

Specifications



Eaton 278009

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 22 kW, RDC 24: 24 - 27 V DC, DC operation, Spring-loaded terminals DILMC50(RDC24)

General specifications

PRODUCT NAME	Eaton Moeller® series DILM contactor
CATALOG NUMBER	278009
MODEL CODE	DILMC50(RDC24)
EAN	4015082780098
PRODUCT LENGTH/DEPTH	132.1 mm
PRODUCT HEIGHT	115 mm
PRODUCT WIDTH	55 mm
PRODUCT WEIGHT	1.042 kg
CERTIFICATIONS	CE VDE 0660 CSA Class No.: 2411-03, 3211-04 CSA File No.: 012528 UL 60947-4-1 UL Category Control No.: NLDX IEC/EN 60947-4-1 CSA-C22.2 No. 60947-4-1-14 UL File No.: E29096 UL IEC/EN 60947 CSA
CATALOG NOTES	Contacts according to EN 50012

Ambient conditions, mechanical

SHOCK RESISTANCE

7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, 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
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
10 g, N/O main 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

Climatic environmental conditions

ALTITUDE Max. 2000 m

AMBIENT OPERATING TEMPERATURE - MAX 60 °C

AMBIENT STORAGE TEMPERATURE - MAX 80 °C

AMBIENT OPERATING TEMPERATURE - MIN -25 °C

AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX 40 °C

AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN -25 °C

AMBIENT STORAGE TEMPERATURE - MIN -40 °C

CLIMATIC PROOFING Damp heat, constant, to IEC 60068-2-78
Damp heat, cyclic, to IEC 60068-2-30

Communication

CONNECTION TO SMARTWIRE-DT No

Contacts

NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT) 3

NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS) 0

NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS) 0

NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT 0

Conventional thermal current I_{th}

**CONVENTIONAL
THERMAL CURRENT I_{TH}
(1-POLE, ENCLOSED)** 145 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
(3-POLE, ENCLOSED)** 58 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
AT 55°C (3-POLE, OPEN)** 68 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
AT 60°C (3-POLE, OPEN)** 65 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
OF MAIN CONTACTS (1-
POLE, OPEN)** 162 A

Design verification

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.

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

Does not apply, since the

AGAINST ELECTRIC SHOCK	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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	9.9 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	3.3 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	50 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	1 W

Electrical rating

RATED BREAKING CAPACITY AT 220/230 V	500 A
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RATED BREAKING CAPACITY AT 380/400 V	500 A
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RATED BREAKING CAPACITY AT 500 V	500 A
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RATED BREAKING CAPACITY AT 660/690 V	320 A
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RATED INSULATION VOLTAGE (UI)	690 V
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RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947)	700 A
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RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	80 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	50 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	50 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V	50 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	50 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	32 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	21 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	21 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	21 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	17 A
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RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V	50 A
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RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V	45 A
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Electro magnetic compatibility

EMITTED INTERFERENCE	According to EN 60947-1
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INTERFERENCE IMMUNITY	According to EN 60947-1
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RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V	60 A
RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	17 kW
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	22 kW
RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	30 kW
RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	32 kW
RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	36 kW
RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	30 kW
RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ	6 kW
RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ	6.5 kW
RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ	11 kW
RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	12 kW
RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	13 kW
RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	14 kW
RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	690 V

Features & functions	
FITTED WITH:	Suppressor circuit in actuating electronics
NUMBER OF POLES	Three-pole

General information	
APPLICATION	Contactors for Motors
CONNECTION	Spring-loaded terminals Screw terminals
DEGREE OF PROTECTION	IP00
LIFESPAN, MECHANICAL	10,000,000 Operations (DC operated)

OPERATING FREQUENCY	5000 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	1.9 mΩ
SUITABLE FOR	Also motors with efficiency class IE3
UTILIZATION CATEGORY	AC-4: Normal AC induction motors: starting, plugging, reversing, inching AC-3: Normal AC induction motors: starting, switch off during running AC-1: Non-inductive or slightly inductive loads, resistance furnaces
VOLTAGE TYPE	DC
FRAME SIZE	FS3

Magnet system

ARCING TIME	10 ms
DROP-OUT VOLTAGE	At least smoothed two-phase bridge rectifier or three-phase rectifier 0.6 - 0.15 x UC, DC operated
DUTY FACTOR	100 %
PICK-UP VOLTAGE	0.7 - 1.2 V DC x Uc 24 - 27 V DC (RDC 24)
POWER CONSUMPTION (PICK-UP) AT DC	24 W
POWER CONSUMPTION (SEALING) AT DC	1 W
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	27 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	24 V
SWITCHING TIME (DC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	54 ms
SWITCHING TIME (DC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	24 ms

Safety

SAFE ISOLATION	440 V AC, Between the contacts, According to EN 61140 440 V AC, Between coil and contacts, According to EN 61140
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Motor rating

ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE	3 HP
ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE	15 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE	10 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE	20 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	40 HP
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE	50 HP

Short-circuit rating

SHORT-CIRCUIT CURRENT RATING (BASIC RATING)	5 kA, 250 A max. fuse, SCCR (UL/CSA) 5 kA, 250 A max. CB, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)	100 kA, 150 A CLASS J max. fuse, SCCR (UL/CSA) 65 kA, 100 A max. CB, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)	100 kA, 150 A CLASS J max. fuse, SCCR (UL/CSA)
SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 400 V	160 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 690 V	80 A gG/gL
SHORT-CIRCUIT PROTECTION RATING	80 A gG/gL

