# Specifications





## Eaton 277817

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 22 kW, 24 V 50 Hz, AC operation, Screw terminals

| General specifications | |
|---|---|
| **PRODUCT NAME** | Eaton Moeller® series DILM contactor |
| **CATALOG NUMBER** | 277817 |
| **MODEL CODE** | DILM50(24V50HZ) |
| **EAN** | 4015082778170 |
| **PRODUCT LENGTH/DEPTH** | 132.1 mm |
| **PRODUCT HEIGHT** | 115 mm |
| **PRODUCT WIDTH** | 55 mm |
| **PRODUCT WEIGHT** | 0.872 kg |
| **COMPLIANCES** | CE Marked |
| **CERTIFICATIONS** | EN 60947-4-1<br>IEC 60947-4-1<br>CSA Std. C22.2 No. 14-05<br>UL 508<br>VDE<br>IEC/EN 60947<br>UL<br>UL 60947-4-1<br>UL Category Control No.: NLDX<br>IEC/EN 60947-4-1<br>CSA-C22.2 No. 60947-4-1-14<br>CE<br>VDE 0660<br>CSA Class No.: 2411-03, 3211-04<br>CSA File No.: 012528<br>UL File No.: E29096<br>CSA |
| **CATALOG NOTES** | Contacts according to EN 50012 |

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## Ambient conditions, mechanical

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|---|---|
| **SHOCK RESISTANCE** | 7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms<br>7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms<br>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms |

## Climatic environmental conditions

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| **ALTITUDE** | Max. 2000 m |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 60 °C |
| **AMBIENT STORAGE TEMPERATURE - MAX** | 80 °C |
| **AMBIENT OPERATING TEMPERATURE - MIN** | -25 °C |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX** | 40 °C |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN** | -25 °C |
| **AMBIENT STORAGE TEMPERATURE - MIN** | -40 °C |
| **CLIMATIC PROOFING** | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78 |

## Communication

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| **CONNECTION TO SMARTWIRE-DT** | No |

## Contacts

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| **NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)** | 3 |
| **NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)** | 0 |
| **NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)** | 0 |
| **NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT** | 0 |

## Conventional thermal current Ith

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|---|---|
| **CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)** | 145 A |
| **CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)** | 58 A |
| **CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)** | 68 A |
| **CONVENTIONAL THERMAL CURRENT ITH AT 60°C (3-POLE, OPEN)** | 65 A |
| **CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)** | 162 A |

## Design verification

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| **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** | Does not apply, since the |

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| **AGAINST ELECTRIC SHOCK** | 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. |
| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 9.9 W |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 3.3 W |
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 50 A |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 4.1 W |

| Electrical rating | |
|---|---|
| **RATED BREAKING CAPACITY AT 220/230 V** | 500 A |
| **RATED BREAKING CAPACITY AT 380/400 V** | 500 A |
| **RATED BREAKING CAPACITY AT 500 V** | 500 A |
| **RATED BREAKING CAPACITY AT 660/690 V** | 320 A |
| **RATED INSULATION VOLTAGE (UI)** | 690 V |
| **RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947)** | 700 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V** | 80 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V** | 50 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V** | 50 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V** | 50 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V** | 50 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V** | 32 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V** | 21 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V** | 21 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V** | 21 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V** | 17 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V** | 50 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V** | 45 A |

| Electro magnetic compatibility | |
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| **EMITTED INTERFERENCE** | According to EN 60947-1 |
| **INTERFERENCE IMMUNITY** | According to EN 60947-1 |

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| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V** | 60 A |
| **RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ** | 17 kW |
| **RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ** | 22 kW |
| **RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ** | 30 kW |
| **RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ** | 32 kW |
| **RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ** | 36 kW |
| **RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ** | 30 kW |
| **RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ** | 6 kW |
| **RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ** | 6.5 kW |
| **RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ** | 11 kW |
| **RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ** | 12 kW |
| **RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ** | 13 kW |
| **RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ** | 14 kW |
| **RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX** | 690 V |

