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Eaton 278003

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 22 kW, 230 V 50/60 Hz, AC operation, Spring-loaded terminals

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PRODUCT NAME	Eaton Moeller® series DILM contactor
CATALOG NUMBER	278003
PRODUCT LENGTH/DEPTH	132.1 mm
PRODUCT HEIGHT	115 mm
PRODUCT WIDTH	55 mm
PRODUCT WEIGHT	0.872 kg
CERTIFICATIONS	CSA File No.: 012528 CSA Class No.: 2411-03, 3211-04 UL UL 508 CSA CSA-C22.2 No. 14-05 IEC/EN 60947 CE VDE 0660 IEC/EN 60947-4-1 UL File No.: E29096 UL Category Control No.: NLDX
CATALOG NOTES	Contacts according to EN 50012



Powering Business Worldwide

**ELECTRICAL
CONNECTION TYPE FOR
AUXILIARY- AND
CONTROL-CURRENT
CIRCUIT**

Spring clamp connection

NUMBER OF POLES

Three-pole

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.

CHARACTERISTIC CURVE

[eaton-contactors-switch-dilm-characteristic-curve-002.eps](#)

[eaton-contactors-switch-dilm-characteristic-curve.eps](#)

**DECLARATIONS OF
CONFORMITY**

[eaton-contactor-declaration-of-conformity-uk251225en.pdf](#)

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[IL03407033Z](#)

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[eaton-contactors-contact-dilm-wiring-diagram-003.eps](#)

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[eaton-contactors-dilm-dimensions-002.eps](#)

[eaton-contactors-dilm-3d-drawing-012.eps](#)

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.
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.
OPERATING FREQUENCY	5000 mechanical Operations/h (AC operated)
POLLUTION DEGREE	3
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
CLIMATIC PROOFING	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
CONNECTION TO SMARTWIRE-DT	No
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	8000 V AC
CONNECTION	Spring-loaded terminals Screw terminals
FRAME SIZE	FS3
AMBIENT OPERATING TEMPERATURE - MAX	60 °C
AMBIENT OPERATING	-25 °C

TEMPERATURE - MIN	
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX	40 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MAX	80 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE	3 HP
ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE	15 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE	10 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE	20 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	40 HP
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE	50 HP
CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)	145 A
CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)	58 A
CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)	68 A
CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)	162 A
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	9.9 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	3.3 W
APPLICATION	Contactors for Motors
PRODUCT CATEGORY	Contactors

PROTECTION	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
TERMINALS	Spring-cage terminals on auxiliary and control circuit terminals
ARCING TIME	10 ms
ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT	Screw connection
SCREWDRIVER SIZE	3.5 mm, Spring-loaded terminals, Control circuit cables 0.8 x 5.5/1 x 6 mm, Terminal screw, Main cables, Standard screwdriver 2, Terminal screw, Main cables, Pozidriv screwdriver
VOLTAGE TYPE	AC
DEGREE OF PROTECTION	IP00
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
NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)	3
RATED BREAKING CAPACITY AT 220/230 V	500 A
RATED BREAKING CAPACITY AT 380/400 V	500 A
RATED BREAKING CAPACITY AT 500 V	500 A
RATED BREAKING CAPACITY AT 660/690 V	320 A
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	230 V

RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	230 V
DROP-OUT VOLTAGE	AC operated: 0.6 - 0.3 x Uc, AC operated
OVERVOLTAGE CATEGORY	III
DUTY FACTOR	100 %
EMITTED INTERFERENCE	According to EN 60947-1
INTERFERENCE IMMUNITY	According to EN 60947-1
LIFESPAN, MECHANICAL	10,000,000 Operations (AC operated) 7,000,000 Operations (Coil 50/60 Hz)
PICK-UP VOLTAGE	0.8 - 1.1 V AC x Uc
POWER CONSUMPTION, PICK-UP, 50 HZ	154 VA, Dual-frequency coil in a cold state and 1.0 x Us 168 VA, Dual-frequency coil in a cold state and 1.0 x Us
SAFE ISOLATION	440 V AC, Between the contacts, According to EN 61140 440 V AC, Between coil and contacts, According to EN 61140
POWER CONSUMPTION, PICK-UP, 60 HZ	168 VA, Dual-frequency coil in a cold state and 1.0 x Us 154 VA, Dual-frequency coil in a cold state and 1.0 x Us
SCREW SIZE	M6, Terminal screw, Main cables
POWER CONSUMPTION, SEALING, 50 HZ	4.1 W, Dual-frequency coil in a cold state and 1.0 x Us
POWER CONSUMPTION, SEALING, 60 HZ	4.1 W, Dual-frequency coil in a cold state and 1.0 x Us 22 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 14 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz
TERMINAL CAPACITY (STRANDED)	1 x (16 - 50) mm ² , Main cables 2 x (16 - 35) mm ² , Main cables
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)	<p>2 x (0.75 - 25) mm², Main cables</p> <p>1 x (0.75 - 1.5) mm², Control circuit cables, Spring-loaded terminals</p> <p>1 x (0.75 - 35) mm², Main cables</p> <p>2 x (0.75 - 1.5) mm², Control circuit cables, Spring-loaded terminals</p>
SHOCK RESISTANCE	<p>10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms</p> <p>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms</p> <p>10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms</p> <p>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms</p> <p>7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms</p> <p>7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms</p>
TERMINAL CAPACITY (SOLID)	<p>1 x (0.75 - 16) mm², Main cables</p> <p>2 x (0.75 - 16) mm², Main cables</p> <p>1 x (0.75 - 2.5) mm², Control circuit cables, Spring-loaded terminals</p> <p>2 x (0.75 - 2.5) mm², Control circuit cables, Spring-loaded terminals</p>
TERMINAL CAPACITY (SOLID/STRANDED AWG)	<p>18 - 14, Control circuit cables, Spring-loaded terminals</p> <p>Single 14 - 1, double 14 - 2, Main cables</p>
SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	80 A, Maximum motor rating (UL/CSA)
TIGHTENING TORQUE	3.3 Nm, Screw terminals,

