**DILE MINI CONTACTOR RELAY**
**020402**



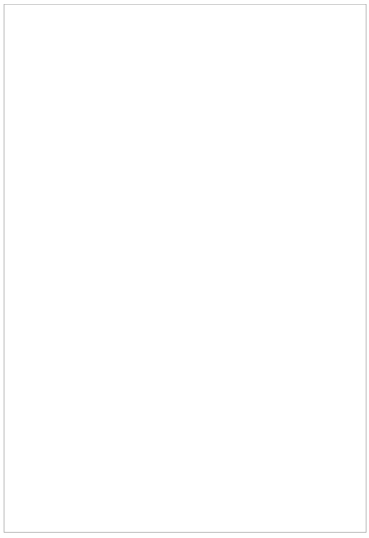

Photo is representative

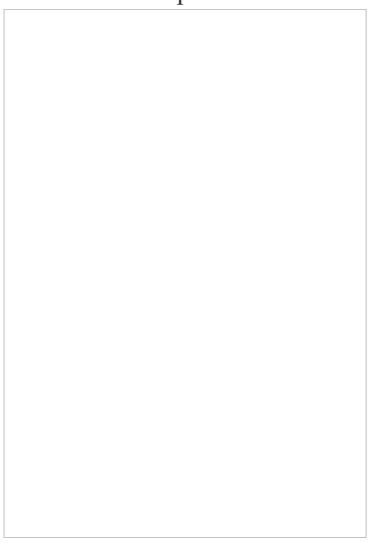

Photo is representative

# 020402

Eaton Moeller® series DILEM Contactor, 24 V 50/6
kW, Contacts N/C = Normally closed= 1 NC, Screw

How to buy

Photo is representative



Photo is representative

General specifications

Product specifications

## GENERAL SPECIFICATIONS

| | |
|---|---|
| **PRODUCT NAME** | Eaton Moeller® series DILEM Mini contactor |
| **CATALOG NUMBER** | 020402 |
| **MODEL CODE** | DILEM-01(24V50/60HZ) |
| **EAN** | 4015080204022 |
| **PRODUCT LENGTH/DEPTH** | 52 mm |
| **PRODUCT HEIGHT** | 58 mm |
| **PRODUCT WIDTH** | 45 mm |

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| **PRODUCT WEIGHT** | 0.17 kg |
| **CERTIFICATIONS** | CE<br>UL 508<br>UL Category Control No.: NLDX<br>UL File No.: E29096<br>IEC/EN 60947<br>CSA<br>CSA Class No.: 3211-04<br>IEC/EN 60947-4-1<br>CSA-C22.2 No. 14-05<br>CSA File No.: 012528<br>VDE 0660<br>UL |
| **CATALOG NOTES** | Also tested according to AC-3e. |

## PRODUCT SPECIFICATIONS

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| **TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)** | 2 x (0.75 - 1.5) mm²<br>1 x (0.75 - 1.5) mm² |
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 9 A |
| **10.11 SHORT-CIRCUIT RATING** | Is the panel builder's responsibility. The specificatio must be observed. |
| **RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ** | 4 kW |
| **CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)** | 16 A |
| **RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ** | 3 kW |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V** | 6.6 A |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN** | 24 V |
| **10.4 CLEARANCES AND CREEPAGE DISTANCES** | Meets the product standard's requirements. |
| **NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT** | 0 |
| **CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)** | 19 A |
| **RATED OPERATIONAL POWER (NEMA)** | 3.7 kW |
| **10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES** | Meets the product standard's requirements. |
| **AMBIENT STORAGE TEMPERATURE - MIN** | -40 °C |
| **FITTED WITH:** | Auxiliary contact |
| **RATED BREAKING CAPACITY AT 380/400 V** | 90 A |