## Features & functions

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| **NUMBER OF POLES** | Three-pole |

## General information

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| **APPLICATION** | Contactors for Motors |
| **CONNECTION** | Screw terminals |
| **DEGREE OF PROTECTION** | IP00 |
| **LIFESPAN, MECHANICAL** | 10,000,000 Operations (AC operated) |
| **OPERATING FREQUENCY** | 5000 mechanical |

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|---|---|
| | Operations/h (AC operated) |
| **OVERVOLTAGE CATEGORY** | III |
| **POLLUTION DEGREE** | 3 |
| **PRODUCT CATEGORY** | Contactors |
| **PROTECTION** | Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274) |
| **RATED IMPULSE WITHSTAND VOLTAGE (UIMP)** | 8000 V AC |
| **RESISTANCE PER POLE** | 1.9 mΩ |
| **SUITABLE FOR** | Also motors with efficiency class IE3 |
| **UTILIZATION CATEGORY** | AC-3: Normal AC induction motors: starting, switch off during running<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching<br>AC-1: Non-inductive or slightly inductive loads, resistance furnaces |
| **VOLTAGE TYPE** | AC |
| **FRAME SIZE** | FS3 |

## Magnet system

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| **ARCING TIME** | 10 ms |
| **DROP-OUT VOLTAGE** | AC operated: 0.6 - 0.3 x UC, AC operated |
| **DUTY FACTOR** | 100 % |
| **PICK-UP VOLTAGE** | 0.8 - 1.1 V AC x Uc |
| **POWER CONSUMPTION, PICK-UP, 50 HZ** | 149 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz |
| **POWER CONSUMPTION, PICK-UP, 60 HZ** | 178 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz |
| **POWER CONSUMPTION, SEALING, 50 HZ** | 4.1 W, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz<br>16 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz |
| **POWER CONSUMPTION, SEALING, 60 HZ** | 19 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz<br>4.1 W, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX** | 24 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN** | 24 V |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX** | 18 ms |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN** | 12 ms |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX** | 13 ms |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN** | 8 ms |

## Motor rating

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| **ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE** | 3 HP |
| **ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE** | 15 HP |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE** | 10 HP |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE** | 20 HP |
| **ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE** | 40 HP |
| **ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE** | 50 HP |

## Safety

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| **SAFE ISOLATION** | 440 V AC, Between the contacts, According to EN 61140<br>440 V AC, Between coil and contacts, According to EN 61140 |

## Short-circuit rating

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| **SHORT-CIRCUIT CURRENT RATING (BASIC RATING)** | 5 kA, 250 A max. fuse, SCCR (UL/CSA)<br>5 kA, 250 A max. CB, SCCR (UL/CSA) |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)** | 100 kA, 150 A CLASS J max. fuse, SCCR (UL/CSA)<br>65 kA, 100 A max. CB, SCCR (UL/CSA) |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)** | 100 kA, 150 A CLASS J max. fuse, SCCR (UL/CSA) |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 400 V** | 160 A gG/gL |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 690 V** | 80 A gG/gL |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 400 V** | 80 A gG/gL |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 690 V** | 63 A gG/gL |

## Special purpose ratings

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| **SPECIAL PURPOSE RATING OF ELEVATOR CONTROL** | 10 HP, 200 V 60 Hz 3-ph, (UL/CSA)<br>40 A, 480 V 60 Hz 3-ph, (UL/CSA)<br>32.2 A, 200 V 60 Hz 3-ph, (UL/CSA)<br>30 HP, 480 V 60 Hz 3-ph, (UL/CSA)<br>42 A, 240 V 60 Hz 3-ph, (UL/CSA)<br>15 HP, 240 V 60 Hz 3-ph, (UL/CSA)<br>40 HP, 600 V 60 Hz 3-ph, (UL/CSA)<br>41 A, 600 V 60 Hz 3-ph, (UL/CSA) |
| **SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING** | 79 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)<br>79 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) |
| **SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS** | 74 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)<br>74 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) |
| **SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS** | 79 A (480V 60Hz 3phase, 277V 60Hz 1phase)<br>79 A (600V 60Hz 3phase, 347V 60Hz 1phase) |

