

Specifications



Photo is representative



Eaton 277892

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 30 kW, 190 V 50 Hz, 220 V 60 Hz, AC operation, Screw terminals

General specifications

PRODUCT NAME	Eaton Moeller® series DILM contactor
CATALOG NUMBER	277892
MODEL CODE	DILM65(190V50HZ,220V60HZ)
EAN	4015082778927
PRODUCT LENGTH/DEPTH	132.1 mm
PRODUCT HEIGHT	115 mm
PRODUCT WIDTH	55 mm
PRODUCT WEIGHT	0.872 kg
CERTIFICATIONS	CSA Certified UL Listed IEC 60947-4-1 EN 60947-4-1 UL File No.: E29096 UL CSA File No.: 012528 CE IEC/EN 60947 VDE 0660 UL 60947-4-1 CSA Class No.: 2411-03, 3211-04 CSA IEC/EN 60947-4-1 UL Category Control No.: NLDX CSA-C22.2 No. 60947-4-1-14
CATALOG NOTES	Contacts according to EN 50012
PRODUCT TYPE	Contactor

Features Functions

NUMBER OF POLES	Three-pole
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General

APPLICATION	Contactors for Motors
DEGREE OF PROTECTION	IP00
FRAME SIZE	FS3
LIFESPAN, MECHANICAL	10,000,000 Operations (AC operated)
CONNECTION	Screw terminals
OPERATING FREQUENCY	5000 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	1.9 mΩ
SUITABLE FOR	Also motors with efficiency class IE3
TYPE	Full voltage non-reversing medium contactor
USED WITH	Can be combined with auxiliary contacts: DILM150-XHI(V), DILM1000-XHI(V)
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

Ambient conditions, mechanical

SHOCK RESISTANCE

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 when tabletop-mounted, 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, Half-sinusoidal shock 10 ms
10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, 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, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78

Electro magnetic compatibility

EMITTED INTERFERENCE According to EN 60947-1

INTERFERENCE IMMUNITY According to EN 60947-1

Terminal capacities

TERMINALS	Screw terminals
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 WITH FERRULE)	1 x (0.75 - 2.5) mm ² , Control circuit cables 2 x (0.75 - 2.5) mm ² , Control circuit cables 2 x (0.75 - 25) mm ² , Main cables 1 x (0.75 - 35) mm ² , Main cables
TERMINAL CAPACITY (SOLID)	1 x (0.75 - 16) mm ² , Main cables 2 x (0.75 - 16) mm ² , Main cables 2 x (0.75 - 2.5) mm ² , Control circuit cables 1 x (0.75 - 4) mm ² , Control circuit cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	Single 14 - 1, double 14 - 2, Main cables 18 - 14, Control circuit cables

TERMINAL CAPACITY (STRANDED)	2 x (16 - 35) mm ² , Main cables 1 x (16 - 50) mm ² , Main cables
STRIPPING LENGTH (MAIN CABLE)	14 mm
STRIPPING LENGTH (CONTROL CIRCUIT CABLE)	10 mm
SCREW SIZE	M3.5, Terminal screw, Control circuit cables M6, Terminal screw, Main cables
SCREWDRIVER SIZE	0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver 2, Terminal screw, Pozidriv screwdriver
TIGHTENING TORQUE	3.3 Nm, Screw terminals, Main cables 1.2 Nm, Screw terminals, Control circuit cables

Electrical rating

**RATED BREAKING
CAPACITY AT 220/230 V** 650 A

**RATED BREAKING
CAPACITY AT 380/400 V** 650 A

**RATED BREAKING
CAPACITY AT 500 V** 650 A

**RATED BREAKING
CAPACITY AT 660/690 V** 370 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-1,
380 V, 400 V, 415 V** 98 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-3,
220 V, 230 V, 240 V** 65 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-3,
380 V, 400 V, 415 V** 65 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-3,
440 V** 65 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-3,
500 V** 65 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-3,
660 V, 690 V** 37 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-4,
220 V, 230 V, 240 V** 25 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-4,
440 V** 25 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-4,
500 V** 25 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-4,
660 V, 690 V** 20 A

**RATED OPERATIONAL
CURRENT (IE) AT DC-1, 60
V** 72 A

**RATED OPERATIONAL
CURRENT (IE) AT DC-1,
110 V** 72 A

**RATED OPERATIONAL
CURRENT (IE) AT DC-1,
220 V** 65 A

**RATED INSULATION
VOLTAGE (UI)** 690 V

RATED MAKING 910 A

Short-circuit rating

**SHORT-CIRCUIT CURRENT
RATING (BASIC RATING)** 10 kA, 250 A max. fuse,
SCCR (UL/CSA)
10 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)
30 kA, 250 A max. fuse,
SCCR (UL/CSA)
65 kA, 100 A max. CB,
SCCR (UL/CSA)
30 kA, 250 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)
30 kA, 250 A max. fuse,
SCCR (UL/CSA)
30 kA, 250 A max. CB,
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** 100 A gG/gL

