Specifications

Eaton 022078

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

General specifications	
PRODUCT NAME	Eaton Moeller® series DILEM Mini contactor
CATALOG NUMBER	022078
MODEL CODE	DILEM4(220V50/60HZ)
EAN	4015080220787
PRODUCT LENGTH/DEPTH	52 mm
PRODUCT HEIGHT	58 mm
PRODUCT WIDTH	45 mm
PRODUCT WEIGHT	0.17 kg
CERTIFICATIONS	UL File No.: E29096 CSA Class No.: 3211-04 CSA CSA File No.: 012528 IEC/EN 60947-4-1 UL VDE 0660 IEC/EN 60947 UL Category Control No.: NLDX CE CSA-C22.2 No. 14-05 UL 508
CATALOG NOTES	Also tested according to AC-3e.
GLOBAL CATALOG	022078

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Product specifications

NUMBER OF POLES	Four-pole
FEATURES	Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module
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.

Resources

CATALOGS	Product Range Catalog Switching and protecting motors eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf
CHARACTERISTIC CURVE	eaton-contactors-switch-dilm-characteristic-curve-002.eps eaton-contactors-switch-dilm-characteristic-curve.eps eaton-contactors-component-dilm-characteristic-curve-003.eps eaton-contactors-short-time-loading-dilm-characteristic-curve.eps
DECLARATIONS OF CONFORMITY	DA-DC-00004812.pdf DA-DC-00004788.pdf
DRAWINGS	eaton-contactors-dilem-dimensions.eps eaton-contactors-diler-dimensions-004.eps eaton-contactors-diler-dimensions-005.eps eaton-contactors-3d-drawing-019.eps eaton-tripping-devices-mounting-diler-contactor-relay-symbol.eps
ECAD MODEL	eaton-dilem-mini-contactor-eplan-022078.edz
INSTALLATION INSTRUCTIONS	IL03407009Z
MCAD MODEL	DA-CS-dil_em DA-CD-dil_em
SYSTEM OVERVIEW	eaton-contactors-accessory-dilem-system-overview.eps

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.
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	9000 mechanical Operations/h
POLLUTION DEGREE	3
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	6000 V AC
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
CONNECTION	Screw terminals
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C

WIRING DIAGRAMS	eaton-contactors-contact-dilem-wiring-diagram.eps

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	0.5 HP
ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE	2 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	5 HP
CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)	50 A
CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)	16 A
CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)	19 A
CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)	10 A
CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)	60 A
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	9.56 W
HEAT DISSIPATION CAPACITY PDISS	0 W

HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	2.39 W
SWITCHING TIME (AC OPERATED, N/O, WITH AUXILIARY CONTACT MODULE, CLOSING DELAY)	45 ms
APPLICATION	Mini Contactors for Motors and Resistive Loads
PRODUCT CATEGORY	Contactors
PROTECTION	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
ARCING TIME	12 ms at 690 V AC
ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT	Screw connection
SCREWDRIVER SIZE	0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver 2, Terminal screw, Pozidriv screwdriver
VOLTAGE TYPE	AC
DEGREE OF PROTECTION	IP20
MOUNTING POSITION	As required (except vertical with terminals A1/A2 at the bottom)
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)	4
RATED BREAKING CAPACITY AT 220/230 V	90 A
RATED BREAKING CAPACITY AT 380/400 V	90 A
RATED BREAKING CAPACITY AT 500 V	64 A

RATED BREAKING CAPACITY AT 660/690 V	42 A
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	220 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	220 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	220 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	220 V
OVERVOLTAGE CATEGORY	III
CONTROL CIRCUIT RELIABILITY	< 2 λ, < 1 failure at 100,000,000 Operations (at U_e = 24 V DC, Umin = 17 V, Imin = 5.4 mA)
DUTY FACTOR	100 %
CHANGEOVER TIME	16 - 21 ms
LIFESPAN, MECHANICAL	20,000,000 Operations 200,000 Operations (at 240 V, AC-15) 7,000,000 Operations (Coil 50/60 Hz) 150,000 Operations (at 240 V, DC, L/R = 50 ms: 2 contacts in series 0.5 A)
PICK-UP VOLTAGE	0.85 - 1.1 V AC x Uc (voltage tolerance - dual frequency coil 50/60 Hz)
POWER CONSUMPTION, PICK-UP, 50 HZ	30 VA, AC, Dual-frequency coil at 50 Hz 26 W, AC, Dual-frequency coil at 50 Hz
SAFE ISOLATION	300 V AC, Between auxiliary contacts, According to EN 61140 300 V AC, Between the contacts, According to EN 61140 300 V AC, Between coil and contacts, According to EN 61140 300 V AC, Between coil and auxiliary contacts, According to EN 61140
POWER CONSUMPTION, PICK-UP, 60 HZ	24 W, AC, Dual-frequency coil at 60 Hz