## Switching capacity

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| **SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)** | 80 A, Maximum motor rating (UL/CSA) |

## Terminal capacities

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| **SCREW SIZE** | M3.5, Terminal screw, Control circuit cables<br>M6, Terminal screw, Main cables |
| **SCREWDRIVER SIZE** | 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver<br>2, Terminal screw, Pozidriv screwdriver |
| **STRIPPING LENGTH (CONTROL CIRCUIT CABLE)** | 10 mm |
| **STRIPPING LENGTH (MAIN CABLE)** | 14 mm |
| **TERMINAL CAPACITY (COPPER BAND)** | 2 x (6 x 9 x 0.8) mm (Number of segments x width x thickness), Main cables |
| **TERMINAL CAPACITY (SOLID)** | 2 x (0.75 - 2.5) mm², Control circuit cables<br>2 x (0.75 - 16) mm², Main cables<br>1 x (0.75 - 16) mm², Main cables<br>1 x (0.75 - 4) mm², Control circuit cables |
| **TERMINAL CAPACITY (STRANDED)** | 1 x (16 - 50) mm², Main cables<br>2 x (16 - 35) mm², Main cables |
| **TIGHTENING TORQUE** | 1.2 Nm, Screw terminals, Control circuit cables<br>3.3 Nm, Screw terminals, Main cables |
| **TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)** | 1 x (0.75 - 2.5) mm², Control circuit cables<br>2 x (0.75 - 2.5) mm², Control circuit cables<br>2 x (0.75 - 25) mm², Main cables<br>1 x (0.75 - 35) mm², Main cables |
| **TERMINAL CAPACITY (SOLID/STRANDED AWG)** | 18 - 14, Control circuit cables<br>Single 14 - 1, double 14 - 2, Main cables |

## Resources

| | |
|---|---|
| CATALOGUES | eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf |
| CHARACTERISTIC CURVE | eaton-contactors-component-dilm-characteristic-curve-003.eps<br><br>eaton-contactors-switch-dilm-characteristic-curve-002.eps<br><br>eaton-contactors-switch-dilm-characteristic-curve.eps |
| DECLARATIONS OF CONFORMITY | eaton-contactor-declaration-of-conformity-eu250742en.pdf<br><br>eaton-contactor-declaration-of-conformity-uk251225en.pdf |
| DRAWINGS | eaton-contactors-mounting-dilm-dimensions-002.eps<br><br>eaton-contactors-mounting-dilm-dimensions.eps<br><br>eaton-contactors-dilm-dimensions-002.eps<br><br>eaton-contactors-dilm-dimensions-012.eps<br><br>eaton-contactors-dilm-3d-drawing-011.eps<br><br>eaton-general-ie-ready-dilm-contactor-standards.eps<br><br>eaton-contactors-mounting-dilm-3d-drawing.eps |
| ECAD MODEL | ETN.277817.edz |
| INSTALLATION INSTRUCTIONS | IL03407033Z |
| INSTALLATION VIDEOS | WIN-WIN with push-in technology |
| MCAD MODEL | eaton-iec-contactors-mcad-drawings-dil-m40-65-22.dwg<br><br>DA-CS-dil_m40_72 |

| | |
|---|---|
| PEP ECO-PASSPORT | eaton-iec-contactors-pep-eato-00126-v0101-en.pdf |
| SYSTEM OVERVIEW | eaton-contactors-dilm-contactor-system-overview.eps |
| WIRING DIAGRAMS | eaton-contactors-contact-dilm-wiring-diagram-003.eps |

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

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