

# Specifications

Photo is representative

## Eaton 277770

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 18.5 kW, 24 V 50/60 Hz, AC operation, Screw terminals

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller® series DILM contactor
<b>CATALOG NUMBER</b>	277770
<b>MODEL CODE</b>	DILM40(24V50/60HZ)
<b>EAN</b>	4015082777708
<b>PRODUCT LENGTH/DEPTH</b>	132.1 mm
<b>PRODUCT HEIGHT</b>	115 mm
<b>PRODUCT WIDTH</b>	55 mm
<b>PRODUCT WEIGHT</b>	0.872 kg
<b>CERTIFICATIONS</b>	CSA File No.: 012528 CSA-C22.2 No. 60947-4-1-14 VDE 0660 CSA Class No.: 2411-03, 3211-04 IEC/EN 60947 UL File No.: E29096 CSA CE IEC/EN 60947-4-1 UL 60947-4-1 UL Category Control No.: NLDX UL
<b>CATALOG NOTES</b>	Contacts according to EN 50012
<b>GLOBAL CATALOG</b>	277770

## Product specifications

<b>NUMBER OF POLES</b>	Three-pole
<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF PROTECTION OF</b>	Does not apply, since the entire switchgear needs to

## Resources

	<a href="#">Product Range Catalog</a> <a href="#">Switching and protecting motors</a>
<b>CATALOGS</b>	<a href="#">eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf</a> <a href="#">SmartWire-DT Catalog</a>
<b>CHARACTERISTIC CURVE</b>	<a href="#">eaton-contactors-switch-dilm-characteristic-curve.eps</a> <a href="#">eaton-contactors-switch-dilm-characteristic-curve-002.eps</a> <a href="#">eaton-contactors-component-dilm-characteristic-curve-003.eps</a>
<b>DECLARATIONS OF CONFORMITY</b>	<a href="#">DA-DC-00004782.pdf</a> <a href="#">DA-DC-00004817.pdf</a>
<b>DRAWINGS</b>	<a href="#">eaton-contactors-dilm-dimensions-012.eps</a> <a href="#">eaton-contactors-mounting-dilm-dimensions.eps</a> <a href="#">eaton-contactors-mounting-dilm-dimensions-002.eps</a> <a href="#">eaton-contactors-dilm-dimensions-002.eps</a> <a href="#">eaton-contactors-dilm-3d-drawing-011.eps</a> <a href="#">eaton-general-ie-ready-dilm-contactor-standards.eps</a> <a href="#">eaton-contactors-mounting-dilm-3d-drawing.eps</a>
<b>ECAD MODEL</b>	<a href="#">ETN.277770.edz</a>
<b>INSTALLATION INSTRUCTIONS</b>	<a href="#">IL03407033Z</a>
<b>INSTALLATION VIDEOS</b>	<a href="#">WIN-WIN with push-in technology</a>
<b>MCAD MODEL</b>	<a href="#">DA-CS-dil_m40_72</a>

<b>ASSEMBLIES</b>	be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
<b>OPERATING FREQUENCY</b>	5000 mechanical Operations/h (AC operated)
<b>POLLUTION DEGREE</b>	3
<b>CLIMATIC PROOFING</b>	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
<b>CONNECTION TO SMARTWIRE-DT</b>	No
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	8000 V AC
<b>UTILIZATION CATEGORY</b>	AC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching AC-1: Non-inductive or slightly inductive loads, resistance furnaces
<b>CONNECTION</b>	Screw terminals
<b>FRAME SIZE</b>	FS3
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	60 °C
<b>AMBIENT OPERATING</b>	-25 °C

	<a href="#">DA-CD-dil_m40_72</a>
<b>PEP ECO-PASSPORT</b>	<a href="#">EATO-00027-V01.01-EN</a>
<b>SYSTEM OVERVIEW</b>	<a href="#">eaton-contactors-dilm-contactor-system-overview.eps</a>
<b>WIRING DIAGRAMS</b>	<a href="#">eaton-contactors-contact-dilm-wiring-diagram-003.eps</a>

<b>TEMPERATURE - MIN</b>	
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b>	40 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b>	25 °C
<b>AMBIENT STORAGE TEMPERATURE - MAX</b>	80 °C
<b>AMBIENT STORAGE TEMPERATURE - MIN</b>	40 °C
<b>ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE</b>	3 HP
<b>ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE</b>	10 HP
<b>ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE</b>	7.5 HP
<b>ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE</b>	15 HP
<b>ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE</b>	30 HP
<b>ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE</b>	40 HP
<b>CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)</b>	112 A
<b>CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)</b>	45 A
<b>CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)</b>	55 A
<b>CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)</b>	125 A
<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>	6.6 W
<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
<b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>	2.2 W

