



**Contactor, 230 V 50 Hz, 240 V 60 Hz, 3 pole, 380 V 400 V, 4 kW, Contacts N/C  
= Normally closed= 1 NC, Screw terminals, AC operation**

**Part no. DILEM-01(230V50HZ,240V60HZ)**  
**051795**  
**EL Number 4130382**  
**(Norway)**

| General specifications                 |  |  |
|--|--|--|
| Product name                           |  | Eaton Moeller® series DILEM Mini contactor   |
| Part no.                               |  | DILEM-01(230V50HZ,240V60HZ)  |
| EAN                                    |  | 4015080517955  |
| Product Length/Depth                   |  | 52 millimetre  |
| Product height                         |  | 58 millimetre  |
| Product width                          |  | 45 millimetre  |
| Product weight                         |  | 0.17 kilogram  |
| Certifications                         |  | CSA File No.: 012528<br>IEC/EN 60947-4-1<br>CE<br>IEC/EN 60947<br>UL Category Control No.: NLDX<br>UL<br>VDE 0660<br>CSA<br>CSA Class No.: 3211-04<br>CSA-C22.2 No. 14-05<br>UL 508<br>UL File No.: E29096   |
| 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)<br>10,000,000 Operations<br>7,000,000 Operations (Coil 50/60 Hz)<br>200,000 Operations (at 240 V, AC-15)  |
| 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                       |  | 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<br>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<br>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<br>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<br>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 |
| Suitable for                           |  | Also motors with efficiency class IE3  |
| Utilization category                   |  | AC-1: Non-inductive or slightly inductive loads, resistance furnaces<br>AC-3: Normal AC induction motors: starting, switch off during running<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching  |
| Voltage type                           |  | AC   |

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| <b>Climatic environmental conditions</b>                     |  |   |
| 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, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78  |
| <b>Terminal capacities</b>                                   |  |   |
| Terminal capacity (flexible with ferrule)                    |  | 1 x (0.75 - 1.5) mm <sup>2</sup><br>2 x (0.75 - 1.5) mm <sup>2</sup>  |
| Terminal capacity (solid)                                    |  | 2 x (0.75 - 2.5) mm <sup>2</sup><br>1 x (0.75 - 2.5) mm <sup>2</sup>  |
| Terminal capacity (solid/stranded AWG)                       |  | 18 - 14   |
| Stripping length (main cable)                                |  | 8 mm  |
| Screw size   |  | M3.5, Terminal screw  |
| Screwdriver size   |  | 2, Terminal screw, Pozidriv screwdriver<br>0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver   |
| Tightening torque  |  | 1.2 Nm, Screw terminals   |
| <b>Electrical rating</b>                                     |  |   |
| 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)<br>2.5 A at 60 V, DC L/R ≤ 15 ms (with 2 contacts in series)<br>0.5 A at 220 V, DC L/R ≤ 15 ms (with 3 contacts in series)<br>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  |

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| Rated operational current (Ie) at DC-1, 60 V                                    |  | 20 A   |
| Safe isolation  |  | 300 V AC, Between coil and auxiliary contacts, According to EN 61140<br>300 V AC, Between the contacts, According to EN 61140<br>300 V AC, Between auxiliary contacts, According to EN 61140<br>300 V AC, Between coil and contacts, According to EN 61140   |
| Short-circuit rating  |  |  |
| Short-circuit current rating (basic rating)                                     |  | 5 kA, SCCR (UL/CSA)<br>45 A, max. Fuse, SCCR (UL/CSA)  |
| Short-circuit protection  |  | 10 A fast, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding<br>PKZM0-4, Maximum overcurrent protective device, Short-circuit protection only,<br>Auxiliary contacts, Short-circuit rating without welding<br>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 Ith  |  |  |
| Conventional thermal current Ith (1-pole, enclosed)                             |  | 40 A   |
| Conventional thermal current Ith (3-pole, enclosed)                             |  | 16 A   |
| Conventional thermal current Ith at 55°C (3-pole, open)                         |  | 19 A   |
| Conventional thermal current Ith of auxiliary contacts (1-pole, open)           |  | 10 A   |
| Conventional thermal current Ith 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)<br>0.5 A, 250 V DC, (UL/CSA)  |
| Switching capacity (auxiliary contacts, pilot duty)                             |  | P300, DC operated (UL/CSA)<br>A600, AC operated (UL/CSA)   |
| Magnet system   |  |  |
| Arcing time   |  | 12 ms at 690 V AC  |
| Changeover time   |  | 16 - 21 ms   |
| Duty factor   |  | 100 %  |
| Pick-up voltage   |  | 1.1 V AC x Uc (voltage tolerance - dual frequency coil 50/60 Hz)<br>0.8 - 1.1 V AC x Uc (voltage tolerance - single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz)   |
| Power consumption, pick-up, 50 Hz   |  | 25 VA, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz<br>22 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz  |
| Power consumption, pick-up, 60 Hz   |  | 22 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz<br>25 VA, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz  |
| Power consumption, sealing, 50 Hz   |  | 4.6 VA, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz<br>1.8 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz  |
| Power consumption, sealing, 60 Hz   |  | 1.8 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz  |
| Rated control supply voltage (Us) at AC, 50 Hz - min                            |  | 230 V  |
| Rated control supply voltage (Us) at AC, 50 Hz - max                            |  | 230 V  |
| Rated control supply voltage (Us) at AC, 60 Hz - min                            |  | 240 V  |
| Rated control supply voltage (Us) at AC, 60 Hz - max                            |  | 240 V  |
| Rated control supply voltage (Us) at DC - min                                   |  | 0 V  |
| Rated control supply voltage (Us) at DC - max                                   |  | 0 V  |
| Switching time (AC operated, make contacts, closing delay) - min                |  | 14 ms  |
| Switching time (AC operated, make contacts, closing delay) - max                |  | 21 ms  |
| Switching time (AC operated, make contacts, opening delay) - min                |  | 8 ms   |
| Switching time (AC operated, make contacts, opening delay) - max                |  | 18 ms  |
| Switching time (AC operated, N/O, with auxiliary contact module, closing delay) |  | 45 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  |  |  |

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| Control circuit reliability  |  |  | < 2 λ, < 1 failure at 100,000,000 Operations (at U# = 24 V DC, Umin = 17 V, Imin = 5.4 mA)                                       |
| Number of auxiliary contacts (normally closed contacts)                          |  |  | 1  |
| Number of auxiliary contacts (normally open contacts)                            |  |  | 0  |
| <b>Design verification</b>   |  |  |  |
| Equipment heat dissipation, current-dependent Pvid                               |  |  | 1.2 W  |
| Heat dissipation capacity Pdis   |  |  | 0 W  |
| Heat dissipation per pole, current-dependent Pvid                                |  |  | 0.4 W  |
| Rated operational current for specified heat dissipation (In)                    |  |  | 9 A  |
| Static heat dissipation, non-current-dependent Pvs                               |  |  | 1.8 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  |  | 230 - 230        |
| Rated control supply voltage AC 60 Hz   | V  |  | 240 - 240        |
| Rated control supply voltage DC   | V  |  | 0 - 0            |
| Voltage type for actuating  |    |  | AC               |
| 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  |  | 6.6              |
| 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 | 52 |