

Specifications



Eaton 239449

Eaton Moeller® series DILM Contactor, 380 V 400 V 37 kW, 2 N/O, 2 NC, 230 V 50 Hz, 240 V 60 Hz, AC operation, Screw terminals

General specifications

PRODUCT NAME	Eaton Moeller® series DILM contactor
CATALOG NUMBER	239449
MODEL CODE	DILM80- 22(230V50HZ,240V60HZ)
EAN	4015082394493
PRODUCT LENGTH/DEPTH	175 mm
PRODUCT HEIGHT	170 mm
PRODUCT WIDTH	90 mm
PRODUCT WEIGHT	2.22 kg
COMPLIANCES	CE Marked
CERTIFICATIONS	CSA Std. C22.2 No. 14-05 UL 508 IEC 60947-4-1 EN 60947-4-1 IEC/EN 60947 CE CSA-C22.2 No. 60947-4-1-14 VDE 0660 UL Category Control No.: NLDX UL File No.: E29096 CSA Class No.: 2411-03, 3211-04 UL IEC/EN 60947-4-1 UL 60947-4-1 CSA CSA File No.: 012528
CATALOG NOTES	Contacts according to EN 50012

Ambient conditions, mechanical

SHOCK RESISTANCE

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
 10 g, N/O main 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 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, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78

Contacts

NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT) 3

NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS) 2

NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS) 2

NUMBER OF CONTACTS (NORMALLY CLOSED CONTACTS) 2

NUMBER OF CONTACTS (NORMALLY OPEN CONTACTS) 2

NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT 0

Conventional thermal current I_{th}

CONVENTIONAL THERMAL CURRENT I_{TH} (1-POLE, ENCLOSED) 200 A

CONVENTIONAL THERMAL CURRENT I_{TH} (3-POLE, ENCLOSED) 80 A

CONVENTIONAL THERMAL CURRENT I_{TH} AT 55°C (3-POLE, OPEN) 94 A

CONVENTIONAL THERMAL CURRENT I_{TH} AT 60°C (3-POLE, OPEN) 90 A

CONVENTIONAL THERMAL CURRENT I_{TH} OF MAIN CONTACTS (1-POLE, OPEN) 225 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

Electrical rating

RATED BREAKING CAPACITY AT 220/230 V	800 A
RATED BREAKING CAPACITY AT 380/400 V	800 A
RATED BREAKING CAPACITY AT 500 V	800 A
RATED BREAKING CAPACITY AT 660/690 V	650 A
RATED INSULATION VOLTAGE (UI)	690 V
RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947)	1120 A
RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	110 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	80 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	80 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V	80 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	80 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	65 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	40 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	40 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	40 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	27 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V	110 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V	70 A

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 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	3 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	80 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	5.8 W

RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V	110 A
RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	27.5 kW
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	37 kW
RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	48 kW
RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	51 kW
RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	58 kW
RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	63 kW
RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ	11.5 kW
RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ	13 kW
RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ	24 kW
RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	25 kW
RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	29 kW
RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	26 kW
RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	690 V

Electro magnetic compatibility

EMITTED INTERFERENCE	According to EN 60947-1
INTERFERENCE IMMUNITY	According to EN 60947-1

Features & functions

FITTED WITH:	Mirror contact
NUMBER OF POLES	Three-pole

General information

APPLICATION	Contactors for Motors
CONNECTION	Screw terminals
DEGREE OF PROTECTION	IP00
LIFESPAN, MECHANICAL	7,000,000 Operations (Coil 50/60 Hz) 10,000,000 Operations (AC operated)
OPERATING FREQUENCY	3600 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
SUITABLE FOR	Also motors with efficiency class IE3
TYPE	Full voltage non-reversing contactor
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	AC

Magnet system

ARCING TIME	15 ms
COIL VOLTAGE	230-240 Vac, 50/60 Hz
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	310 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz
POWER CONSUMPTION, PICK-UP, 60 HZ	345 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz
POWER CONSUMPTION, SEALING, 50 HZ	26 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz 5.8 W, Dual-frequency coil in a cold state and 1.0 x Us 5.8 W, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz
POWER CONSUMPTION, SEALING, 60 HZ	5.8 W, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 5.8 W, Dual-frequency coil in a cold state and 1.0 x Us 30 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	230 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	230 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	240 V
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	20 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN	14 ms
SWITCHING TIME (AC OPERATED, MAKE	14 ms

CONTACTS, OPENING DELAY) - MAX	
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN	9 ms
POWER CONSUMPTION	37 kW

