

Contactors, 48 V DC, 3 pole, 380 V 400 V, 4 kW, Contacts N/C = Normally closed= 1 NC, Screw terminals, DC operation



**Part no. DILEM-01-G(48VDC)
010496**

| General specifications | | |
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| Product name | | Eaton Moeller® series DILEM Mini contactor |
| Part no. | | DILEM-01-G(48VDC) |
| EAN | | 4015080104964 |
| Product Length/Depth | | 54 millimetre |
| Product height | | 58 millimetre |
| Product width | | 45 millimetre |
| Product weight | | 0.206 kilogram |
| Certifications | | UL UL File No.: E29096 CSA-C22.2 No. 14-05 IEC/EN 60947 VDE 0660 CSA UL Category Control No.: NLDX UL 508 CSA Class No.: 3211-04 IEC/EN 60947-4-1 CE CSA File No.: 012528 |
| Product Tradename | | DILEM |
| Product Type | | Mini contactor |
| Product Sub Type | | None |
| Catalog Notes | | Also tested according to AC-3e. |
| Features & Functions | | |
| Features | | Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module |
| Fitted with: | | Auxiliary contact |
| General information | | |
| Application | | Mini Contactors for Motors and Resistive Loads |
| Degree of protection | | IP20 |
| Lifespan, mechanical | | 150,000 Operations (at 240 V, DC, L/R = 50 ms: 2 contacts in series 0.5 A) 200,000 Operations (at 240 V, AC-15) 20,000,000 Operations |
| Mounting position | | As required (except vertical with terminals A1/A2 at the bottom) |
| Operating frequency | | 9000 mechanical Operations/h |
| 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) | | 6000 V AC |
| Shock resistance | | 20 g, N/C auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 10 g, N/C auxiliary contact, Basic unit without auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 10 g, N/O main contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 20 g, N/O auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 10 g, N/O main contact, Basic unit without auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms |
| Suitable for | | Also motors with efficiency class IE3 |
| Utilization category | | AC-3: Normal AC induction motors: starting, switch off during running AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
| Voltage type | | DC |
| Climatic environmental conditions | | |