	Main cables
TERMINAL CAPACITY (FLEXIBLE)	1 x (0.75 - 2.5) mm ² , Control circuit cables, Spring-loaded terminals 2 x (0.75 - 2.5) mm ² , Control circuit cables, Spring-loaded terminals
RATED INSULATION VOLTAGE (UI)	690 V
RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947)	700 A
RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	80 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	50 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	50 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V	50 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	50 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	32 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	21 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V	21 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	21 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	21 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	17 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V	50 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V	45 A
RATED OPERATIONAL	60 A

CURRENT (IE) AT DC-1, 60 V	
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	50 A
RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	17 kW
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	22 kW
RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	30 kW
RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ	6 kW
RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ	6.5 kW
RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ	10 kW
RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ	11 kW
RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	12 kW
RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	13 kW
RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	14 kW
RATED OPERATIONAL POWER (NEMA)	29.8 kW
RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	690 V
RESISTANCE PER POLE	1.9 mΩ
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	4.1 W
STRIPPING LENGTH (CONTROL CIRCUIT CABLE)	10 mm
STRIPPING LENGTH (MAIN CABLE)	14 mm
SWITCHING TIME (AC OPERATED, MAKE	18 ms

CONTACTS, CLOSING DELAY) - MAX	
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN	12 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	13 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN	8 ms
SHORT-CIRCUIT CURRENT RATING (BASIC RATING)	5 kA, 250 A max. fuse, SCCR (UL/CSA) 5 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) 65 kA, 100 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)
SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 400 V	160 A gG/gL
SUITABLE FOR	Also motors with efficiency class IE3
SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 690 V	80 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 400 V	80 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 690 V	63 A gG/gL
SPECIAL PURPOSE RATING OF BALLAST ELECTRICAL DISCHARGE LAMPS	79 A (600V 60Hz 3phase, 347V 60Hz 1phase) 79 A (480V 60Hz 3phase, 277V 60Hz 1phase)
SPECIAL PURPOSE RATING OF ELEVATOR CONTROL	40 HP, 600 V 60 Hz 3-ph, (UL/CSA) 10 HP, 200 V 60 Hz 3-ph, (UL/CSA) 42 A, 240 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) 32.2 A, 200 V 60 Hz 3-ph, (UL/CSA) 15 HP, 240 V 60 Hz 3-ph, (UL/CSA) 30 HP, 480 V 60 Hz 3-ph, (UL/CSA)
SPECIAL PURPOSE RATING OF RESISTANCE AIR HEATING	79 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 79 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
SPECIAL PURPOSE RATING OF TUNGSTEN INCANDESCENT LAMPS	74 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 74 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)	80 A
CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)	71 A
CONVENTIONAL THERMAL CURRENT ITH AT 60°C (3-POLE, OPEN)	65 A
RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	32 kW
RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	36 kW
RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	30 kW
ACTUATING VOLTAGE	230 V 50/60 Hz
ALTITUDE	Max. 2000 m
OPERATING VOLTAGE AT AC, 50 HZ - MIN	230 V
OPERATING VOLTAGE AT AC, 50 HZ - MAX	690 V
OPERATING VOLTAGE AT AC, 60 HZ - MIN	230 V
OPERATING VOLTAGE AT AC, 60 HZ - MAX	690 V