Motor rating

**ASSIGNED MOTOR
POWER AT 115/120 V, 60
HZ, 1-PHASE** 7.5 HP

**ASSIGNED MOTOR
POWER AT 200/208 V, 60
HZ, 3-PHASE** 25 HP

**ASSIGNED MOTOR
POWER AT 230/240 V, 60
HZ, 1-PHASE** 15 HP

**ASSIGNED MOTOR
POWER AT 230/240 V, 60
HZ, 3-PHASE** 30 HP

**ASSIGNED MOTOR
POWER AT 460/480 V, 60
HZ, 3-PHASE** 60 HP

**ASSIGNED MOTOR
POWER AT 575/600 V, 60
HZ, 3-PHASE** 75 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, 300 A CLASS J max. fuse, SCCR (UL/CSA) 30 kA, 600 A max. fuse, SCCR (UL/CSA) 65 kA, 250 A max. CB, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)	100 kA, 300 A CLASS J max. fuse, SCCR (UL/CSA) 30 kA, 600 A 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	200 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 400 V	160 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 690 V	160 A gG/gL

Special purpose ratings

SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING	480 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 80 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
SPECIAL PURPOSE RATING OF ELEVATOR CONTROL	25 HP, 240 V 60 Hz 3-ph, (UL/CSA) 68 A, 240 V 60 Hz 3-ph, (UL/CSA) 20 HP, 200 V 60 Hz 3-ph, (UL/CSA) 62.1 A, 200 V 60 Hz 3-ph, (UL/CSA) 65 A, 480 V 60 Hz 3-ph, (UL/CSA) 60 HP, 600 V 60 Hz 3-ph, (UL/CSA) 62 A, 600 V 60 Hz 3-ph, (UL/CSA) 50 HP, 480 V 60 Hz 3-ph, (UL/CSA)
SPECIAL PURPOSE RATING OF REFRIGERATION CONTROL (CSA ONLY)	540 A, LRA 480 V 60 Hz 3phase; (CSA) 90 A, FLA 480 V 60 Hz 3phase; (CSA) 70 A, FLA 600 V 60 Hz 3phase; (CSA) 420 A, LRA 600 V 60 Hz 3phase; (CSA)
SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING	100 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 100 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS	100 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 100 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS	100 A (480V 60Hz 3phase, 277V 60Hz 1phase) 100 A (600V 60Hz 3phase, 347V 60Hz 1phase)

Switching capacity

**SWITCHING CAPACITY
(AUXILIARY CONTACTS,
GENERAL USE)** 1 A, 250 V DC, (UL/CSA)
15 A, 600 V AC, (UL/CSA)

**SWITCHING CAPACITY
(AUXILIARY CONTACTS,
PILOT DUTY)** A600, AC operated
(UL/CSA)
P300, DC operated
(UL/CSA)

**SWITCHING CAPACITY
(MAIN CONTACTS,
GENERAL USE)** 125 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)** 2 x (0.75 - 2.5) mm²,
Control circuit cables
1 x (0.75 - 2.5) mm²,
Control circuit cables

**TERMINAL CAPACITY
(STRANDED)** 1 x (16 - 70) mm², Main
cables
2 x (16 - 50) mm², Main
cables

TERMINALS Screw terminals

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) mm²,
Control circuit cables
1 x (0.75 - 2.5) mm²,
Control circuit cables
2 x (10 - 50) mm², Main
cables
1 x (10 - 70) mm², 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-short-time-loading-dilm-characteristic-curve-002.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.eps](#)
[eaton-contactors-switch-dilm-characteristic-curve.eps](#)

DECLARATIONS OF CONFORMITY [eaton-contactor-declaration-of-conformity-eu250751en.pdf](#)
[eaton-contactor-declaration-of-conformity-uk251234en.pdf](#)

DRAWINGS [eaton-contactors-mounting-dilm-dimensions-002.eps](#)
[eaton-contactors-dilm-dimensions-011.eps](#)
[eaton-contactors-mounting-dilm-dimensions.eps](#)
[eaton-contactors-dilm-dimensions-003.eps](#)
[eaton-general-ie-ready-dilm-contactor-standards.eps](#)
[eaton-contactors-dilm-3d-drawing.eps](#)
[eaton-contactors-complete-unit-dilms-safety-3d-drawing.eps](#)

ECAD MODEL [ETN.239449.edz](#)

INSTALLATION INSTRUCTIONS [eaton-dil-contactors-instruction-leaflet-il03407039z.pdf](#)

INSTALLATION VIDEOS	WIN-WIN with push-in technology
MCAD MODEL	dil_m80_150_22.stp eaton-iec-contactors-mcad-drawings-dil-m80-150-22.dwg
WIRING DIAGRAMS	eaton-contactors-wiring-diagram-2100swi-125.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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