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| Ambient operating temperature - min | | -25 °C |
| Ambient operating temperature - max | | 50 °C |
| Ambient operating temperature (enclosed) - min | | 25 °C |
| Ambient operating temperature (enclosed) - max | | 40 °C |
| Ambient storage temperature - min | | 40 °C |
| Ambient storage temperature - max | | 80 °C |
| Climatic proofing | | Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30 |
| Terminal capacities | | |
| Terminal capacity (flexible with ferrule) | | 1 x (0.75 - 1.5) mm ² 2 x (0.75 - 1.5) mm ² |
| Terminal capacity (solid) | | 1 x (0.75 - 2.5) mm ² 2 x (0.75 - 2.5) mm ² |
| Terminal capacity (solid/stranded AWG) | | 18 - 14 |
| Stripping length (main cable) | | 8 mm |
| Screw size | | M3.5, Terminal screw |
| Screwdriver size | | 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver 2, Terminal screw, Pozidriv screwdriver |
| Tightening torque | | 1.2 Nm, Screw terminals |
| Electrical rating | | |
| Rated breaking capacity at 220/230 V | | 90 A |
| Rated breaking capacity at 380/400 V | | 90 A |
| Rated breaking capacity at 500 V | | 64 A |
| Rated operational power at AC-3, 240 V, 50 Hz | | 2.5 kW |
| Rated operational power at AC-3, 380/400 V, 50 Hz | | 4 kW |
| Rated operational power at AC-3, 415 V, 50 Hz | | 4.3 kW |
| Rated breaking capacity at 660/690 V | | 42 A |
| Rated making capacity up to 440 V (cos phi to IEC/EN 60947) | | 110 A |
| Rated operational power at AC-4, 220/230 V, 50 Hz | | 1.5 kW |
| Rated operational power at AC-4, 240 V, 50 Hz | | 1.8 kW |
| Rated operational power at AC-4, 415 V, 50 Hz | | 3.1 kW |
| Rated operational power at AC-4, 440 V, 50 Hz | | 3.3 kW |
| Rated operational power at AC-4, 500 V, 50 Hz | | 3 kW |
| Rated operational power at AC-4, 660/690 V, 50 Hz | | 3 kW |
| Rated operational voltage (Ue) at AC - max | | 690 V |
| Rated insulation voltage (Ui) | | 690 V |
| Rated operational current (Ie) | | 2.5 A at 24 V, DC L/R ≤ 15 ms (with 1 contact in series) 2.5 A at 60 V, DC L/R ≤ 15 ms (with 2 contacts in series) 0.5 A at 220 V, DC L/R ≤ 15 ms (with 3 contacts in series) 1.5 A at 100 V, DC L/R ≤ 15 ms (with 3 contacts in series) |
| Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V | | 22 A |
| Rated operational current (Ie) at AC-15, 220 V, 230 V, 240 V | | 6 A |
| Rated operational current (Ie) at AC-15, 380 V, 400 V, 415 V | | 3 A |
| Rated operational current (Ie) at AC-15, 500 V | | 1.5 A |
| Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V | | 9 A |
| Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V | | 9 A |
| Rated operational current (Ie) at AC-3, 440 V | | 9 A |
| Rated operational current (Ie) at AC-3, 500 V | | 6.4 A |
| Rated operational current (Ie) at AC-3, 660 V, 690 V | | 4.8 A |
| Rated operational current (Ie) at AC-4, 220 V, 230 V, 240 V | | 6.6 A |
| Rated operational current (Ie) at AC-4, 440 V | | 6.6 A |
| Rated operational current (Ie) at AC-4, 500 V | | 5 A |
| Rated operational current (Ie) at AC-4, 660 V, 690 V | | 3.4 A |
| Rated operational current (Ie) at DC-1, 110 V | | 20 A |
| Rated operational current (Ie) at DC-1, 12 V | | 20 A |
| Rated operational current (Ie) at DC-1, 220 V | | 20 A |
| Rated operational current (Ie) at DC-1, 24 V | | 20 A |
| Rated operational current (Ie) at DC-1, 60 V | | 20 A |

