MS</b>    |        |
| <b>RATED OPERATIONAL<br/>CURRENT (IE) AT DC-21,<br/>240 V</b>         | 1 A    |
| <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/>POWER AT AC-23A,<br/>220/230 V, 50 HZ</b>    | 3 kW   |
| <b>RATED OPERATIONAL<br/>POWER AT AC-23A, 400 V,<br/>50 HZ</b>        | 5.5 kW |
| <b>RATED OPERATIONAL<br/>POWER AT AC-23A, 500 V,<br/>50 HZ</b>        | 7.5 kW |
| <b>RATED OPERATIONAL<br/>POWER AT AC-23A, 690 V,<br/>50 HZ</b>        | 5.5 kW |
| <b>RATED OPERATIONAL<br/>POWER AT AC-3, 380/400<br/>V, 50 HZ</b>      | 4 kW   |
| <b>RATED OPERATIONAL<br/>POWER AT AC-3, 415 V, 50<br/>HZ</b>          | 5.5 kW |
| <b>RATED OPERATIONAL<br/>POWER AT AC-3, 690 V, 50<br/>HZ</b>          | 4 kW   |
| <b>RATED OPERATIONAL<br/>POWER STAR-DELTA AT<br/>220/230 V, 50 HZ</b> | 5.5 kW |
| <b>RATED OPERATIONAL<br/>POWER STAR-DELTA AT<br/>380/400 V, 50 HZ</b> | 7.5 kW |
| <b>RATED OPERATIONAL<br/>POWER STAR-DELTA AT<br/>500 V, 50 HZ</b>     | 7.5 kW |
| <b>RATED OPERATIONAL<br/>POWER STAR-DELTA AT</b>                      | 5.5 kW |

|                                                   |                                                                     |
|---------------------------------------------------|---------------------------------------------------------------------|
| <b>690 V, 50 HZ</b>                               |                                                                     |
| <b>RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX</b> | 690 V                                                               |
| <b>RATED UNINTERRUPTED CURRENT (IU)</b>           | 20 A                                                                |
| <b>UNINTERRUPTED CURRENT</b>                      | Rated uninterrupted current Iu is specified for max. cross-section. |

| General information                           |                                                                               |
|-----------------------------------------------|-------------------------------------------------------------------------------|
| <b>DEGREE OF PROTECTION</b>                   | IP65                                                                          |
| <b>DEGREE OF PROTECTION (FRONT SIDE)</b>      | IP65<br>NEMA 12                                                               |
| <b>LIFESPAN, MECHANICAL</b>                   | 400,000 Operations                                                            |
| <b>MODEL</b>                                  | Reverser                                                                      |
| <b>MOUNTING METHOD</b>                        | Surface mounting                                                              |
| <b>MOUNTING POSITION</b>                      | As required                                                                   |
| <b>NUMBER OF CONTACT UNITS</b>                | 2                                                                             |
| <b>OPERATING FREQUENCY</b>                    | 1200 Operations/h                                                             |
| <b>OVERVOLTAGE CATEGORY</b>                   | III                                                                           |
| <b>POLLUTION DEGREE</b>                       | 3                                                                             |
| <b>PRODUCT CATEGORY</b>                       | Control switches                                                              |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b> | 6000 V AC                                                                     |
| <b>SAFE ISOLATION</b>                         | 440 V AC, Between the contacts, According to EN 61140                         |
| <b>SAFETY PARAMETER (EN ISO 13849-1)</b>      | B10d values as per EN ISO 13849-1, table C.1                                  |
| <b>SHOCK RESISTANCE</b>                       | 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms |
| <b>SUITABLE FOR</b>                           | Ground mounting<br>Front mounting                                             |
| <b>SWITCHING ANGLE</b>                        | 60 °                                                                          |
| <b>TYPE</b>                                   | Step switch for heating                                                       |

| Short-circuit rating                                |                            |
|-----------------------------------------------------|----------------------------|
| <b>RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)</b> | 6 kA                       |
| <b>RATED SHORT-TIME WITHSTAND CURRENT (ICW)</b>     | 320 A, Contacts, 1 second  |
| <b>SHORT-CIRCUIT PROTECTION RATING</b>              | 20 A gG/gL, Fuse, Contacts |

