

**Contactor, 3 pole, 380 V 400 V 90 kW, RDC 60: 48 - 60 V DC, DC operation, Screw terminals**



**Part no. DILM170(RDC60)**

**107017**

**EL Number 4130453**

**(Norway)**

| General specifications                 |  |  |
|--|--|--|
| Product name                           |  | Eaton Moeller® series DILM contactor   |
| Part no.                               |  | DILM170(RDC60)   |
| EAN                                    |  | 4015081067855  |
| Product Length/Depth                   |  | 160 millimetre   |
| Product height                         |  | 170 millimetre   |
| Product width                          |  | 90 millimetre  |
| Product weight                         |  | 2.25 kilogram  |
| Certifications                         |  | UL Category Control No.: NLDX<br>CSA File No.: 012528<br>CSA Class No.: 2411-03, 3211-04<br>VDE 0660<br>CSA<br>CSA-C22.2 No. 60947-4-1-14<br>IEC/EN 60947-4-1<br>IEC/EN 60947<br>CE<br>UL File No.: E29096<br>UL 60947-4-1<br>UL   |
| Product Tradename                      |  | DILM   |
| Product Type                           |  | Contactor  |
| Product Sub Type                       |  | None   |
| Catalog Notes                          |  | Contacts according to EN 50012   |
| Features & Functions                   |  |  |
| Fitted with:                           |  | Suppressor circuit in actuating electronics  |
| General information                    |  |  |
| Application                            |  | Contactors for Motors  |
| Degree of protection                   |  | IP00   |
| Frame size                             |  | FS4  |
| Lifespan, mechanical                   |  | 10,000,000 Operations (DC operated)  |
| Operating frequency                    |  | 3000 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  |
| Residual current                       |  | 1 mA (with actuation of A1 - A2 by the electronics with "0" signal)  |
| Resistance per pole                    |  | 0.6 mΩ   |
| Utilization category                   |  | AC-3: Normal AC induction motors: starting, switch off during running<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching<br>AC-1: Non-inductive or slightly inductive loads, resistance furnaces  |
| Voltage type                           |  | DC   |
| Ambient conditions, mechanical         |  |  |
| Shock resistance                       |  | 10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms<br>7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms<br>10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms |

| <b>Climatic environmental conditions</b>                    |  |  |
|---|--|--|
| 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<br>Damp heat, constant, to IEC 60068-2-78   |
| <b>Electro magnetic compatibility</b>                       |  |  |
| Emitted interference  |  | According to EN 60947-1  |
| Interference immunity                                       |  | According to EN 60947-1  |
| <b>Terminal capacities</b>                                  |  |  |
| Terminal capacity (copper band)                             |  | 2 x (6 x 16 x 0.8) mm (Number of segments x width x thickness), Main cables  |
| Terminal capacity (flexible with ferrule)                   |  | 1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables<br>1 x (10 - 95) mm <sup>2</sup> , Main cables<br>2 x (10 - 70) mm <sup>2</sup> , Main cables<br>2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables |
| Terminal capacity (solid)                                   |  | 2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables<br>1 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables   |
| Terminal capacity (solid/stranded AWG)                      |  | 18 - 14, Control circuit cables<br>Single 8...3/0, double 8...2/0, Main cables   |
| Terminal capacity (stranded)                                |  | 2 x (16 - 70) mm <sup>2</sup> , Main cables<br>1 x (16 - 95) mm <sup>2</sup> , Main cables   |
| Stripping length (main cable)                               |  | 24 mm  |
| Stripping length (control circuit cable)                    |  | 10 mm  |
| Screw size  |  | M3.5, Terminal screw, Control circuit cables<br>M10, Terminal screw, Main cables<br>5 mm AF, Hexagon socket-head spanner, Terminal screw, Main cables  |
| Screwdriver size  |  | 2, Terminal screw, Control circuit cables, Pozidriv screwdriver<br>0.8 x 5.5/1 x 6 mm, Terminal screw, Control circuit cables, Standard screwdriver  |
| Tightening torque   |  | 14 Nm, Screw terminals, Main cables<br>1.2 Nm, Screw terminals, Control circuit cables   |
| <b>Electrical rating</b>                                    |  |  |
| Rated breaking capacity at 220/230 V                        |  | 1500 A   |
| Rated breaking capacity at 380/400 V                        |  | 1500 A   |
| Rated breaking capacity at 500 V                            |  | 1500 A   |
| Rated breaking capacity at 660/690 V                        |  | 1320 A   |
| Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V |  | 225 A  |
| Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V |  | 170 A  |
| Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V |  | 170 A  |
| Rated operational current (Ie) at AC-3, 440 V               |  | 170 A  |
| Rated operational current (Ie) at AC-3, 500 V               |  | 170 A  |
| Rated operational current (Ie) at AC-3, 660 V, 690 V        |  | 100 A  |
| Rated operational current (Ie) at AC-4, 220 V, 230 V, 240 V |  | 65 A   |
| Rated operational current (Ie) at AC-4, 440 V               |  | 65 A   |
| Rated operational current (Ie) at AC-4, 500 V               |  | 65 A   |
| Rated operational current (Ie) at AC-4, 660 V, 690 V        |  | 50 A   |
| Rated operational current (Ie) at DC-1, 60 V                |  | 160 A  |
| Rated operational current (Ie) at DC-1, 110 V               |  | 160 A  |
| Rated operational current (Ie) at DC-1, 220 V               |  | 90 A   |
| Rated insulation voltage (Ui)                               |  | 690 V  |
| Rated making capacity up to 690 V (cos phi to IEC/EN 60947) |  | 2100 A   |
| Rated operational power at AC-3, 240 V, 50 Hz               |  | 57 kW  |
| Rated operational power at AC-3, 380/400 V, 50 Hz           |  | 90 kW  |
| Rated operational power at AC-3, 415 V, 50 Hz               |  | 100 kW   |
| Rated operational power at AC-3, 440 V, 50 Hz               |  | 105 kW   |
| Rated operational power at AC-3, 500 V, 50 Hz               |  | 120 kW   |