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| Safe isolation | | 300 V AC, Between the contacts, According to EN 61140 300 V AC, Between coil and contacts, According to EN 61140 300 V AC, Between auxiliary contacts, According to EN 61140 300 V AC, Between coil and auxiliary contacts, According to EN 61140 |
| Short-circuit rating | | |
| Short-circuit current rating (basic rating) | | 45 A, max. Fuse, SCCR (UL/CSA) 5 kA, SCCR (UL/CSA) |
| Short-circuit protection | | PKZM0-4, Maximum overcurrent protective device, Short-circuit protection only, Auxiliary contacts, Short-circuit rating without welding 10 A fast, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding 6 A gG/gL, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding |
| Short-circuit protection rating (type 1 coordination) at 500 V | | 20 A gG/gL |
| Short-circuit protection rating (type 2 coordination) at 500 V | | 10 A gG/gL |
| Conventional thermal current I_{th} | | |
| Conventional thermal current I _{th} (1-pole, enclosed) | | 40 A |
| Conventional thermal current I _{th} (3-pole, enclosed) | | 16 A |
| Conventional thermal current I _{th} at 55°C (3-pole, open) | | 19 A |
| Conventional thermal current I _{th} of auxiliary contacts (1-pole, open) | | 10 A |
| Conventional thermal current I _{th} of main contacts (1-pole, open) | | 50 A |
| Switching capacity | | |
| Switching capacity (main contacts, general use) | | 15 A, Maximum motor rating (UL/CSA) |
| Switching capacity (auxiliary contacts, general use) | | 10 A, 600 V AC, (UL/CSA) 0.5 A, 250 V DC, (UL/CSA) |
| Switching capacity (auxiliary contacts, pilot duty) | | A600, AC operated (UL/CSA) P300, DC operated (UL/CSA) |
| Magnet system | | |
| Arcing time | | 12 ms at 690 V AC |
| Changeover time | | 40 - 50 ms |
| Duty factor | | 100 % |
| Pick-up voltage | | 0.8 - 1.1 V DC x U _c |
| Power consumption | | 2.3 VA/W at DC (Pick-up/Sealing power) Smoothed DC voltage or three-phase bridge rectifier |
| Rated control supply voltage (U _s) at AC, 50 Hz - min | | 0 V |
| Rated control supply voltage (U _s) at AC, 50 Hz - max | | 0 V |
| Rated control supply voltage (U _s) at AC, 60 Hz - min | | 0 V |
| Rated control supply voltage (U _s) at AC, 60 Hz - max | | 0 V |
| Rated control supply voltage (U _s) at DC - min | | 48 V |
| Rated control supply voltage (U _s) at DC - max | | 48 V |
| Switching time (AC operated, N/O, with auxiliary contact module, closing delay) | | 70 ms |
| Switching time (DC operated, make contacts, closing delay) - min | | 26 ms |
| Switching time (DC operated, make contacts, closing delay) - max | | 35 ms |
| Switching time (DC operated, make contacts, opening delay) - min | | 15 ms |
| Switching time (DC operated, make contacts, opening delay) - max | | 25 ms |
| Motor rating | | |
| Assigned motor power at 115/120 V, 60 Hz, 1-phase | | 0.5 HP |
| Assigned motor power at 200/208 V, 60 Hz, 3-phase | | 2 HP |
| Assigned motor power at 230/240 V, 60 Hz, 1-phase | | 1.5 HP |
| Assigned motor power at 230/240 V, 60 Hz, 3-phase | | 3 HP |
| Assigned motor power at 460/480 V, 60 Hz, 3-phase | | 5 HP |
| Assigned motor power at 575/600 V, 60 Hz, 3-phase | | 5 HP |
| Contacts | | |
| Control circuit reliability | | < 2 λ, < 1 failure at 100,000,000 Operations (at U# = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) |
| Number of auxiliary contacts (normally closed contacts) | | 1 |
| Number of auxiliary contacts (normally open contacts) | | 0 |
| Number of contacts (normally closed contacts) | | 1 |
| Design verification | | |
| Equipment heat dissipation, current-dependent P _{vid} | | 0.9 W |

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| Heat dissipation capacity P _{diss} | | 0 W |
| Heat dissipation per pole, current-dependent P _{vid} | | 0.3 W |
| Rated operational current for specified heat dissipation (I _n) | | 9 A |
| Static heat dissipation, non-current-dependent P _{vs} | | 2.3 W |
| 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 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. |
| 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. |

Technical data ETIM 9.0

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| Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066) | | |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss13-27-37-10-03 [AAB718020]) | | |
| Rated control supply voltage AC 50 Hz | V | 0 - 0 |
| Rated control supply voltage AC 60 Hz | V | 0 - 0 |
| Rated control supply voltage DC | V | 48 - 48 |
| Voltage type for actuating | | DC |
| Number of normally closed contacts as main contact | | 0 |
| Number of normally open contacts as main contact | | 3 |
| Type of electrical connection of main circuit | | Screw connection |
| Operating voltage AC 50 Hz | V | 24 - 690 |
| Operating voltage AC 60 Hz | V | 24 - 690 |
| Rated operation current I _e at AC-1, 400 V | A | 22 |
| Rated operation current I _e at AC-3, 400 V | A | 9 |
| Rated operation power at AC-3, 400 V | kW | 4 |
| Rated operation current I _e at AC-4, 400 V | A | 6.6 |
| Rated operation power at AC-4, 400 V | kW | 3 |
| Rated operation power NEMA | kW | 3.7 |
| Number of auxiliary contacts as normally open contact | | 0 |
| Number of auxiliary contacts as normally closed contact | | 1 |
| Modular version | | No |
| Width | mm | 45 |
| Height | mm | 58 |
| Depth | mm | 54 |