	29 VA, AC, Dual-frequency coil at 60 Hz
SCREW SIZE	M3.5, Terminal screw
POWER CONSUMPTION, SEALING, 50 HZ	5.4 VA, Coil in a cold state and 1.0 x Us 1.8 W, Coil in a cold state and 1.0 x Us
POWER CONSUMPTION, SEALING, 60 HZ	1.8 W, AC, Dual-frequency coil at 60 Hz 5.4 VA, Coil in a cold state and 1.0 x Us 1.8 W, Coil in a cold state and 1.0 x Us 3.9 VA, AC, Dual-frequency coil at 60 Hz
RATED OPERATIONAL CURRENT (IE)	2.5 A at 24 V, DC L/R ≤ 15 ms (with 1 contact in series) 1.5 A at 100 V, DC L/R ≤ 15 ms (with 3 contacts in series) 0.5 A at 220 V, DC L/R ≤ 15 ms (with 3 contacts in series) 2.5 A at 60 V, DC L/R ≤ 15 ms (with 2 contacts in series)
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	1 x (0.75 - 1.5) mm^2 2 x (0.75 - 1.5) mm^2
SHOCK RESISTANCE	20 g, N/C auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 10 g, N/O main contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 20 g, N/O auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 10 g, N/O main contact, Basic unit without auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms

TERMINAL CAPACITY (SOLID)	2 x (0.75 - 2.5) mm^2 1 x (0.75 - 2.5) mm^2
TERMINAL CAPACITY (SOLID/STRANDED AWG)	18 - 14
SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	15 A, Maximum motor rating (UL/CSA)
TIGHTENING TORQUE	1.2 Nm, Screw terminals
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	0 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	0 V
RATED INSULATION VOLTAGE (UI)	690 V
RATED MAKING CAPACITY UP TO 440 V (COS PHI TO IEC/EN 60947)	110 A
RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	22 A
RATED OPERATIONAL CURRENT (IE) AT AC-15, 220 V, 230 V, 240 V	6 A
RATED OPERATIONAL CURRENT (IE) AT AC-15, 380 V, 400 V, 415 V	3 A
RATED OPERATIONAL CURRENT (IE) AT AC-15, 500 V	1.5 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	6.4 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	4.8 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	6.6 A

RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V	6.6 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	6.6 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	5 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	3.4 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V	20 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 12 V	20 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V	20 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 24 V	20 A
RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V	20 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	22 A
RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	2.5 kW
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	4 kW
RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	4.3 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	1.8 kW
RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ	3 kW
RATED OPERATIONAL POWER AT AC-4, 415 V, 50	3.1 kW

HZ	
RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	3.3 kW
RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	3 kW
RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	3 kW
RATED OPERATIONAL POWER (NEMA)	3.7 kW
RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	690 V
RESISTANCE PER POLE	9.18 mΩ
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	1.8 W
STRIPPING LENGTH (MAIN CABLE)	8 mm
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	21 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN	14 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	18 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN	8 ms
SHORT-CIRCUIT CURRENT RATING (BASIC RATING)	5 kA, SCCR (UL/CSA) 45 A, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT PROTECTION	6 A gG/gL, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding PKZM0-4, Maximum overcurrent protective device, Short-circuit protection only, Auxiliary contacts, Short-circuit rating without welding

	10 A fast, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding
SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 500 V	20 A gG/gL
SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 500 V	10 A gG/gL
CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)	22 A
CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)	20 A
RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	4.6 kW
RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	4 kW
RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	4 kW
ACTUATING VOLTAGE	220 V 50/60 Hz
ALTITUDE	Max. 2000 m
OPERATING VOLTAGE AT AC, 50 HZ - MIN	24 V
OPERATING VOLTAGE AT AC, 50 HZ - MAX	690 V
OPERATING VOLTAGE AT AC, 60 HZ - MIN	24 V
OPERATING VOLTAGE AT AC, 60 HZ - MAX	690 V

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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