# Eaton 277904

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 30 kW, TVC100: 100 V 50 Hz/100-110 V 60 Hz, AC operation, Screw terminals

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| **PRODUCT NAME** | Eaton Moeller® series DILM contactor |
| **CATALOG NUMBER** | 277904 |
| **PRODUCT LENGTH/DEPTH** | 132.1 mm |
| **PRODUCT HEIGHT** | 115 mm |
| **PRODUCT WIDTH** | 55 mm |
| **PRODUCT WEIGHT** | 0.872 kg |
| **CERTIFICATIONS** | IEC/EN 60947-4-1<br>CSA File No.: 012528<br>CE<br>UL File No.: E29096<br>UL Category Control No.: NLDX<br>UL<br>CSA Class No.: 2411-03, 3211-04<br>IEC/EN 60947<br>VDE 0660<br>UL 508<br>CSA-C22.2 No. 14-05<br>CSA |
| **CATALOG NOTES** | Contacts according to EN 50012 |

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| **NUMBER OF POLES** | Three-pole |
| **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** | Does not apply, since the entire switchgear needs to |

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| **CHARACTERISTIC CURVE** | eaton-contactors-switch-dilm-characteristic-curve-002.eps<br>eaton-contactors-switch-dilm-characteristic-curve.eps |
| | IL03407033Z |
| | eaton-contactors-contact-dilm-wiring-diagram-003.eps |
| | eaton-contactors-dilm-dimensions-002.eps |

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| **ASSEMBLIES** | 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. |
| **OPERATING FREQUENCY** | 5000 mechanical Operations/h (AC operated) |
| **POLLUTION DEGREE** | 3 |
| **CLIMATIC PROOFING** | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| **CONNECTION TO SMARTWIRE-DT** | No |
| **RATED IMPULSE WITHSTAND VOLTAGE (UIMP)** | 8000 V AC |
| **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 |
| **CONNECTION** | Screw terminals |
| **FRAME SIZE** | FS3 |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 60 °C |
| **AMBIENT OPERATING** | -25 °C |

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| **TEMPERATURE - MIN** | |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX** | 40 °C |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN** | 25 °C |
| **AMBIENT STORAGE TEMPERATURE - MAX** | 80 °C |
| **AMBIENT STORAGE TEMPERATURE - MIN** | 40 °C |
| **ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE** | 5 HP |
| **ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE** | 20 HP |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE** | 15 HP |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE** | 25 HP |
| **ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE** | 50 HP |
| **ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE** | 60 HP |
| **CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)** | 180 A |
| **CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)** | 72 A |
| **CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)** | 83 A |
| **CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)** | 200 A |
| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 17.1 W |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 5.7 W |

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| **APPLICATION** | Contactors for Motors |
| **PRODUCT CATEGORY** | Contactors |
| **PROTECTION** | Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274) |
| **ARCING TIME** | 10 ms |
| **ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT** | Screw connection |
| **SCREWDRIVER SIZE** | 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver<br>2, Terminal screw, Pozidriv screwdriver |
| **VOLTAGE TYPE** | AC |
| **DEGREE OF PROTECTION** | IP00 |
| **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 |
| **NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)** | 3 |
| **RATED BREAKING CAPACITY AT 220/230 V** | 650 A |
| **RATED BREAKING CAPACITY AT 380/400 V** | 650 A |
| **RATED BREAKING CAPACITY AT 500 V** | 650 A |
| **RATED BREAKING CAPACITY AT 660/690 V** | 370 A |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX** | 100 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN** | 100 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX** | 110 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60** | 100 V |

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| **HZ - MIN** | |
| **DROP-OUT VOLTAGE** | AC operated: 0.6 - 0.3 x UC, AC operated |
| **OVERVOLTAGE CATEGORY** | III |
| **DUTY FACTOR** | 100 % |
| **EMITTED INTERFERENCE** | According to EN 60947-1 |
| **INTERFERENCE IMMUNITY** | According to EN 60947-1 |
| **LIFESPAN, MECHANICAL** | 10,000,000 Operations (AC operated) |
| **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 |
| **SAFE ISOLATION** | 440 V AC, Between the contacts, According to EN 61140<br>440 V AC, Between coil and contacts, According to EN 61140 |
| **POWER CONSUMPTION, PICK-UP, 60 HZ** | 178 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz |
| **SCREW SIZE** | M6, Terminal screw, Main cables<br>M3.5, Terminal screw, Control circuit cables |
| **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** | 4.1 W, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz<br>19 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz |
| **TERMINAL CAPACITY (STRANDED)** | 2 x (16 - 35) $mm^2$, Main cables<br>1 x (16 - 50) $mm^2$, Main cables |
| **TERMINAL CAPACITY (COPPER BAND)** | 2 x (6 x 9 x 0.8) mm (Number of segments x width x thickness), Main cables |
| **TERMINAL CAPACITY (FLEXIBLE WITH** | 1 x (0.75 - 35) $mm^2$, Main cables |

