

Contactor, 3 pole, 380 V 400 V 4 kW, 1 N/O, 110 V DC, DC operation, Screw terminals



Part no. DILM9-10(110VDC)
276708

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| General specifications | | |
| Product name | | Eaton Moeller® series DILM contactor |
| Part no. | | DILM9-10(110VDC) |
| EAN | | 4015082767082 |
| Product Length/Depth | | 75 millimetre |
| Product height | | 68 millimetre |
| Product width | | 45 millimetre |
| Product weight | | 0.296 kilogram |
| Certifications | | UL Category Control No.: NLDX CSA-C22.2 No. 60947-4-1-14 CSA Class No.: 2411-03, 3211-04 CSA File No.: 012528 IEC/EN 60947 IEC/EN 60947-4-1 UL VDE 0660 UL 60947-4-1 UL File No.: E29096 CSA CE CSA UL |
| Product Tradename | | DILM |
| Product Type | | Contactor |
| Product Sub Type | | None |
| Catalog Notes | | Contacts according to EN 50012 |
| Features & Functions | | |
| Fitted with: | | Varistor suppressor circuit |
| General information | | |
| Application | | Contactors for Motors |
| Degree of protection | | IP20 |
| Frame size | | FS1 |
| Lifespan, mechanical | | 10,000,000 Operations (DC operated) |
| Operating frequency | | 9000 mechanical Operations/h (DC 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 | | 4.6 mΩ |
| 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 |
| Ambient conditions, mechanical | | |
| Shock resistance | | 3.4 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms 5.7 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms 7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 3.4 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms 10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms |

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| Climatic environmental conditions | | |
| Altitude | | Max. 2000 m |
| Ambient operating temperature - min | | -25 °C |
| Ambient operating temperature - max | | 60 °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, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78 |
| Electro magnetic compatibility | | |
| Emitted interference | | According to EN 60947-1 |
| Interference immunity | | According to EN 60947-1 |
| Terminal capacities | | |
| Terminal capacity (flexible with ferrule) | | 1 x (0.75 - 2.5) mm ² 2 x (0.75 - 2,5) mm ² 2 x (0.75 - 2.5) mm ² |
| Terminal capacity (solid) | | 2 x (0.75 - 2.5) mm ² 1 x (0.75 - 4) mm ² |
| Terminal capacity (solid/stranded AWG) | | Single 18 - 10, double 18 - 14 |
| Stripping length (main cable) | | 10 mm |
| Stripping length (control circuit cable) | | 10 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 | | 70 A |
| Rated breaking capacity at 660/690 V | | 50 A |
| Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V | | 22 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 | | 7 A |
| Rated operational current (Ie) at AC-3, 660 V, 690 V | | 5 A |
| Rated operational current (Ie) at AC-4, 220 V, 230 V, 240 V | | 6 A |
| Rated operational current (Ie) at AC-4, 440 V | | 6 A |
| Rated operational current (Ie) at AC-4, 500 V | | 5 A |
| Rated operational current (Ie) at AC-4, 660 V, 690 V | | 4.5 A |
| Rated operational current (Ie) at DC-1, 60 V | | 20 A |
| Rated operational current (Ie) at DC-1, 110 V | | 20 A |
| Rated operational current (Ie) at DC-1, 220 V | | 15 A |
| Rated insulation voltage (Ui) | | 690 V |
| Rated making capacity up to 690 V (cos phi to IEC/EN 60947) | | 126 A |
| Rated operational power at AC-3, 240 V, 50 Hz | | 3 kW |
| Rated operational power at AC-3, 380/400 V, 50 Hz | | 4 kW |
| Rated operational power at AC-3, 415 V, 50 Hz | | 5.5 kW |
| Rated operational power at AC-3, 440 V, 50 Hz | | 5.5 kW |
| Rated operational power at AC-3, 500 V, 50 Hz | | 4.5 kW |
| Rated operational power at AC-3, 690 V, 50 Hz | | 4.5 kW |
| Rated operational power at AC-4, 220/230 V, 50 Hz | | 1.5 kW |
| Rated operational power at AC-4, 240 V, 50 Hz | | 1.6 kW |
| Rated operational power at AC-4, 415 V, 50 Hz | | 2.8 kW |
| Rated operational power at AC-4, 440 V, 50 Hz | | 3 kW |
| Rated operational power at AC-4, 500 V, 50 Hz | | 2.8 kW |