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| **SHORT-CIRCUIT CURRENT RATING (BASIC RATING)** | 5 kA, SCCR (UL/CSA)<br>45 A, max. Fuse, SCCR (UL/CSA) |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX** | 24 V |
| **RATED BREAKING CAPACITY AT 660/690 V** | 42 A |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 24 V** | 20 A |
| **CHANGEOVER TIME** | 16 - 21 ms |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V** | 20 A |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 50 °C |
| **ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE** | 0.5 HP |
| **FEATURES** | Positive operating contacts to EN 60947-5-1 appendix<br>auxiliary contact module |
| **RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ** | 3.3 kW |
| **ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT** | Screw connection |
| **NUMBER OF POLES** | Three-pole |
| **AMBIENT OPERATING TEMPERATURE - MIN** | -25 °C |
| **10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS** | Does not apply, since the entire switchgear needs to |
| **10.2.6 MECHANICAL IMPACT** | Does not apply, since the entire switchgear needs to |
| **10.3 DEGREE OF PROTECTION OF ASSEMBLIES** | Does not apply, since the entire switchgear needs to |
| **APPLICATION** | Mini Contactors for Motors and Resistive Loads |
| **RATED OPERATIONAL CURRENT (IE) AT AC-15, 380 V, 400 V, 415 V** | 3 A |
| **OPERATING FREQUENCY** | 9000 mechanical Operations/h |
| **VOLTAGE TYPE** | AC |
| **PRODUCT CATEGORY** | Contactors |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V** | 6.6 A |
| **RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ** | 4 kW |
| **POWER CONSUMPTION, PICK-UP, 50 HZ** | 30 VA, AC, Dual-frequency coil at 50 Hz<br>26 W, AC, Dual-frequency coil at 50 Hz |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE** | 5 HP |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS,** | 8 ms |

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| **OPENING DELAY) - MIN** | |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V** | 5 A |
| **RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ** | 2.5 kW |
| **CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)** | 10 A |
| **OPERATING VOLTAGE AT AC, 60 HZ - MAX** | 690 V |
| **TERMINAL CAPACITY (SOLID/STRANDED AWG)** | 18 - 14 |
| **10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH** | Is the panel builder's responsibility. |
| **DEGREE OF PROTECTION** | IP20 |
| **OVERVOLTAGE CATEGORY** | III |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX** | 18 ms |
| **AMBIENT STORAGE TEMPERATURE - MAX** | 80 °C |
| **POLLUTION DEGREE** | 3 |
| **RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V** | 22 A |
| **POWER CONSUMPTION, PICK-UP, 60 HZ** | 24 W, AC, Dual-frequency coil at 60 Hz<br>29 VA, AC, Dual-frequency coil at 60 Hz |
| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX** | 21 ms |
| **RATED IMPULSE WITHSTAND VOLTAGE (UIMP)** | 6000 V AC |
| **CONNECTION** | Screw terminals |
| **OPERATING VOLTAGE AT AC, 60 HZ - MIN** | 24 V |
| **TIGHTENING TORQUE** | 1.2 Nm, Screw terminals |
| **SWITCHING TIME (AC OPERATED, N/O, WITH AUXILIARY CONTACT MODULE, CLOSING DELAY)** | 45 ms |
| **RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ** | 3 kW |
| **CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)** | 40 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V** | 4.8 A |
| **10.2.2 CORROSION RESISTANCE** | Meets the product standard's requirements. |
| **10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION** | Meets the product standard's requirements. |
| **10.2.7 INSCRIPTIONS** | Meets the product standard's requirements. |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V** | 9 A |