## Switching capacity

|                    |                                                                               |
|--------------------|-------------------------------------------------------------------------------|
| <b>LOAD RATING</b> | 2 x I <sub>e</sub> (with intermittent operation class 12, 25 % duty factor)   |
|                    | 1.3 x I <sub>e</sub> (with intermittent operation class 12, 60 % duty factor) |
|                    | 1.6 x I <sub>e</sub> (with intermittent operation class 12, 40 % duty factor) |
|                    |                                                                               |

### 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 MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947-3)

130 A

### VOLTAGE PER CONTACT PAIR IN SERIES

60 V

## Terminal capacities

### SCREW SIZE

M3.5, Terminal screw

### TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)

1 x (0.75 - 2.5) mm<sup>2</sup>,  
ferrules to DIN 46228  
2 x (0.75 - 2.5) mm<sup>2</sup>,  
ferrules to DIN 46228

### TERMINAL CAPACITY (SOLID/STRANDED)

1 x (1 - 2.5) mm<sup>2</sup>  
2 x (1 - 2.5) mm<sup>2</sup>

### TIGHTENING TORQUE

1 Nm, Screw terminals

## Resources

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BROCHURES                        | <a href="#">Brochure - T Rotary Cam switch and P Switch-disconnector</a>                                                                                                                                                                                                                                                                                                                             |
| CATALOGUES                       | <a href="#">P Switch-disconnectors and T Rotary cam switches catalogue CA042001EN</a>                                                                                                                                                                                                                                                                                                                |
| DECLARATIONS<br>OF<br>CONFORMITY | <a href="#">eaton-step-switch-declaration-of-conformity-uk251327en.pdf</a><br><a href="#">eaton-step-switch-declaration-of-conformity-eu250844en.pdf</a>                                                                                                                                                                                                                                             |
| DRAWINGS                         | <a href="#">eaton-rotary-switches-dimensions-t0-step-switch-dimensions.eps</a><br><a href="#">eaton-rotary-switches-t0-changeover-switch-dimensions.eps</a><br><a href="#">eaton-general-totally-insulated-t0-main-switch-symbol.eps</a><br><a href="#">eaton-rotary-switches-front-plate-t0-step-switch-symbol-022.eps</a><br><a href="#">eaton-general-rotary-switch-t0-step-switch-symbol.eps</a> |
| ECAD MODEL                       | <a href="#">DA-CE-ETN.T0-2-96_I1</a>                                                                                                                                                                                                                                                                                                                                                                 |
| INSTALLATION<br>INSTRUCTIONS     | <a href="#">IL03801007Z2021_06.pdf</a>                                                                                                                                                                                                                                                                                                                                                               |
| INSTALLATION<br>VIDEOS           | <a href="#">Eaton's P Switch-disconnectors used in a factory</a>                                                                                                                                                                                                                                                                                                                                     |
| MCAD MODEL                       | <a href="#">DA-CS-bauform2</a><br><a href="#">eaton-molded-case-switches-mcad-drawings-bauform2.dwg</a>                                                                                                                                                                                                                                                                                              |
| PRODUCT<br>NOTIFICATIONS         | <a href="#">MZ008006ZU_Orderform_Customized_Switch.pdf</a><br><a href="#">MZ008005ZU_Orderform_Customized_Switch.pdf</a>                                                                                                                                                                                                                                                                             |
| WIRING<br>DIAGRAMS               | <a href="#">eaton-rotary-switches-t0-step-switch-wiring-diagram-005.eps</a><br><a href="#">eaton-rotary-switches-t0-step-switch-wiring-diagram-006.eps</a>                                                                                                                                                                                                                                           |

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



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