<b>APPLICATION</b>	Contactors for Motors
<b>PRODUCT CATEGORY</b>	Contactors
<b>PROTECTION</b>	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
<b>ARCING TIME</b>	10 ms
<b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>	Screw connection
<b>SCREWDRIVER SIZE</b>	2, Terminal screw, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver
<b>VOLTAGE TYPE</b>	AC
<b>DEGREE OF PROTECTION</b>	IP00
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	0
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	0
<b>NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT</b>	0
<b>NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)</b>	3
<b>RATED BREAKING CAPACITY AT 220/230 V</b>	400 A
<b>RATED BREAKING CAPACITY AT 380/400 V</b>	400 A
<b>RATED BREAKING CAPACITY AT 500 V</b>	400 A
<b>RATED BREAKING CAPACITY AT 660/690 V</b>	250 A
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX</b>	24 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN</b>	24 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX</b>	24 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60</b>	24 V

<b>HZ - MIN</b>	
<b>DROP-OUT VOLTAGE</b>	AC operated: 0.6 - 0.3 x UC, AC operated
<b>OVERVOLTAGE CATEGORY</b>	III
<b>DUTY FACTOR</b>	100 %
<b>EMITTED INTERFERENCE</b>	According to EN 60947-1
<b>INTERFERENCE IMMUNITY</b>	According to EN 60947-1
<b>LIFESPAN, MECHANICAL</b>	7,000,000 Operations (Coil 50/60 Hz) 10,000,000 Operations (AC operated)
<b>PICK-UP VOLTAGE</b>	0.8 - 1.1 V AC x Uc
<b>POWER CONSUMPTION, PICK-UP, 50 HZ</b>	154 VA, Dual-frequency coil in a cold state and 1.0 x Us 168 VA, Dual-frequency coil in a cold state and 1.0 x Us
<b>SAFE ISOLATION</b>	440 V AC, Between the contacts, According to EN 61140 440 V AC, Between coil and contacts, According to EN 61140
<b>POWER CONSUMPTION, PICK-UP, 60 HZ</b>	168 VA, Dual-frequency coil in a cold state and 1.0 x Us 154 VA, Dual-frequency coil in a cold state and 1.0 x Us
<b>SCREW SIZE</b>	M3.5, Terminal screw, Control circuit cables M6, Terminal screw, Main cables
<b>POWER CONSUMPTION, SEALING, 50 HZ</b>	4.1 W, Dual-frequency coil in a cold state and 1.0 x Us
<b>POWER CONSUMPTION, SEALING, 60 HZ</b>	22 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 14 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 4.1 W, Dual-frequency coil in a cold state and 1.0 x Us
<b>TERMINAL CAPACITY (STRANDED)</b>	2 x (16 - 35) mm <sup>2</sup> , Main cables 1 x (16 - 50) mm <sup>2</sup> , Main cables

<b>TERMINAL CAPACITY (COPPER BAND)</b>	2 x (6 x 9 x 0.8) mm (Number of segments x width x thickness), Main cables
<b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>	1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables 2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables 1 x (0.75 - 35) mm <sup>2</sup> , Main cables 2 x (0.75 - 25) mm <sup>2</sup> , Main cables
<b>SHOCK RESISTANCE</b>	5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half- sinusoidal shock 10 ms 7 g, N/O auxiliary 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 when tabletop-mounted, Half- sinusoidal shock 10 ms 10 g, N/O main 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
<b>TERMINAL CAPACITY (SOLID)</b>	2 x (0.75 - 16) mm <sup>2</sup> , Main cables 1 x (0.75 - 16) mm <sup>2</sup> , Main cables 1 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables 2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables
<b>TERMINAL CAPACITY (SOLID/STRANDED AWG)</b>	Single 14 - 1, double 14 - 2, Main cables 18 - 14, Control circuit cables
<b>SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)</b>	63 A, Maximum motor rating (UL/CSA)

