# Specifications

## Eaton 104460

Eaton Moeller® series DILMF Contactors for Semiconductor Industries acc. to SEMI F47, 380 V 400 V: 40 A, RAC 120: 100 - 120 V 50/60 Hz, Screw terminals

### General specifications

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| **PRODUCT NAME** | Eaton Moeller® series DILMF contactor for semiconductor industries |
| **CATALOG NUMBER** | 104460 |
| **MODEL CODE** | DILMF40(RAC120) |
| **EAN** | 4015081042777 |
| **PRODUCT LENGTH/DEPTH** | 132.1 mm |
| **PRODUCT HEIGHT** | 115 mm |
| **PRODUCT WIDTH** | 55 mm |
| **PRODUCT WEIGHT** | 1.04 kg |
| **CERTIFICATIONS** | UL<br>UL File No.: E29096<br>CSA-C22.2 No. 60947-4-1-14<br>CSA File No.: 012528<br>CSA<br>IEC/EN 60947-4-1<br>UL 60947-4-1<br>UL Category Control No.: NLDX<br>CE<br>CSA Class No.: 2411-03, 3211-04 |
| **CATALOG NOTES** | Also tested according to AC-3e. |
| **GLOBAL CATALOG** | 104460 |

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## Product specifications

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| **ELECTRICAL CONNECTION TYPE FOR AUXILIARY- AND CONTROL-CURRENT CIRCUIT** | Screw connection |
| **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. |

## Resources

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| **CATALOGS** | SmartWire-DT Catalog<br>eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf<br>Product Range Catalog Switching and protecting motors |
| **CHARACTERISTIC CURVE** | eaton-contactors-short-time-loading-dilm-characteristic-curve.eps<br>eaton-contactors-component-dilm-characteristic-curve-003.eps |
| **DECLARATIONS OF CONFORMITY** | DA-DC-00004817.pdf<br>DA-DC-00004782.pdf |
| **DRAWINGS** | eaton-contactors-mounting-dilm-dimensions.eps<br>eaton-contactors-dilm-dimensions-002.eps<br>eaton-contactors-dilm-dimensions-012.eps<br>eaton-contactors-dilm-3d-drawing-011.eps<br>eaton-general-ie-ready-dilm-contactor-standards.eps |
| **ECAD MODEL** | ETN.104460.edz |
| **INSTALLATION INSTRUCTIONS** | IL03407033Z |
| **INSTALLATION VIDEOS** | WIN-WIN with push-in technology |
| **MCAD MODEL** | DA-CS-dil_m40_72<br>DA-CD-dil_m40_72 |
| **SYSTEM OVERVIEW** | eaton-contactors-circuit-breaker-dilmf-explosion-drawing.eps<br>eaton-contactors-mounting-dilmf-explosion-drawing.eps |
| **WIRING DIAGRAMS** | eaton-contactors-contact-dilm-wiring-diagram-003.eps |

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| **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 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. |
| **FITTED WITH:** | Built-in suppressor circuit |
| **POLLUTION DEGREE** | 3 |
| **UTILIZATION CATEGORY** | AC-3: Normal AC induction motors: starting, switch off during running<br>AC-1: Non-inductive or slightly inductive loads, resistance furnaces<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
| **CONNECTION** | Screw terminals |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 60 °C |
| **AMBIENT OPERATING TEMPERATURE - MIN** | -25 °C |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX** | 40 °C |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN** | -25 °C |
| **AMBIENT STORAGE** | 80 °C |

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| **TEMPERATURE - MAX** | |
| **AMBIENT STORAGE TEMPERATURE - MIN** | -40 °C |
| **ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE** | 3 HP |
| **ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE** | 10 HP |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE** | 7.5 HP |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE** | 15 HP |
| **ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE** | 30 HP |
| **ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE** | 40 HP |
| **CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)** | 112 A |
| **CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)** | 45 A |
| **CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)** | 125 A |
| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 6.6 W |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 2.2 W |
| **APPLICATION** | Contactors for Semiconductor Industries acc. to SEMI F47 |
| **PRODUCT CATEGORY** | Contactors |
| **ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT** | Screw connection |
| **VOLTAGE TYPE** | AC |
| **NUMBER OF AUXILIARY CONTACTS (NORMALLY** | 0 |

