

Specifications



Eaton 107013

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 90 kW, RAC 240: 190 - 240 V 50/60 Hz, AC operation, Screw terminals DILM170(RAC240)

General specifications

PRODUCT NAME	Eaton Moeller® series DILM contactor
CATALOG NUMBER	107013
MODEL CODE	DILM170(RAC240)
EAN	4015081067817
PRODUCT LENGTH/DEPTH	160 mm
PRODUCT HEIGHT	170 mm
PRODUCT WIDTH	90 mm
PRODUCT WEIGHT	2.25 kg

CERTIFICATIONS	CSA File No.: 012528 IEC/EN 60947 CSA-C22.2 No. 60947-4-1-14 UL Category Control No.: NLDX VDE 0660 CE IEC/EN 60947-4-1 UL 60947-4-1 UL CSA CSA Class No.: 2411-03, 3211-04 UL File No.: E29096
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CATALOG NOTES	Contacts according to EN 50012
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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
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, Half-sinusoidal shock 10 ms
7 g, N/O 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
5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, 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
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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)** 415 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
(3-POLE, ENCLOSED)** 166 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
AT 55°C (3-POLE, OPEN)** 190 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
AT 60°C (3-POLE, OPEN)** 185 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
OF MAIN CONTACTS (1-
POLE, OPEN)** 460 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	41.1 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	13.7 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	170 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	2.3 W

Electrical rating

RATED BREAKING CAPACITY AT 220/230 V	1500 A
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RATED BREAKING CAPACITY AT 380/400 V	1500 A
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RATED BREAKING CAPACITY AT 500 V	1500 A
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RATED BREAKING CAPACITY AT 660/690 V	1320 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)	2100 A
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RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	225 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	170 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	170 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V	170 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	170 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	100 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	65 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	65 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	65 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	50 A
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RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V	160 A
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RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V	90 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	160 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

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

General information	
APPLICATION	Contactors for Motors
CONNECTION	Screw terminals
DEGREE OF PROTECTION	IP00
LIFESPAN, MECHANICAL	10,000,000 Operations (AC operated)
OPERATING FREQUENCY	3000 mechanical

	Operations/h (AC 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-1: Non-inductive or slightly inductive loads, resistance furnaces AC-4: Normal AC induction motors: starting, plugging, reversing, inching AC-3: Normal AC induction motors: starting, switch off during running
VOLTAGE TYPE	AC
FRAME SIZE	FS4

Magnet system

ARCING TIME	15 ms
DROP-OUT VOLTAGE	AC operated: 0.6 - 0.25 x U _C , AC operated
DUTY FACTOR	100 %
PICK-UP VOLTAGE	0.8 - 1.15 V AC x U _C
POWER CONSUMPTION, PICK-UP, 50 HZ	180 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz
POWER CONSUMPTION, PICK-UP, 60 HZ	170 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz
POWER CONSUMPTION, SEALING, 50 HZ	2.3 W, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz 3.1 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz
POWER CONSUMPTION, SEALING, 60 HZ	2.3 W, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz 3.1 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	190 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	190 V
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	33 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN	28 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	41 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN	35 ms

Motor rating

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

Safety

SAFE ISOLATION

690 V AC, Between the contacts, According to EN 61140
440 V AC, Between coil and contacts, According to EN 61140

Short-circuit rating

SHORT-CIRCUIT CURRENT RATING (BASIC RATING)

10 kA, 600 A max. fuse, SCCR (UL/CSA)
10 kA, 600 A max. CB, SCCR (UL/CSA)

SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)

100 kA, 600 A CLASS J max. fuse, SCCR (UL/CSA)

SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)

100 kA, 600 A CLASS J max. fuse, 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

Special purpose ratings

SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING

170 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
1020 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)

SPECIAL PURPOSE RATING OF ELEVATOR CONTROL

92 A, 200 V 60 Hz 3-ph, (UL/CSA)
40 HP, 240 V 60 Hz 3-ph, (UL/CSA)
75 HP, 480 V 60 Hz 3-ph, (UL/CSA)
30 HP, 200 V 60 Hz 3-ph, (UL/CSA)
100 HP, 600 V 60 Hz 3-ph, (UL/CSA)
99 A, 600 V 60 Hz 3-ph, (UL/CSA)
104 A, 240 V 60 Hz 3-ph, (UL/CSA)
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)
540 A, LRA 480 V 60 Hz 3phase; (CSA)
90 A, FLA 600 V 60 Hz 3phase; (CSA)
90 A, FLA 480 V 60 Hz 3phase; (CSA)

SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING

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

SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS

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

SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS

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

Switching capacity

SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)

225 A, Maximum motor rating (UL/CSA)

Terminal capacities

SCREW SIZE	M3.5, Terminal screw, Control circuit cables M10, Terminal screw, Main cables 5 mm AF, Hexagon socket-head spanner, Terminal screw, Main cables
SCREWDRIVER SIZE	2, Terminal screw, Control circuit cables, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Control circuit cables, Standard screwdriver
STRIPPING LENGTH (CONTROL CIRCUIT CABLE)	10 mm
STRIPPING LENGTH (MAIN CABLE)	24 mm
TERMINAL CAPACITY (COPPER BAND)	2 x (6 x 16 x 0.8) mm (Number of segments x width x thickness), Main cables
TERMINAL CAPACITY (SOLID)	1 x (0.75 - 4) mm ² , Control circuit cables 2 x (0.75 - 2.5) mm ² , Control circuit cables
TERMINAL CAPACITY (STRANDED)	1 x (16 - 95) mm ² , Main cables 2 x (16 - 70) mm ² , Main cables
TIGHTENING TORQUE	14 Nm, Screw terminals, Main cables 1.2 Nm, Screw terminals, Control circuit cables
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	2 x (0.75 - 2.5) mm ² , Control circuit cables 1 x (10 - 95) mm ² , Main cables 1 x (0.75 - 2.5) mm ² , Control circuit cables 2 x (10 - 70) mm ² , Main cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	18 - 14, Control circuit cables Single 8...3/0, double 8...2/0, Main cables

Resources

CATALOGUES	eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf
CHARACTERISTIC CURVE	eaton-contactors-switch-dilm-characteristic-curve.eps eaton-contactors-component-dilm-characteristic-curve-003.eps eaton-contactors-switch-dilm-characteristic-curve-002.eps eaton-contactors-short-time-loading-dilm-characteristic-curve-002.eps
DECLARATIONS OF CONFORMITY	eaton-contactor-declaration-of-conformity-uk251233en.pdf eaton-contactor-declaration-of-conformity-eu250750en.pdf
DRAWINGS	eaton-contactors-dilm-dimensions-011.eps eaton-contactors-mounting-dilm-dimensions.eps eaton-contactors-mounting-dilm-dimensions-002.eps eaton-contactors-dilm-dimensions-003.eps eaton-contactors-dilm-3d-drawing.eps eaton-contactors-dilm-3d-drawing-013.eps
ECAD MODEL	ETN.107013.edz
INSTALLATION INSTRUCTIONS	eaton-dil-contactors-instruction-leaflet-il03407039z.pdf
INSTALLATION VIDEOS	WIN-WIN with push-in technology
MCAD MODEL	eaton-iec-contactors-mcad-drawings-dil-m80-170.dwg DA-CS-dil_m80_170

PEP ECO-PASSPORT	eaton-iec-contactors-pep-eato-00022-v0101-en.pdf
	eaton-iec-contactors-pep-eato-00125-v0101-en.pdf
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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