

Specifications



Photo is representative



Eaton 208210

Eaton Moeller® series DILM Contactor, 380 V 400 V 212 kW, 2 N/O, 2 NC, RAC 500: 250 - 500 V 40 - 60 Hz/250 - 700 V DC, AC and DC operation, Screw connection

General specifications

PRODUCT NAME	Eaton Moeller® series DILM Contactor
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CATALOG NUMBER	208210
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MODEL CODE	DILM400/22(RAC500)
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EAN	4015082082109
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PRODUCT LENGTH/DEPTH	216 mm
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PRODUCT HEIGHT	209 mm
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PRODUCT WIDTH	160 mm
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PRODUCT WEIGHT	8.597 kg
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IEC/EN 60947-4-1

VDE 0660

UL Category Control No.: NLDX

CSA Class No.: 3211-04

UL File No.: E29096

UL 60947-4-1

UL/CSA

CSA file No. 012528

North America (UL listed, CSA certified)

EN 45545: Fire protection on railway vehicles

IEC 61373: Vibration and shock, tested for category 1 class B

CE marking

CERTIFICATIONS

CATALOG NOTES

- Contacts according to EN 50012
- Also tested according to AC-3e up to 500 V.
- Also suitable for motors with efficiency class IE3.
- EN 45545 - Fire protection on railway vehicles:



Powering Business Worldwide

	Fire protection class of all plastics according to UL94: V-0 / plastic weight in total: 2.576 kg • Conventional thermal current Ith of main contacts (1-pole, open) at 60°
GLOBAL CATALOG	208210
PRODUCT TYPE	Contactors

Product specifications

ACCESSORIES	Fitting options auxiliary contacts: on the side: 2 x DILM820-XHI11(V)-SI; 2 x DILM820-XHI11-SA
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	Does not apply, since the entire switchgear needs to

Resources

CHARACTERISTIC CURVE	eaton-contactors-short-time-loading-dilm-characteristic-curve-002.eps
	eaton-contactors-component-dilm-characteristic-curve-002.eps
	eaton-contactors-component-dilm-characteristic-curve-003.eps
	eaton-contactors-component-dilm-characteristic-curve-003.eps
DECLARATIONS OF CONFORMITY	eaton-contactor-declaration-of-conformity-eu250620en.pdf
	eaton-contactor-declaration-of-conformity-uk251103en.pdf
DRAWINGS	eaton-contactors-mounting-dilm-dimensions.eps
	eaton-contactors-mounting-dilm-dimensions-002.eps
	eaton-contactors-dilm-dimensions-008.eps
	eaton-contactors-dilm-3d-drawing-005.eps
ECAD MODEL	eaton-contactors-mounting-dilm-3d-drawing-002.eps
	DA-CE-ETN.DILM400_22(RAC500)
INSTALLATION INSTRUCTIONS	eaton-contactors-dilm250-to-dilm500-il03406002z.pdf
MCAD MODEL	eaton-iec-contactors-mcad-3d-models-dilm300-400-s22.stp
	eaton-iec-contactors-mcad-drawings-dilm300-400-s22.dwg
SPECIFICATIONS AND DATASHEETS	Eaton Specification Sheet - 208210

ASSEMBLIES	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.
FITTED WITH:	Suppressor circuit in actuating electronics
OPERATING FREQUENCY	2000 mechanical Operations/h (DC operated) 2000 mechanical Operations/h (AC operated) 200 Operations/h
POLLUTION DEGREE	3
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
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	8000 V AC
CONNECTION	Screw terminals
AMBIENT OPERATING TEMPERATURE - MAX	60 °C
AMBIENT OPERATING TEMPERATURE - MIN	-40 °C

WIRING DIAGRAMS

[eaton-contactors-contact-dilm-wiring-diagram-004.eps](#)

AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX	40 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN	-40 °C
AMBIENT STORAGE TEMPERATURE - MAX	80 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE	125 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE	150 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	300 HP
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE	400 HP
CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)	1125 A
CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)	450 A
CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)	522 A
CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)	1250 A
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	12.33 W
APPLICATION	Contactors for Motors
PRODUCT CATEGORY	Contactors
PROTECTION	Finger and back-of-hand proof with terminal shroud or terminal block, Protection against direct contact when actuated from front (EN 50274)
ELECTRICAL	Rail connection

CONNECTION TYPE OF MAIN CIRCUIT	
SCREWDRIVER SIZE	2, Terminal screw, Control circuit cables, Pozidriv screwdriver
VOLTAGE TYPE	AC/DC
DEGREE OF PROTECTION	IP00
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 CLOSED) AS MAIN CONTACT	0
NUMBER OF CONTACTS (NORMALLY OPEN CONTACTS)	2
NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)	3
RATED BREAKING CAPACITY AT 1000 V	950 A
RATED BREAKING CAPACITY AT 220/230 V	5000 A
RATED BREAKING CAPACITY AT 380/400 V	5000 A
RATED BREAKING CAPACITY AT 500 V	5000 A
RATED BREAKING CAPACITY AT 660/690 V	5000 A
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	500 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	250 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	500 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	250 V
DROP-OUT VOLTAGE	AC operated: 0.2 x US max - 0.6 x US min, AC operated 0.2 x US max - 0.6 x US min, DC operated

OVERVOLTAGE CATEGORY	III
BEHAVIOR IN MARGINAL AND TRANSITIONAL CONDITIONS	Sealing - Voltage interruptions $0 - 0.2 \times U_c \text{ min}$) > 10 ms: Drop-out of the contactor Sealing - Voltage drops $(0.2 - 0.6 \times U_c \text{ min} \leq 12 \text{ ms})$: Time is bridged successfully Sealing - Excess voltage $(1.15 - 1.3 \times U_c \text{ max})$: Contactor remains switched on Sealing - Voltage interruptions $(0 - 0.2 \times U_c \text{ min} \leq 10 \text{ ms})$: Time is bridged successfully Sealing - Voltage drops $(0.2 - 0.6 \times U_c \text{ min}) > 12 \text{ ms}$: Drop-out of the contactor Sealing - Pick-up phase $(0.7 \times U_c \text{ min} - 1.15 \times U_c \text{ max})$: Contactor switches on with certainty Sealing - Pick-up phase $(0 - 0.7 \times U_c \text{ min})$: Contactor does not switch on Sealing - Voltage drops $(0.6 - 0.7 \times U_c \text{ min})$: Contactor remains switched on
DUTY FACTOR	100 %
ELECTROMAGNETIC COMPATIBILITY	Designed for operation in industrial environments. Its use in residential environments may cause radio-frequency interference, requiring additional noise suppression.
LIFESPAN, MECHANICAL	7,000,000 Operations (AC operated) 7,000,000 Operations (DC operated)
PICK-UP VOLTAGE	$0.7 - 1.15 \text{ V DC} \times U_s$ $0.7 - 1.15 \text{ V AC} \times U_s$
POWER CONSUMPTION, PICK-UP, 50 HZ	630 VA, Pull-in power, Coil in a cold state and $1.0 \times U_s$
SAFE ISOLATION	1000 V AC, Between coil and contacts, According to EN 61140
POWER CONSUMPTION, PICK-UP, 60 HZ	630 VA, Pull-in power, Coil in a cold state and $1.0 \times U_s$
SCREW SIZE	M10, Terminal screw, Main