<b>TIGHTENING TORQUE</b>	3.3 Nm, Screw terminals, Main cables 1.2 Nm, Screw terminals, Control circuit cables
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX</b>	0 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN</b>	0 V
<b>RATED INSULATION VOLTAGE (UI)</b>	690 V
<b>RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947)</b>	560 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V</b>	60 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V</b>	40 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V</b>	40 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V</b>	40 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V</b>	40 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V</b>	25 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V</b>	18 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V</b>	18 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V</b>	18 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V</b>	18 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V</b>	14 A
<b>RATED OPERATIONAL</b>	50 A



<b>CURRENT (IE) AT DC-1, 110 V</b>	
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V</b>	45 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V</b>	50 A
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	40 A
<b>RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ</b>	13.5 kW
<b>RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ</b>	18.5 kW
<b>RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ</b>	24 kW
<b>RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ</b>	5 kW
<b>RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ</b>	5.5 kW
<b>RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ</b>	9 kW
<b>RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ</b>	9.5 kW
<b>RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ</b>	10 kW
<b>RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ</b>	11 kW
<b>RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ</b>	12 kW
<b>RATED OPERATIONAL POWER (NEMA)</b>	22 kW
<b>RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX</b>	690 V
<b>RESISTANCE PER POLE</b>	1.9 mΩ
<b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT</b>	4.1 W

<b>PVS</b>	
<b>STRIPPING LENGTH (CONTROL CIRCUIT CABLE)</b>	10 mm
<b>STRIPPING LENGTH (MAIN CABLE)</b>	14 mm
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX</b>	18 ms
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN</b>	12 ms
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX</b>	13 ms
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN</b>	8 ms
<b>SHORT-CIRCUIT CURRENT RATING (BASIC RATING)</b>	250 A, max. CB, SCCR (UL/CSA) 250 A, max. Fuse, SCCR (UL/CSA) 10 kA, SCCR (UL/CSA)
<b>SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)</b>	65 kA, CB, SCCR (UL/CSA) 100 A, max. CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 250/150 A, Class J, max. Fuse, SCCR (UL/CSA)
<b>SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)</b>	30/100 kA, Fuse, SCCR (UL/CSA) 30 kA, CB, SCCR (UL/CSA) 250/150 A, Class J, max. Fuse, SCCR (UL/CSA) 250 A, max. CB, SCCR (UL/CSA)
<b>SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 400 V</b>	125 A gG/gL
<b>SUITABLE FOR</b>	Also motors with efficiency class IE3
<b>SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 690 V</b>	80 A gG/gL

<b>SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 400 V</b>	63 A gG/gL
<b>SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 690 V</b>	50 A gG/gL
<b>SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS</b>	79 A (480V 60Hz 3phase, 277V 60Hz 1phase) 79 A (600V 60Hz 3phase, 347V 60Hz 1phase)
<b>SPECIAL PURPOSE RATING OF ELEVATOR CONTROL</b>	10 HP, 240 V 60 Hz 3-ph, (UL/CSA) 7.5 HP, 200 V 60 Hz 3-ph, (UL/CSA) 25.3 A, 200 V 60 Hz 3-ph, (UL/CSA) 34 A, 480 V 60 Hz 3-ph, (UL/CSA) 28 A, 240 V 60 Hz 3-ph, (UL/CSA) 25 HP, 480 V 60 Hz 3-ph, (UL/CSA) 30 HP, 600 V 60 Hz 3-ph, (UL/CSA) 32 A, 600 V 60 Hz 3-ph, (UL/CSA)
<b>SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING</b>	79 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 79 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
<b>SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS</b>	74 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 74 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
<b>CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)</b>	60 A
<b>CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)</b>	57 A
<b>CONVENTIONAL THERMAL CURRENT ITH AT 60°C (3-POLE, OPEN)</b>	50 A
<b>RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ</b>	25 kW
<b>RATED OPERATIONAL</b>	28 kW

<b>POWER AT AC-3, 500 V, 50 HZ</b>	
<b>RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ</b>	23 kW
<b>ACTUATING VOLTAGE</b>	24 V 50/60 Hz
<b>ALTITUDE</b>	Max. 2000 m
<b>OPERATING VOLTAGE AT AC, 50 HZ - MIN</b>	230 V
<b>OPERATING VOLTAGE AT AC, 50 HZ - MAX</b>	690 V
<b>OPERATING VOLTAGE AT AC, 60 HZ - MIN</b>	230 V
<b>OPERATING VOLTAGE AT AC, 60 HZ - MAX</b>	690 V

<b>PROJECT NAME:</b>
<b>PROJECT NUMBER:</b>
<b>PREPARED BY:</b>
<b>DATE:</b>



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