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| Rated operational power at AC-4, 660/690 V, 50 Hz | | 3.6 kW |
| Rated operational voltage (Ue) at AC - max | | 690 V |
| Short-circuit rating | | |
| Short-circuit current rating (basic rating) | | 60 A, max. CB, SCCR (UL/CSA) 5 kA, SCCR (UL/CSA) 45 A, max. Fuse, SCCR (UL/CSA) |
| Short-circuit current rating (high fault at 480 V) | | 16 A, max. CB, SCCR (UL/CSA) 25 A, Class RK5/ 20 A Class J, max. Fuse, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 65 kA, CB, SCCR (UL/CSA) |
| Short-circuit current rating (high fault at 600 V) | | 25 A, Class RK5/20 A, Class J, max. Fuse, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) |
| Short-circuit protection rating (type 1 coordination) at 400 V | | 35 A gG/gL |
| Short-circuit protection rating (type 1 coordination) at 690 V | | 20 A gG/gL |
| Short-circuit protection rating (type 2 coordination) at 400 V | | 20 A gG/gL |
| Short-circuit protection rating (type 2 coordination) at 690 V | | 16 A gG/gL |
| Conventional thermal current Ith | | |
| Conventional thermal current Ith (1-pole, enclosed) | | 45 A |
| Conventional thermal current Ith (3-pole, enclosed) | | 18 A |
| Conventional thermal current Ith at 55°C (3-pole, open) | | 21 A |
| Conventional thermal current Ith at 60°C (3-pole, open) | | 20 A |
| Conventional thermal current Ith of main contacts (1-pole, open) | | 50 A |
| Switching capacity | | |
| Switching capacity (main contacts, general use) | | 20 A, Maximum motor rating (UL/CSA) |
| Switching capacity (auxiliary contacts, general use) | | 1 A, 250 V DC, (UL/CSA) 10 A, 600 V AC, (UL/CSA) |
| Switching capacity (auxiliary contacts, pilot duty) | | P300, DC operated (UL/CSA) A600, AC operated (UL/CSA) |
| Magnet system | | |
| Arcing time | | 10 ms |
| Drop-out voltage | | 0.6 - 0.15 x UC, DC operated At least smoothed two-phase bridge rectifier or three-phase rectifier |
| Duty factor | | 100 % |
| Pick-up voltage | | 0.85 - 1.1 V DC x Uc (only with auxiliary contact module with 3 or more N/C contacts) 0.8 - 1.1 V DC x Uc |
| Power consumption (pick-up) at DC | | 4.5 W |
| Power consumption (sealing) at DC | | 4.5 W |
| Rated control supply voltage (Us) at AC, 50 Hz - min | | 0 V |
| Rated control supply voltage (Us) at AC, 50 Hz - max | | 0 V |
| Rated control supply voltage (Us) at AC, 60 Hz - min | | 0 V |
| Rated control supply voltage (Us) at AC, 60 Hz - max | | 0 V |
| Rated control supply voltage (Us) at DC - min | | 110 V |
| Rated control supply voltage (Us) at DC - max | | 110 V |
| Switching time (DC operated, make contacts, closing delay) - max | | 31 ms |
| Switching time (DC operated, make contacts, opening delay) - max | | 12 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 | | 3 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 | | 7.5 HP |
| Communication | | |
| Connection | | Screw terminals |
| Connection to SmartWire-DT | | No |
| Contacts | | |
| Number of contacts (normally open contacts) | | 1 |
| Number of auxiliary contacts (normally closed contacts) | | 0 |

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| Number of auxiliary contacts (normally open contacts) | | | 1 |
| Safety | | | |
| Safe isolation | | | 400 V AC, Between the contacts, According to EN 61140 400 V AC, Between coil and contacts, According to EN 61140 |
| Special purpose ratings | | | |
| Special purpose rating of ballast electrical discharge lamps | | | 18 A (480V 60Hz 3phase, 277V 60Hz 1phase) 18 A (600V 60Hz 3phase, 347V 60Hz 1phase) |
| Special purpose rating of definite purpose rating | | | 54 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 9 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) |
| Special purpose rating of elevator control | | | 6.8 A, 240 V 60 Hz 3-ph, (UL/CSA) 4.8 A, 480 V 60 Hz 3-ph, (UL/CSA) 5 HP, 600 V 60 Hz 3-ph, (UL/CSA) 7.8 A, 200 V 60 Hz 3-ph, (UL/CSA) 6.1 A, 600 V 60 Hz 3-ph, (UL/CSA) 2 HP, 240 V 60 Hz 3-ph, (UL/CSA) 2 HP, 200 V 60 Hz 3-ph, (UL/CSA) 3 HP, 480 V 60 Hz 3-ph, (UL/CSA) |
| Special purpose rating of refrigeration control (CSA only) | | | 10 A, FLA 600 V 60 Hz 3phase; (CSA) 60 A, LRA 600 V 60 Hz 3phase; (CSA) 60 A, LRA 480 V 60 Hz 3phase; (CSA) 10 A, FLA 480 V 60 Hz 3phase; (CSA) |
| Special purpose rating of resistance air heating | | | 18 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 18 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) |
| Special purpose rating of tungsten incandescent lamps | | | 14 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 14 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) |
| Design verification | | | |
| Equipment heat dissipation, current-dependent Pvid | | | 0.9 W |
| Heat dissipation capacity Pdis | | | 0 W |
| Heat dissipation per pole, current-dependent Pvid | | | 0.3 W |
| Rated operational current for specified heat dissipation (In) | | | 9 A |
| Static heat dissipation, non-current-dependent Pvs | | | 4.5 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 | 110 - 110 |

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| 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 Ie at AC-1, 400 V | | A | 22 |
| Rated operation current Ie at AC-3, 400 V | | A | 9 |
| Rated operation power at AC-3, 400 V | | kW | 4 |
| Rated operation current Ie at AC-4, 400 V | | A | 6 |
| Rated operation power at AC-4, 400 V | | kW | 2.5 |
| Rated operation power NEMA | | kW | 3.7 |
| Number of auxiliary contacts as normally open contact | | | 1 |
| Number of auxiliary contacts as normally closed contact | | | 0 |
| Modular version | | | No |
| Width | | mm | 45 |
| Height | | mm | 68 |
| Depth | | mm | 75 |