**SHORT-CIRCUIT
PROTECTION RATING
(TYPE 2 COORDINATION)
AT 400 V** 125 A gG/gL

**SHORT-CIRCUIT
PROTECTION RATING
(TYPE 2 COORDINATION)
AT 690 V** 80 A gG/gL

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

RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	22 kW
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RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	30 kW
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RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	39 kW
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RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	41 kW
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RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	47 kW
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RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	35 kW
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RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ	7 kW
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RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ	7.5 kW
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RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ	13 kW
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RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	14 kW
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RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	16 kW
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RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	17 kW
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RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	690 V
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Conventional thermal current I_{th}

CONVENTIONAL THERMAL CURRENT I_{TH} (1-POLE, ENCLOSED)	180 A
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CONVENTIONAL THERMAL CURRENT I_{TH} (3-POLE, ENCLOSED)	72 A
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CONVENTIONAL THERMAL CURRENT I_{TH} AT 55°C (3-POLE, OPEN)	83 A
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CONVENTIONAL THERMAL CURRENT I_{TH} OF MAIN CONTACTS (1- POLE, OPEN)	200 A
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Switching capacity

SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	88 A, Maximum motor rating (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	30 kW
POWER CONSUMPTION, PICK-UP, 50 HZ	149 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz
POWER CONSUMPTION, PICK-UP, 60 HZ	178 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz
POWER CONSUMPTION, SEALING, 50 HZ	16 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz 4.1 W, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz
POWER CONSUMPTION, SEALING, 60 HZ	4.1 W, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz 19 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 - MIN	190 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	190 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	12 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	18 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN	8 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	13 ms

Motor rating

ASSIGNED MOTOR	
POWER AT 115/120 V, 60 HZ, 1-PHASE	5 HP
ASSIGNED MOTOR	
POWER AT 200/208 V, 60 HZ, 3-PHASE	20 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	25 HP
ASSIGNED MOTOR	
POWER AT 460/480 V, 60 HZ, 3-PHASE	50 HP
ASSIGNED MOTOR	
POWER AT 575/600 V, 60 HZ, 3-PHASE	60 HP

DELAY) - MAX	
COIL VOLTAGE	190-220 Vac, 50/60 Hz

Communication	
CONNECTION TO SMARTWIRE-DT	No

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

Contacts	
NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)	0
NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)	0

Special purpose ratings	
SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS	88 A (480V 60Hz 3phase, 277V 60Hz 1phase) 88 A (600V 60Hz 3phase, 347V 60Hz 1phase)
SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING	390 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 65 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
SPECIAL PURPOSE RATING OF ELEVATOR CONTROL	32.2 A, 200 V 60 Hz 3-ph, (UL/CSA) 15 HP, 240 V 60 Hz 3-ph, (UL/CSA) 40 HP, 600 V 60 Hz 3-ph, (UL/CSA) 10 HP, 200 V 60 Hz 3-ph, (UL/CSA) 40 A, 480 V 60 Hz 3-ph, (UL/CSA) 41 A, 600 V 60 Hz 3-ph, (UL/CSA) 30 HP, 480 V 60 Hz 3-ph, (UL/CSA) 42 A, 240 V 60 Hz 3-ph, (UL/CSA)
SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING	88 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 88 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS	88 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 88 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)

Design verification

EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	17.1 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	5.7 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	65 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	4.1 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

	eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf
CATALOGS	SmartWire-DT Catalog Product Range Catalog Switching and protecting motors
CHARACTERISTIC CURVE	eaton-contactors-switch-dilm-characteristic-curve.eps eaton-contactors-switch-dilm-characteristic-curve-002.eps eaton-contactors-component-dilm-characteristic-curve-003.eps
DECLARATIONS OF CONFORMITY	eaton-contactor-declaration-of-conformity-eu250742en.pdf eaton-contactor-declaration-of-conformity-uk251225en.pdf
DRAWINGS	eaton-contactors-dilm-dimensions-002.eps eaton-contactors-dilm-dimensions-012.eps eaton-contactors-mounting-dilm-dimensions.eps eaton-contactors-mounting-dilm-dimensions-002.eps eaton-contactors-dilm-3d-drawing-011.eps eaton-general-ie-ready-dilm-contactor-standards.eps eaton-contactors-mounting-dilm-3d-drawing.eps
ECAD MODEL	ETN.277892.edz
INSTALLATION INSTRUCTIONS	IL03407033Z
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_m40_72 eaton-iec-contactors-mcad-drawings-dil-m40-72.dwg
PEP ECO-PASSPORT	eaton-iec-contactors-pep-eato-00126-v0101-en.pdf
SPECIFICATIONS AND DATASHEETS	Eaton Specification Sheet - 277892
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:



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

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