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| **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 |
| **SHOCK RESISTANCE** | 10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, 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>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>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 |
| **TERMINAL CAPACITY (SOLID)** | 1 x (0.75 - 16) mm², Main cables<br>2 x (0.75 - 16) mm², Main cables<br>1 x (0.75 - 4) mm², Control circuit cables<br>2 x (0.75 - 2.5) mm², Control circuit cables |
| **TERMINAL CAPACITY (SOLID/STRANDED AWG)** | Single 14 - 1, double 14 - 2, Main cables<br>18 - 14, Control circuit cables |
| **SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)** | 88 A, Maximum motor rating (UL/CSA) |
| **TIGHTENING TORQUE** | 3.3 Nm, Screw terminals, Main cables<br>1.2 Nm, Screw terminals, Control circuit cables |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT DC -** | 0 V |

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| **MAX** | |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN** | 0 V |
| **RATED INSULATION VOLTAGE (UI)** | 690 V |
| **RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947)** | 910 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V** | 98 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V** | 65 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V** | 65 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V** | 65 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V** | 65 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V** | 37 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V** | 25 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V** | 25 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V** | 25 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V** | 25 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V** | 20 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V** | 72 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V** | 65 A |
| **RATED OPERATIONAL** | 72 A |

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| **CURRENT (IE) AT DC-1, 60 V** | |
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 65 A |
| **RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ** | 22 kW |
| **RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ** | 30 kW |
| **RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ** | 39 kW |
| **RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ** | 7 kW |
| **RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ** | 7.5 kW |
| **RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ** | 12 kW |
| **RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ** | 13 kW |
| **RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ** | 14 kW |
| **RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ** | 16 kW |
| **RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ** | 17 kW |
| **RATED OPERATIONAL POWER (NEMA)** | 37 kW |
| **RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX** | 690 V |
| **RESISTANCE PER POLE** | 1.9 mΩ |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 4.1 W |
| **STRIPPING LENGTH (CONTROL CIRCUIT CABLE)** | 10 mm |
| **STRIPPING LENGTH (MAIN CABLE)** | 14 mm |

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| **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 |
| **SHORT-CIRCUIT CURRENT RATING (BASIC RATING)** | 250 A, max. CB, SCCR (UL/CSA)<br>250 A, max. Fuse, SCCR (UL/CSA)<br>10 kA, SCCR (UL/CSA) |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)** | 65 kA, CB, SCCR (UL/CSA)<br>100 A, max. CB, SCCR (UL/CSA)<br>30/100 kA, Fuse, SCCR (UL/CSA)<br>250/150 A, Class J, max. Fuse, SCCR (UL/CSA) |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)** | 30 kA, CB, SCCR (UL/CSA)<br>250/150 A, Class J, max. Fuse, SCCR (UL/CSA)<br>250 A, max. CB, SCCR (UL/CSA)<br>30/100 kA, Fuse, SCCR (UL/CSA) |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 400 V** | 250 A gG/gL |
| **SUITABLE FOR** | Also motors with efficiency class IE3 |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 690 V** | 100 A gG/gL |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 400 V** | 125 A gG/gL |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION)** | 80 A gG/gL |

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| **AT 690 V** | |
| **SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS** | 88 A (480V 60Hz 3phase, 277V 60Hz 1phase)<br>88 A (600V 60Hz 3phase, 347V 60Hz 1phase) |
| **SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING** | 390 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)<br>65 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) |
| **SPECIAL PURPOSE RATING OF ELEVATOR CONTROL** | 42 A, 240 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>40 HP, 600 V 60 Hz 3-ph, (UL/CSA)<br>15 HP, 240 V 60 Hz 3-ph, (UL/CSA)<br>41 A, 600 V 60 Hz 3-ph, (UL/CSA)<br>10 HP, 200 V 60 Hz 3-ph, (UL/CSA)<br>30 HP, 480 V 60 Hz 3-ph, (UL/CSA) |
| **SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING** | 88 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)<br>88 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) |
| **SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS** | 88 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)<br>88 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) |
| **CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)** | 98 A |
| **CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)** | 88 A |
| **CONVENTIONAL THERMAL CURRENT ITH AT 60°C (3-POLE, OPEN)** | 80 A |
| **RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ** | 41 kW |
| **RATED OPERATIONAL POWER AT AC-3, 500 V, 50** | 47 kW |

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| **HZ** | |
| **RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ** | 35 kW |
| **ACTUATING VOLTAGE** | TVC100: 100 V 50 Hz/100-110 V 60 Hz |
| **ALTITUDE** | Max. 2000 m |
| **OPERATING VOLTAGE AT AC, 50 HZ - MIN** | 230 V |
| **OPERATING VOLTAGE AT AC, 50 HZ - MAX** | 690 V |
| **OPERATING VOLTAGE AT AC, 60 HZ - MIN** | 230 V |
| **OPERATING VOLTAGE AT AC, 60 HZ - MAX** | 690 V |

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

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