

Specifications



Eaton 276677

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 4 kW, 1 N/O, 24 V 50 Hz, AC operation, Screw terminals

General specifications

PRODUCT NAME	Eaton Moeller® series DILM contactor
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CATALOG NUMBER	276677
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MODEL CODE	DILM9-10(24V50HZ)
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EAN	4015082766771
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PRODUCT LENGTH/DEPTH	75 mm
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PRODUCT HEIGHT	68 mm
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PRODUCT WIDTH	45 mm
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PRODUCT WEIGHT	0.24 kg
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CERTIFICATIONS	IEC/EN 60947 CSA-C22.2 No. 60947-4-1-14 UL IEC/EN 60947-4-1 CSA Class No.: 2411-03, 3211-04 CSA CSA File No.: 012528 UL File No.: E29096 UL Category Control No.: NLDX CE VDE 0660 UL 60947-4-1
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CATALOG NOTES	Contacts according to EN 50012
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Ambient conditions, mechanical

SHOCK RESISTANCE

5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
5.7 g, N/O main 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
10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
3.4 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms
3.4 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms

Communication

CONNECTION TO SMARTWIRE-DT

No

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

Contacts

NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT) 3

NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS) 0

NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS) 1

NUMBER OF CONTACTS (NORMALLY OPEN CONTACTS) 1

NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT 0

Conventional thermal current I_{th}

**CONVENTIONAL
THERMAL CURRENT I_{TH}
(1-POLE, ENCLOSED)** 45 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
(3-POLE, ENCLOSED)** 18 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
AT 55°C (3-POLE, OPEN)** 21 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
AT 60°C (3-POLE, OPEN)** 20 A

**CONVENTIONAL
THERMAL CURRENT I_{TH}
OF MAIN CONTACTS (1-
POLE, OPEN)** 50 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	0 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0.2 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	9 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	1.4 W

Electrical rating

RATED BREAKING CAPACITY AT 220/230 V	90 A
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RATED BREAKING CAPACITY AT 380/400 V	90 A
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RATED BREAKING CAPACITY AT 500 V	70 A
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RATED BREAKING CAPACITY AT 660/690 V	50 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)	112 A
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RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	22 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	9 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	9 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V	9 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	7 A
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RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	5 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	6 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	6 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	5 A
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RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	4.5 A
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RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V	20 A
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RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V	15 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	20 A
RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	3 kW
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	4 kW
RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	5.5 kW
RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	5.5 kW
RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	4.5 kW
RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	4.5 kW
RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ	1.5 kW
RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ	1.6 kW
RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ	2.8 kW
RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	3 kW
RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	2.8 kW
RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	3.6 kW
RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	690 V

Features & functions	
NUMBER OF POLES	Three-pole

General information	
APPLICATION	Contactors for Motors
CONNECTION	Screw terminals
DEGREE OF PROTECTION	IP20
LIFESPAN, MECHANICAL	10,000,000 Operations (AC operated)
OPERATING FREQUENCY	9000 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
RESISTANCE PER POLE	2.5 mΩ
SUITABLE FOR	Also motors with efficiency class IE3
UTILIZATION CATEGORY	AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching
VOLTAGE TYPE	AC
FRAME SIZE	FS1

Magnet system

ARCING TIME	10 ms
DROP-OUT VOLTAGE	AC operated: 0.6 - 0.3 x Uc, AC operated
DUTY FACTOR	100 %
PICK-UP VOLTAGE	0.8 - 1.1 V AC x Uc
POWER CONSUMPTION, PICK-UP, 50 HZ	24 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz
POWER CONSUMPTION, PICK-UP, 60 HZ	30 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz
POWER CONSUMPTION, SEALING, 50 HZ	3.4 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz 1.4 W, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz
POWER CONSUMPTION, SEALING, 60 HZ	1.4 W, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 4.4 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	24 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	24 V
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	21 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN	15 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	18 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN	9 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 3 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 7.5 HP

Safety

SAFE ISOLATION

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

Short-circuit rating

SHORT-CIRCUIT CURRENT RATING (BASIC RATING) 5 kA, 30 A max. fuse, SCCR (UL/CSA)
5 kA, 30 A max. CB, SCCR (UL/CSA)

SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V) 100 kA, 20 A CLASS J max. fuse, SCCR (UL/CSA)
30 kA, 25 A CLASS RK5 max. fuse, SCCR (UL/CSA)
65 kA, 16 A max. CB, SCCR (UL/CSA)

SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V) 100 kA, 20 A CLASS J max. fuse, SCCR (UL/CSA)
30 kA, 25 A CLASS RK5 max. fuse, SCCR (UL/CSA)

SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 400 V 35 A gG/gL

SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 690 V 20 A gG/gL

SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 400 V 20 A gG/gL

SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 690 V 16 A gG/gL

Special purpose ratings

SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING

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

SPECIAL PURPOSE RATING OF ELEVATOR CONTROL

2 HP, 200 V 60 Hz 3-ph,
(UL/CSA)
5 HP, 600 V 60 Hz 3-ph,
(UL/CSA)
6.1 A, 600 V 60 Hz 3-ph,
(UL/CSA)
7.8 A, 200 V 60 Hz 3-ph,
(UL/CSA)
3 HP, 480 V 60 Hz 3-ph,
(UL/CSA)
2 HP, 240 V 60 Hz 3-ph,
(UL/CSA)
6.8 A, 240 V 60 Hz 3-ph,
(UL/CSA)
4.8 A, 480 V 60 Hz 3-ph,
(UL/CSA)

SPECIAL PURPOSE RATING OF REFRIGERATION CONTROL (CSA ONLY)

60 A, LRA 480 V 60 Hz
3phase; (CSA)
60 A, LRA 600 V 60 Hz
3phase; (CSA)
10 A, FLA 600 V 60 Hz
3phase; (CSA)
10 A, FLA 480 V 60 Hz
3phase; (CSA)

SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING

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

SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS

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

SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS

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

Switching capacity

SWITCHING CAPACITY (AUXILIARY CONTACTS, GENERAL USE)

10 A, 600 V AC, (UL/CSA)
1 A, 250 V DC, (UL/CSA)

SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)

A600, AC operated
(UL/CSA)
P300, DC operated
(UL/CSA)

SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)

20 A, Maximum motor
rating (UL/CSA)

Terminal capacities

SCREW SIZE	M3.5, Terminal screw
SCREWDRIVER SIZE	2, Terminal screw, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver
STRIPPING LENGTH (CONTROL CIRCUIT CABLE)	10 mm
STRIPPING LENGTH (MAIN CABLE)	10 mm
TERMINAL CAPACITY (SOLID)	2 x (0.75 - 2.5) mm ² 1 x (0.75 - 4) mm ²
TIGHTENING TORQUE	1.2 Nm, Screw terminals
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	1 x (0.75 - 2.5) mm ² 2 x (0.75 - 2.5) mm ² 2 x (0.75 - 2,5) mm ²
TERMINAL CAPACITY (SOLID/STRANDED AWG)	Single 18 - 10, double 18 - 14

Resources

	SmartWire-DT Catalog
	Product Range Catalog
CATALOGUES	Switching and protecting motors
	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.eps
	eaton-contactors-switch-dilm-characteristic-curve-002.eps
DECLARATIONS OF CONFORMITY	eaton-contactor-declaration-of-conformity-uk251209en.pdf
	eaton-contactor-declaration-of-conformity-eu250726en.pdf
DRAWINGS	eaton-contactors-module-dilm-dimensions.eps
	eaton-contactors-mounting-dilm-dimensions.eps
	eaton-contactors-mounting-dilm-dimensions-002.eps
	eaton-contactors-frame-dilm-dimensions.eps
	eaton-contactors-module-dilm-dimensions-002.eps
	eaton-general-ie-ready-dilm-contactor-standards.eps
	eaton-contactors-dilm-3d-drawing-007.eps
ECAD MODEL	ETN.276677.edz
INSTALLATION INSTRUCTIONS	eaton-contactors-dila-dilm7-15-dilmp20-il03407013z.pdf
INSTALLATION VIDEOS	WIN-WIN with push-in technology

MCAD MODEL	eaton-iec-contactors-mcad-drawings-dil-m7-15.dwg DA-CS-dil_m7_15
SYSTEM OVERVIEW	eaton-contactors-dilm-contactor-system-overview.eps
WIRING DIAGRAMS	eaton-contactors-contact-dilm-wiring-diagram.eps

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



Eaton Corporation plc Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com

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