	connections M3.5, Terminal screw, Control circuit cables
POWER CONSUMPTION, SEALING, 50 HZ	11.7 W, Coil in a cold state and 1.0 x Us 19.6 VA, Coil in a cold state and 1.0 x Us
POWER CONSUMPTION, SEALING, 60 HZ	19.6 VA, Coil in a cold state and 1.0 x Us 11.7 W, Coil in a cold state and 1.0 x Us
RESISTANCE	500 mΩ (Admissible transitional contact resistance - of the external control circuit device when actuating A11)
RATED OPERATIONAL CURRENT (IE)	177 A at 690 V (Individual compensation, three- phase capacitors, open) 307 A at up to 525 V (Individual compensation, three-phase capacitors, open)
INRUSH CURRENT	Max. 30 x Ie (peak)
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)	P300, DC operated (UL/CSA) A600, AC operated (UL/CSA)
LIFESPAN, ELECTRICAL	100,000 Operations (at Condensor operation)
TERMINAL CAPACITY (COPPER BAND)	Fixing with flat cable terminal or cable terminal blocks; See terminal capacity for cable terminal blocks
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
SHOCK RESISTANCE	10 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half- sinusoidal shock 10 ms 8 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
TERMINAL CAPACITY	2 x (0.75 - 2.5) mm ² ,

(SOLID)	Control circuit cables 1 x (0.75 - 2.5) mm ² , Control circuit cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	18 - 14, Control circuit cables 2/0 - 500 MCM, Main cables
SIGNAL LEVEL	5 V - 15 V, PLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2), Magnet systems
TERMINAL CAPACITY (BUSBAR)	25 mm width, Main connection
TERMINAL CAPACITY (FLEXIBLE WITH CABLE LUG)	50 - 240 mm ²
SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	450 A, Maximum motor rating (UL/CSA)
TERMINAL CAPACITY (STRANDED WITH CABLE LUG)	70 - 240 mm ²
POWER CONSUMPTION	Control transformer with uk ≤ 6%
TIGHTENING TORQUE	24 Nm, Main cable connection screw/bolt 1.2 Nm, Screw terminals, Control circuit cables
WIDTH ACROSS FLATS	16 mm
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	700 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	250 V
RATED INSULATION VOLTAGE (UI)	1000 V
RATED MAKING CAPACITY (COS PHI TO IEC/EN 60947)	5500 A
RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	612 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 1000 V	95 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	400 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	400 A
RATED OPERATIONAL	400 A

CURRENT (IE) AT AC-3, 440 V	
RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	400 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	325 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 1000 V	95 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	296 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V	296 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	296 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	296 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	260 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	400 A
RATED OPERATIONAL POWER AT AC-3, 1000 V, 50 HZ	132 kW
RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	132 kW
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	200 kW
RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	232 kW
RATED OPERATIONAL POWER AT AC-4, 1000 V, 50 HZ	132 kW
RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ	92 kW
RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ	100 kW
RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ	160 kW

RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ	176 kW
RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	186 kW
RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	210 kW
RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	240 kW
RATED OPERATIONAL POWER (NEMA)	223 kW
RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	1000 V
RESISTANCE PER POLE	0.077 mΩ
STATIC HEAT DISSIPATION, NON- CURRENT-DEPENDENT PVS	11.7 W
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	80 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	110 ms
SHORT-CIRCUIT CURRENT RATING (BASIC RATING)	30 kA, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 800 A, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)	600 A, max. CB, SCCR (UL/CSA) 100 kA, CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 800/600 A, Class J, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)	30 kA, CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 800/600 A, Class J, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 1000 V	250 A gG/gL
SHORT-CIRCUIT	630 A gG/gL

PROTECTION RATING (TYPE 1 COORDINATION) AT 400 V	
SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 690 V	630 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 1000 V	200 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 400 V	500 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 690 V	500 A gG/gL
SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING	3300 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 3120 A, LRA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 420 A, FLA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 550 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)	612 A
CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)	548 A
CONVENTIONAL THERMAL CURRENT ITH AT 60°C (3-POLE, OPEN)	500 A
RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	250 kW
RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	280 kW
RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	300 kW
ACTUATING VOLTAGE	RAC 500: 250 - 500 V 40 - 60 Hz/250 - 700 V DC
ALTITUDE	Max. 2000 m
OPERATING VOLTAGE AT AC, 50 HZ - MIN	250 V

OPERATING VOLTAGE AT AC, 50 HZ - MAX	500 V
OPERATING VOLTAGE AT AC, 60 HZ - MIN	250 V
OPERATING VOLTAGE AT AC, 60 HZ - MAX	500 V

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



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