

Specifications



Photo is representative



Eaton 276732

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 4 kW, 1 NC, 220 V 50/60 Hz, AC operation, Screw terminals

General specifications

PRODUCT NAME	Eaton Moeller® series DILM contactor
CATALOG NUMBER	276732
MODEL CODE	DILM9-01(220V50/60HZ)
EAN	4015082767327

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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WARRANTY	1 year
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COMPLIANCES	CE Marked RoHS Compliant
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CERTIFICATIONS

UL Listed
CSA Certified
IEC 60947
EN 60947
IEC 60947-4-1
EN 60947-4-1
VDE 0660
CSA
CSA File No.: 012528
IEC/EN 60947
IEC/EN 60947-4-1
CSA-C22.2 No. 60947-4-1-14
UL
CE
UL Category Control No.: NLDX
CSA Class No.: 2411-03, 3211-04
UL File No.: E29096
UL 60947-4-1

CATALOG NOTES	Contacts according to EN 50012
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PRODUCT TYPE	Contactors
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Powering Business Worldwide

Features Functions

FITTED WITH: Mirror contact

NUMBER OF POLES Three-pole

General

APPLICATION Contactors for Motors

DEGREE OF PROTECTION IP20

FRAME SIZE FS1

LIFESPAN, MECHANICAL 7,000,000 Operations (Coil 50/60 Hz)
10,000,000 Operations (AC operated)

CONNECTION Screw terminals

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

TYPE Full voltage non-reversing miniature contactor

UTILIZATION CATEGORY AC-3: Normal AC induction motors: starting, switch off during running
AC-1: Non-inductive or slightly inductive loads, resistance furnaces
AC-4: Normal AC induction motors: starting, plugging, reversing, inching

VOLTAGE TYPE AC

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, 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
3.4 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
3.4 g, N/O 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 - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE - MAX	60 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX	40 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
AMBIENT STORAGE TEMPERATURE - MAX	80 °C
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

Electro magnetic compatibility

EMITTED INTERFERENCE According to EN 60947-1

INTERFERENCE IMMUNITY According to EN 60947-1

Terminal capacities

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

Electrical rating

RATED BREAKING CAPACITY AT 220/230 V	90 A
RATED BREAKING CAPACITY AT 380/400 V	90 A
RATED BREAKING CAPACITY AT 500 V	70 A
RATED BREAKING CAPACITY AT 660/690 V	50 A
RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	22 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	9 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	9 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V	9 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	7 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	5 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	6 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	6 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	5 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	4.5 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V	20 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V	20 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V	15 A
RATED INSULATION VOLTAGE (UI)	690 V
RATED MAKING	112 A

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

**CAPACITY UP TO 690 V
(COS PHI TO IEC/EN
60947)**

**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

Conventional thermal current I_{th}

CONVENTIONAL THERMAL CURRENT I_{TH} (1-POLE, ENCLOSED)	45 A
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CONVENTIONAL THERMAL CURRENT I_{TH} (3-POLE, ENCLOSED)	18 A
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CONVENTIONAL THERMAL CURRENT I_{TH} AT 55°C (3-POLE, OPEN)	21 A
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CONVENTIONAL THERMAL CURRENT I_{TH} OF MAIN CONTACTS (1- POLE, OPEN)	50 A
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Switching capacity

SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	20 A, Maximum motor rating (UL/CSA)
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SWITCHING CAPACITY (AUXILIARY CONTACTS, GENERAL USE)	1 A, 250 V DC, (UL/CSA) 10 A, 600 V AC, (UL/CSA)
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SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)	A600, AC operated (UL/CSA) P300, DC operated (UL/CSA)
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Magnet system