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| **SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN** | 14 ms |
| **NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)** | 0 |
| **RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ** | 4 kW |
| **SHOCK RESISTANCE** | 10 g, N/O main contact, Basic unit with auxiliary c<br>Mechanical, according to IEC/EN 60068-2-27, Half-<br>ms<br>20 g, N/O auxiliary contact, Basic unit with auxilia<br>Mechanical, according to IEC/EN 60068-2-27, Half-<br>ms<br>10 g, N/C auxiliary contact, Basic unit without aux<br>Mechanical, according to IEC/EN 60068-2-27, Half-<br>ms<br>10 g, N/O main contact, Basic unit without auxiliar<br>Mechanical, according to IEC/EN 60068-2-27, Half-<br>ms<br>20 g, N/C auxiliary contact, Basic unit with auxilia<br>Mechanical, according to IEC/EN 60068-2-27, Half-<br>ms |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V** | 20 A |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE** | 3 HP |
| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 12 V** | 20 A |
| **POWER CONSUMPTION, SEALING, 60 HZ** | 3.9 VA, AC, Dual-frequency coil at 60 Hz<br>1.8 W, Coil in a cold state and 1.0 x Us<br>5.4 VA, Coil in a cold state and 1.0 x Us<br>1.8 W, AC, Dual-frequency coil at 60 Hz |
| **RESISTANCE PER POLE** | 9.18 mΩ |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN** | -25 °C |
| **OPERATING VOLTAGE AT AC, 50 HZ - MAX** | 690 V |
| **10.12 ELECTROMAGNETIC COMPATIBILITY** | Is the panel builder's responsibility. The specificatio<br>must be observed. |
| **10.2.5 LIFTING** | Does not apply, since the entire switchgear needs to |
| **STRIPPING LENGTH (MAIN CABLE)** | 8 mm |
| **AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX** | 40 °C |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN** | 0 V |
| **10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS** | Is the panel builder's responsibility. |
| **NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)** | 3 |
| **RATED BREAKING CAPACITY AT 220/230 V** | 90 A |
| **SCREW SIZE** | M3.5, Terminal screw |

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| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V** | 6.6 A |
| **ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE** | 5 HP |
| **PROTECTION** | Finger and back-of-hand proof, Protection against di actuated from front (EN 50274) |
| **POWER CONSUMPTION, SEALING, 50 HZ** | 5.4 VA, Coil in a cold state and 1.0 x Us<br>1.8 W, Coil in a cold state and 1.0 x Us |
| **RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ** | 4.6 kW |
| **RATED BREAKING CAPACITY AT 500 V** | 64 A |
| **RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ** | 4.3 kW |
| **CLIMATIC PROOFING** | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78 |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 1.8 W |
| **RATED OPERATIONAL CURRENT (IE) AT AC-15, 500 V** | 1.5 A |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX** | 0 V |
| **10.9.3 IMPULSE WITHSTAND VOLTAGE** | Is the panel builder's responsibility. |
| **UTILIZATION CATEGORY** | AC-1: Non-inductive or slightly inductive loads, re<br>AC-4: Normal AC induction motors: starting, plugg inching<br>AC-3: Normal AC induction motors: starting, switc |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V** | 9 A |
| **10.5 PROTECTION AGAINST ELECTRIC SHOCK** | Does not apply, since the entire switchgear needs to |
| **SAFE ISOLATION** | 300 V AC, Between auxiliary contacts, According t<br>300 V AC, Between the contacts, According to EN<br>300 V AC, Between coil and auxiliary contacts, Acc<br>300 V AC, Between coil and contacts, According to |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 500 V** | 10 A gG/gL |
| **MOUNTING POSITION** | As required (except vertical with terminals A1/A2 a |
| **OPERATING VOLTAGE AT AC, 50 HZ - MIN** | 24 V |
| **RATED OPERATIONAL CURRENT (IE) AT AC-15, 220 V, 230 V, 240 V** | 6 A |
| **10.13 MECHANICAL FUNCTION** | The device meets the requirements, provided the inf instruction leaflet (IL) is observed. |
| **10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL** | Is the panel builder's responsibility. |
| **NUMBER OF CONTACTS (NORMALLY CLOSED CONTACTS)** | 1 |