|  |   |
|--|---|
| Rated operational power at AC-3, 690 V, 50 Hz                                | 96 kW   |
| Rated operational power at AC-4, 220/230 V, 50 Hz                            | 20 kW   |
| Rated operational power at AC-4, 240 V, 50 Hz                                | 22 kW   |
| Rated operational power at AC-4, 415 V, 50 Hz                                | 39 kW   |
| Rated operational power at AC-4, 440 V, 50 Hz                                | 41 kW   |
| Rated operational power at AC-4, 500 V, 50 Hz                                | 47 kW   |
| Rated operational power at AC-4, 660/690 V, 50 Hz                            | 48 kW   |
| Rated operational voltage (Ue) at AC - max                                   | 690 V   |
| <b>Short-circuit rating</b>  |   |
| Short-circuit current rating (basic rating)                                  | 600 A, max. CB, SCCR (UL/CSA)<br>10 kA, SCCR (UL/CSA)<br>600 A, max. Fuse, SCCR (UL/CSA)  |
| Short-circuit current rating (high fault at 480 V)                           | 300/300 A, Class J, max. Fuse, SCCR (UL/CSA)<br>65 kA, CB, SCCR (UL/CSA)<br>30/100 kA, Fuse, SCCR (UL/CSA)<br>250 A, max. CB, SCCR (UL/CSA) |
| Short-circuit current rating (high fault at 600 V)                           | 300/600 A, Class J, max. Fuse, SCCR (UL/CSA)<br>30/100 kA, Fuse, SCCR (UL/CSA)<br>30 kA, CB, SCCR (UL/CSA)<br>350 A, max. CB, SCCR (UL/CSA) |
| Short-circuit protection rating (type 1 coordination) at 400 V               | 250 A gG/gL   |
| Short-circuit protection rating (type 1 coordination) at 690 V               | 250 A gG/gL   |
| Short-circuit protection rating (type 2 coordination) at 400 V               | 250 A gG/gL   |
| Short-circuit protection rating (type 2 coordination) at 690 V               | 250 A gG/gL   |
| <b>Conventional thermal current I<sub>th</sub></b>                           |   |
| Conventional thermal current I <sub>th</sub> (1-pole, enclosed)              | 415 A   |
| Conventional thermal current I <sub>th</sub> (3-pole, enclosed)              | 166 A   |
| Conventional thermal current I <sub>th</sub> at 55°C (3-pole, open)          | 190 A   |
| Conventional thermal current I <sub>th</sub> at 60°C (3-pole, open)          | 185 A   |
| Conventional thermal current I <sub>th</sub> of main contacts (1-pole, open) | 460 A   |
| <b>Switching capacity</b>  |   |
| Switching capacity (main contacts, general use)                              | 225 A, Maximum motor rating (UL/CSA)  |
| <b>Magnet system</b>   |   |
| Arcing time  | 15 ms   |
| Drop-out voltage   | 0.6 - 0.15 x U <sub>C</sub> , DC operated<br>At least smoothed two-phase bridge rectifier or three-phase rectifier                          |
| Duty factor  | 100 %   |
| Pick-up voltage  | 48 - 60 V DC (RDC 60)<br>0.7 - 1.2 V DC x U <sub>C</sub>  |
| Power consumption (pick-up) at DC  | 149 W   |
| Power consumption (sealing) at DC  | 1.9 W   |
| Rated control supply voltage (U <sub>s</sub> ) at AC, 50 Hz - min            | 0 V   |
| Rated control supply voltage (U <sub>s</sub> ) at AC, 50 Hz - max            | 0 V   |
| Rated control supply voltage (U <sub>s</sub> ) at AC, 60 Hz - min            | 0 V   |
| Rated control supply voltage (U <sub>s</sub> ) at AC, 60 Hz - max            | 0 V   |
| Rated control supply voltage (U <sub>s</sub> ) at DC - min                   | 48 V  |
| Rated control supply voltage (U <sub>s</sub> ) at DC - max                   | 60 V  |
| Switching time (DC operated, make contacts, closing delay) - max             | 35 ms   |
| Switching time (DC operated, make contacts, opening delay) - max             | 30 ms   |
| <b>Motor rating</b>  |   |
| Assigned motor power at 115/120 V, 60 Hz, 1-phase                            | 10 HP   |
| Assigned motor power at 200/208 V, 60 Hz, 3-phase                            | 50 HP   |
| Assigned motor power at 230/240 V, 60 Hz, 1-phase                            | 30 HP   |
| Assigned motor power at 230/240 V, 60 Hz, 3-phase                            | 60 HP   |
| Assigned motor power at 460/480 V, 60 Hz, 3-phase                            | 125 HP  |
| Assigned motor power at 575/600 V, 60 Hz, 3-phase                            | 125 HP  |
| <b>Communication</b>   |   |
| Connection   | Screw terminals   |