**(TYPE 2 COORDINATION)
AT 400 V**

**SHORT-CIRCUIT
PROTECTION RATING
(TYPE 2 COORDINATION)
AT 690 V** 63 A gG/gL

Special purpose ratings

SPECIAL PURPOSE RATING OF ELEVATOR CONTROL

40 HP, 600 V 60 Hz 3-ph,
(UL/CSA)
10 HP, 200 V 60 Hz 3-ph,
(UL/CSA)
32.2 A, 200 V 60 Hz 3-ph,
(UL/CSA)
40 A, 480 V 60 Hz 3-ph,
(UL/CSA)
15 HP, 240 V 60 Hz 3-ph,
(UL/CSA)
42 A, 240 V 60 Hz 3-ph,
(UL/CSA)
30 HP, 480 V 60 Hz 3-ph,
(UL/CSA)
41 A, 600 V 60 Hz 3-ph,
(UL/CSA)

SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING

79 A, 480 V 60 Hz 3phase,
277 V 60 Hz 1phase,
(UL/CSA)
79 A, 600 V 60 Hz 3phase,
347 V 60 Hz 1phase,
(UL/CSA)

SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS

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)

SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS

79 A (480V 60Hz 3phase,
277V 60Hz 1phase)
79 A (600V 60Hz 3phase,
347V 60Hz 1phase)

Switching capacity

**SWITCHING CAPACITY
(MAIN CONTACTS,
GENERAL USE)** 80 A, Maximum motor
rating (UL/CSA)

Terminal capacities

SCREW SIZE	M6, Terminal screw, Main cables
SCREWDRIVER SIZE	0.8 x 5.5/1 x 6 mm, Terminal screw, Main cables, Standard screwdriver 2, Terminal screw, Main cables, Pozidriv screwdriver 3.5 mm, Spring-loaded terminals, Control circuit cables
STRIPPING LENGTH (CONTROL CIRCUIT CABLE)	10 mm
STRIPPING LENGTH (MAIN CABLE)	14 mm
TERMINAL CAPACITY (COPPER BAND)	2 x (6 x 9 x 0.8) mm (Number of segments x width x thickness), Main cables
TERMINAL CAPACITY (FLEXIBLE)	2 x (0.75 - 2.5) mm ² , Control circuit cables, Spring-loaded terminals 1 x (0.75 - 2.5) mm ² , Control circuit cables, Spring-loaded terminals
TERMINAL CAPACITY (SOLID)	1 x (0.75 - 16) mm ² , Main cables 2 x (0.75 - 16) mm ² , Main cables 1 x (0.75 - 2.5) mm ² , Control circuit cables, Spring-loaded terminals 2 x (0.75 - 2.5) mm ² , Control circuit cables, Spring-loaded terminals
TERMINAL CAPACITY (STRANDED)	2 x (16 - 35) mm ² , Main cables 1 x (16 - 50) mm ² , Main cables
TERMINALS	Spring-cage terminals on auxiliary and control circuit terminals
TIGHTENING TORQUE	3.3 Nm, Screw terminals, Main cables
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	1 x (0.75 - 35) mm ² , Main cables 1 x (0.75 - 1.5) mm ² , Control circuit cables, Spring-loaded terminals 2 x (0.75 - 1.5) mm ² , Control circuit cables, Spring-loaded terminals

Resources

CATALOGUES	eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf
CHARACTERISTIC CURVE	eaton-contactors-component-dilm-characteristic-curve-003.eps eaton-contactors-switch-dilm-characteristic-curve-002.eps eaton-contactors-switch-dilm-characteristic-curve.eps eaton-contactors-short-time-loading-dilm-characteristic-curve.eps
DECLARATIONS OF CONFORMITY	eaton-contactor-declaration-of-conformity-uk251227en.pdf eaton-contactor-declaration-of-conformity-eu250744en.pdf
DRAWINGS	eaton-contactors-dilm-dimensions-012.eps eaton-contactors-dilm-dimensions-002.eps eaton-contactors-mounting-dilm-dimensions-002.eps eaton-contactors-mounting-dilm-dimensions.eps eaton-contactors-dilm-3d-drawing-012.eps eaton-general-ie-ready-dilm-contactor-standards.eps eaton-contactors-mounting-dilm-3d-drawing.eps
ECAD MODEL	ETN.278009.edz
INSTALLATION INSTRUCTIONS	IL03407033Z
INSTALLATION VIDEOS	WIN-WIN with push-in technology
MCAD MODEL	DA-CS-dil_mc40_72

	2 x (0.75 - 25) mm², Main cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	18 - 14, Control circuit cables, Spring-loaded terminals Single 14 - 1, double 14 - 2, Main cables

	eaton-iec-contactors-mcad-drawings-dil-mc40-72.dwg
SYSTEM OVERVIEW	eaton-contactors-dilm-contactor-system-overview.eps
WIRING DIAGRAMS	eaton-contactors-contact-dilm-wiring-diagram-003.eps

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



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