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| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 0.4 W |
| **ACTUATING VOLTAGE** | 24 V 50/60 Hz |
| **SWITCHING CAPACITY (AUXILIARY CONTACTS, GENERAL USE)** | 0.5 A, 250 V DC, (UL/CSA)<br>10 A, 600 V AC, (UL/CSA) |
| **SHORT-CIRCUIT PROTECTION** | PKZM0-4, Maximum overcurrent protective device, protection only, Auxiliary contacts, Short-circuit rat<br>6 A gG/gL, Max. Fuse 500V, Auxiliary contacts, S without welding<br>10 A fast, Max. Fuse 500V, Auxiliary contacts, Sho without welding |
| **RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V** | 3.4 A |
| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 1.2 W |
| **ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE** | 2 HP |
| **RATED OPERATIONAL CURRENT (IE)** | 0.5 A at 220 V, DC L/R ≤ 15 ms (with 3 contacts i<br>2.5 A at 24 V, DC L/R ≤ 15 ms (with 1 contact in<br>2.5 A at 60 V, DC L/R ≤ 15 ms (with 2 contacts in<br>1.5 A at 100 V, DC L/R ≤ 15 ms (with 3 contacts i |
| **PICK-UP VOLTAGE** | 0.85 - 1.1 V AC x Uc (voltage tolerance - dual frequ |
| **SUITABLE FOR** | Also motors with efficiency class IE3 |
| **CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)** | 22 A |
| **TERMINAL CAPACITY (SOLID)** | 2 x (0.75 - 2.5) mm²<br>1 x (0.75 - 2.5) mm² |
| **NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)** | 1 |
| **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. |
| **LIFESPAN, MECHANICAL** | 200,000 Operations (at 240 V, AC-15)<br>10,000,000 Operations<br>150,000 Operations (at 240 V, DC, L/R = 50 ms: 2<br>0.5 A)<br>7,000,000 Operations (Coil 50/60 Hz) |
| **RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ** | 1.8 kW |
| **RATED MAKING CAPACITY UP TO 440 V (COS PHI TO IEC/EN 60947)** | 110 A |
| **RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ** | 3 kW |
| **CONTROL CIRCUIT RELIABILITY** | < 2 λ, < 1 failure at 100,000,000 Operations (at $U_c$<br>17 V, Imin = 5.4 mA) |

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| **RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V** | 20 A |
| **RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ** | 1.5 kW |
| **RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX** | 690 V |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN** | 24 V |
| **10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS** | Is the panel builder's responsibility. |
| **10.10 TEMPERATURE RISE** | The panel builder is responsible for the temperature<br>Eaton will provide heat dissipation data for the devi |
| **SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)** | 15 A, Maximum motor rating (UL/CSA) |
| **CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)** | 20 A |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V** | 6.4 A |
| **ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE** | 1.5 HP |
| **SCREWDRIVER SIZE** | 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard scre<br>2, Terminal screw, Pozidriv screwdriver |
| **SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 500 V** | 20 A gG/gL |
| **DUTY FACTOR** | 100 % |
| **RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V** | 9 A |
| **CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)** | 50 A |
| **RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX** | 24 V |
| **ARCING TIME** | 12 ms at 690 V AC |
| **RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ** | 3.1 kW |
| **SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)** | A600, AC operated (UL/CSA)<br>P300, DC operated (UL/CSA) |
| **RATED INSULATION VOLTAGE (UI)** | 690 V |
| **ALTITUDE** | Max. 2000 m |

# Catalogs

## Characteristic curve

## Declarations of conformity

## Drawings

## eCAD model

## Installation instructions

## mCAD model

## System overview

## Wiring diagrams

020402

Eaton is an intelligent power management company dedicated to improving the quality of life and protecting the environment for people everywhere. We are guided by our commitment to do business right, to operate sustainably and to help our customers manage power – today and well into the future. By capitalizing on the global growth trends of electrification and digitalization, we're accelerating the planet's transition to renewable energy and helping to solve the world's most urgent power management challenges.