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| **CLOSED CONTACTS)** | |
| **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 CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX** | 120 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN** | 100 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX** | 120 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN** | 100 V |
| **DROP-OUT VOLTAGE** | AC operated: 0.5 - 0.2 x UC, AC operated |
| **OVERVOLTAGE CATEGORY** | III |
| **DUTY FACTOR** | 100 % |
| **EMITTED INTERFERENCE** | According to EN 60947-1 |
| **INTERFERENCE IMMUNITY** | According to EN 60947-1 |
| **PICK-UP VOLTAGE** | 0.8 - 1.15 V AC x Uc |
| **POWER CONSUMPTION, PICK-UP, 50 HZ** | 45 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz |
| **POWER CONSUMPTION, SEALING, 50 HZ** | 1.3 W, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz<br>1.5 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz |
| **SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)** | 63 A, Maximum motor rating (UL/CSA) |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX** | 0 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN** | 0 V |

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| **RATED INSULATION VOLTAGE (UI)** | 690 V |
| **RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V** | 60 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V** | 40 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V** | 40 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V** | 40 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V** | 40 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V** | 25 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V** | 18 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V** | 18 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V** | 18 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V** | 18 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V** | 14 A |
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 40 A |
| **RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ** | 13.5 kW |
| **RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ** | 18.5 kW |
| **RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ** | 24 kW |
| **RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ** | 5 kW |

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| **RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ** | 5.5 kW |
| **RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ** | 9 kW |
| **RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ** | 9.5 kW |
| **RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ** | 10 kW |
| **RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ** | 11 kW |
| **RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ** | 12 kW |
| **RATED OPERATIONAL POWER (NEMA)** | 22 kW |
| **RESISTANCE PER POLE** | 1.86 mΩ |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 1.3 W |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX** | 50 ms |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX** | 45 ms |
| **SHORT-CIRCUIT CURRENT RATING (BASIC RATING)** | 250 A, max. CB, SCCR (UL/CSA)<br>10 kA, SCCR (UL/CSA)<br>250 A, max. Fuse, SCCR (UL/CSA) |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)** | 30/100 kA, Fuse, SCCR (UL/CSA)<br>250/150 A, Class J, max. Fuse, SCCR (UL/CSA)<br>100 A, max. CB, SCCR (UL/CSA)<br>65 kA, CB, SCCR (UL/CSA) |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)** | 30/100 kA, Fuse, SCCR (UL/CSA)<br>250/150 A, Class J, max. Fuse, SCCR (UL/CSA)<br>250 A, max. CB, SCCR (UL/CSA) |

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| | 30 kA, CB, SCCR (UL/CSA) |
| **SUITABLE FOR** | SEMI F47, Magnet systems<br><br>Also motors with efficiency class IE3 |
| **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) |
| **SPECIAL PURPOSE RATING OF ELEVATOR CONTROL** | 25.3 A, 200 V 60 Hz 3-ph, (UL/CSA)<br>34 A, 480 V 60 Hz 3-ph, (UL/CSA)<br>32 A, 600 V 60 Hz 3-ph, (UL/CSA)<br>28 A, 240 V 60 Hz 3-ph, (UL/CSA)<br>25 HP, 480 V 60 Hz 3-ph, (UL/CSA)<br>7.5 HP, 200 V 60 Hz 3-ph, (UL/CSA)<br>10 HP, 240 V 60 Hz 3-ph, (UL/CSA)<br>30 HP, 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) |
| **CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)** | 60 A |
| **CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)** | 57 A |
| **CONVENTIONAL THERMAL CURRENT ITH AT 60°C (3-POLE, OPEN)** | 50 A |
| **RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ** | 25 kW |
| **RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ** | 28 kW |

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| **RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ** | 23 kW |
| **ACTUATING VOLTAGE** | RAC 120: 100 - 120 V 50/60 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:** | |
| **DATE:** | |

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