ARCING TIME	10 ms
DROP-OUT VOLTAGE	AC operated: 0.6 - 0.3 x U _c , AC operated
DUTY FACTOR	100 %
PICK-UP VOLTAGE	0.8 - 1.1 V AC x U _c
POWER CONSUMPTION	4 kW
POWER CONSUMPTION, PICK-UP, 50 HZ	25 VA, Dual-frequency coil in a cold state and 1.0 x U _s
	27 VA, Dual-frequency coil in a cold state and 1.0 x U _s
POWER CONSUMPTION, PICK-UP, 60 HZ	25 VA, Dual-frequency coil in a cold state and 1.0 x U _s
	27 VA, Dual-frequency coil in a cold state and 1.0 x U _s
POWER CONSUMPTION, SEALING, 50 HZ	1.4 W, Dual-frequency coil in a cold state and 1.0 x U _s
	1.2 W, Dual-frequency coil in a cold state and 1.0 x U _s
POWER CONSUMPTION, SEALING, 60 HZ	3.3 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz
	1.2 W, Dual-frequency coil in a cold state and 1.0 x U _s
	4.2 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz
	1.4 W, Dual-frequency coil in a cold state and 1.0 x U _s
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	220 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	220 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	220 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	220 V
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN	15 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	21 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

SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN	9 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	18 ms
COIL VOLTAGE	220 Vac, 50-60 Hz

Communication

CONNECTION TO SMARTWIRE-DT	No
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Safety

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

NUMBER OF CONTACTS	1 NC
NUMBER OF CONTACTS (NORMALLY CLOSED CONTACTS)	1
NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)	1
NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)	0

Special purpose ratings

SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS	18 A (600V 60Hz 3phase, 347V 60Hz 1phase) 18 A (480V 60Hz 3phase, 277V 60Hz 1phase)
SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING	54 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 9 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
SPECIAL PURPOSE RATING OF ELEVATOR CONTROL	2 HP, 240 V 60 Hz 3-ph, (UL/CSA) 3 HP, 480 V 60 Hz 3-ph, (UL/CSA) 6.1 A, 600 V 60 Hz 3-ph, (UL/CSA) 2 HP, 200 V 60 Hz 3-ph, (UL/CSA) 4.8 A, 480 V 60 Hz 3-ph, (UL/CSA) 7.8 A, 200 V 60 Hz 3-ph, (UL/CSA) 6.8 A, 240 V 60 Hz 3-ph, (UL/CSA) 5 HP, 600 V 60 Hz 3-ph, (UL/CSA)
SPECIAL PURPOSE RATING OF REFRIGERATION	10 A, FLA 480 V 60 Hz 3phase; (CSA) 60 A, LRA 480 V 60 Hz

CONTROL (CSA ONLY)	3phase; (CSA) 60 A, LRA 600 V 60 Hz 3phase; (CSA) 10 A, FLA 600 V 60 Hz 3phase; (CSA)
SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING	18 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 18 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS	14 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 14 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)

Design verification

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
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 AGAINST ELECTRIC SHOCK	Does not apply, since the 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.

Resources

	Product Range Catalog Switching and protecting motors
CATALOGS	eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf SmartWire-DT Catalog
CHARACTERISTIC CURVE	eaton-contactors-switch-dilm-characteristic-curve-002.eps eaton-contactors-component-dilm-characteristic-curve-003.eps eaton-contactors-switch-dilm-characteristic-curve.eps
DECLARATIONS OF CONFORMITY	eaton-contactor-declaration-of-conformity-uk251209en.pdf eaton-contactor-declaration-of-conformity-eu250726en.pdf
DRAWINGS	eaton-contactors-frame-dilm-dimensions.eps eaton-contactors-mounting-dilm-dimensions-002.eps eaton-contactors-mounting-dilm-dimensions.eps eaton-contactors-module-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.276732.edz
INSTALLATION INSTRUCTIONS	eaton-contactors-dila-dilm7-15-dilmp20-il03407013z.pdf
INSTALLATION VIDEOS	WIN-WIN with push-in technology

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.
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.

MCAD MODEL	DA-CS-dil_m7_15 DA-CD-dil_m7_15
SPECIFICATIONS AND DATASHEETS	Eaton Specification Sheet - 276732
SYSTEM OVERVIEW	eaton-contactors-dilm-contactor-system-overview.eps
WIRING DIAGRAMS	eaton-contactors-wiring-diagram-2100swi-117.eps

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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