|  |  |  |
|--|--|--|
| Connection to SmartWire-DT   |  | No   |
| <b>Contacts</b>  |  |  |
| Number of auxiliary contacts (normally closed contacts)                          |  | 0  |
| Number of auxiliary contacts (normally open contacts)                            |  | 0  |
| <b>Safety</b>  |  |  |
| Safe isolation   |  | 690 V AC, Between coil and contacts, According to EN 61140<br>690 V AC, Between the contacts, According to EN 61140  |
| <b>Special purpose ratings</b>   |  |  |
| Special purpose rating of ballast electrical discharge lamps                     |  | 160 A (600V 60Hz 3phase, 347V 60Hz 1phase)<br>160 A (480V 60Hz 3phase, 277V 60Hz 1phase)   |
| Special purpose rating of definite purpose rating                                |  | 1020 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)<br>170 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)  |
| Special purpose rating of elevator control                                       |  | 40 HP, 240 V 60 Hz 3-ph, (UL/CSA)<br>100 HP, 600 V 60 Hz 3-ph, (UL/CSA)<br>99 A, 600 V 60 Hz 3-ph, (UL/CSA)<br>30 HP, 200 V 60 Hz 3-ph, (UL/CSA)<br>92 A, 200 V 60 Hz 3-ph, (UL/CSA)<br>104 A, 240 V 60 Hz 3-ph, (UL/CSA)<br>75 HP, 480 V 60 Hz 3-ph, (UL/CSA)<br>96 A, 480 V 60 Hz 3-ph, (UL/CSA) |
| Special purpose rating of refrigeration control (CSA only)                       |  | 540 A, LRA 600 V 60 Hz 3phase; (CSA)<br>90 A, FLA 480 V 60 Hz 3phase; (CSA)<br>90 A, FLA 600 V 60 Hz 3phase; (CSA)<br>540 A, LRA 480 V 60 Hz 3phase; (CSA)   |
| Special purpose rating of resistance air heating                                 |  | 160 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)<br>160 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)   |
| Special purpose rating of tungsten incandescent lamps                            |  | 160 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)<br>160 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)   |
| <b>Design verification</b>   |  |  |
| Equipment heat dissipation, current-dependent Pvid                               |  | 41.1 W   |
| Heat dissipation capacity P <sub>diss</sub>                                      |  | 0 W  |
| Heat dissipation per pole, current-dependent Pvid                                |  | 13.7 W   |
| Rated operational current for specified heat dissipation (I <sub>n</sub> )       |  | 170 A  |
| Static heat dissipation, non-current-dependent P <sub>vs</sub>                   |  | 1.9 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

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 - 60          |
| 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  |  | 230 - 690        |
| Operating voltage AC 60 Hz  | V  |  | 230 - 690        |
| Rated operation current I <sub>e</sub> at AC-1, 400 V   | A  |  | 225              |
| Rated operation current I <sub>e</sub> at AC-3, 400 V   | A  |  | 170              |
| Rated operation power at AC-3, 400 V  | kW |  | 90               |
| Rated operation current I <sub>e</sub> at AC-4, 400 V   | A  |  | 65               |
| Rated operation power at AC-4, 400 V  | kW |  | 33               |
| Rated operation power NEMA  | kW |  | 93               |
| Number of auxiliary contacts as normally open contact   |    |  | 0                |
| Number of auxiliary contacts as normally closed contact   |    |  | 0                |
| Modular version   |    |  | No               |
| Width   | mm |  | 90               |
| Height  | mm |  | 170              |
| Depth   | mm |  | 160              |