

**Contactors, 48 V DC, 3 pole, 380 V 400 V, 4 kW, Contacts N/O = Normally open= 1 N/O, Screw terminals, DC operation**



**Part no. DILEM-10-G(48VDC)  
010245**

General specifications	
Product name	Eaton Moeller® series DILEM Mini contactor
Part no.	DILEM-10-G(48VDC)
EAN	4015080102458
Product Length/Depth	54 millimetre
Product height	58 millimetre
Product width	45 millimetre
Product weight	0.206 kilogram
Certifications	VDE 0660 IEC/EN 60947-4-1 UL Category Control No.: NLDX IEC/EN 60947 UL 508 UL File No.: E29096 CSA-C22.2 No. 14-05 UL CE CSA File No.: 012528 CSA Class No.: 3211-04 CSA
Product Tradename	DILEM
Product Type	Mini contactor
Product Sub Type	None
Catalog Notes	Also tested according to AC-3e.
Features & Functions	
Features	Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module
Fitted with:	Auxiliary contact
General information	
Application	Mini Contactors for Motors and Resistive Loads
Degree of protection	IP20
Lifespan, mechanical	200,000 Operations (at 240 V, AC-15) 20,000,000 Operations 150,000 Operations (at 240 V, DC, L/R = 50 ms: 2 contacts in series 0.5 A)
Mounting position	As required (except vertical with terminals A1/A2 at the bottom)
Operating frequency	9000 mechanical Operations/h
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)	6000 V AC
Shock resistance	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 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 8 g, N/O auxiliary contact, Basic unit without auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
Suitable for	Also motors with efficiency class IE3
Utilization category	AC-4: Normal AC induction motors: starting, plugging, reversing, inching AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-3: Normal AC induction motors: starting, switch off during running
Voltage type	DC
Climatic environmental conditions	

Ambient operating temperature - min		-25 °C
Ambient operating temperature - max		50 °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
<b>Terminal capacities</b>		
Terminal capacity (flexible with ferrule)		1 x (0.75 - 1.5) mm <sup>2</sup> 2 x (0.75 - 1.5) mm <sup>2</sup>
Terminal capacity (solid)		1 x (0.75 - 2.5) mm <sup>2</sup> 2 x (0.75 - 2.5) mm <sup>2</sup>
Terminal capacity (solid/stranded AWG)		18 - 14
Stripping length (main cable)		8 mm
Screw size		M3.5, Terminal screw
Screwdriver size		2, Terminal screw, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver
Tightening torque		1.2 Nm, Screw terminals
<b>Electrical rating</b>		
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 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 breaking capacity at 660/690 V		42 A
Rated making capacity up to 440 V (cos phi to IEC/EN 60947)		110 A
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, 415 V, 50 Hz		3.1 kW
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 voltage (Ue) at AC - max		690 V
Rated insulation voltage (Ui)		690 V
Rated operational current (Ie)		0.5 A at 220 V, DC L/R ≤ 15 ms (with 3 contacts in series) 1.5 A at 100 V, DC L/R ≤ 15 ms (with 3 contacts in series) 2.5 A at 24 V, DC L/R ≤ 15 ms (with 1 contact in series) 2.5 A at 60 V, DC L/R ≤ 15 ms (with 2 contacts in series)
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, 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

Safe isolation		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 300 V AC, Between auxiliary contacts, According to EN 61140
<b>Short-circuit rating</b>		
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 10 A fast, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding PKZMO-4, Maximum overcurrent protective device, Short-circuit protection only, 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
<b>Conventional thermal current I<sub>th</sub></b>		
Conventional thermal current I <sub>th</sub> (1-pole, enclosed)		40 A
Conventional thermal current I <sub>th</sub> (3-pole, enclosed)		16 A
Conventional thermal current I <sub>th</sub> at 55°C (3-pole, open)		19 A
Conventional thermal current I <sub>th</sub> of auxiliary contacts (1-pole, open)		10 A
Conventional thermal current I <sub>th</sub> of main contacts (1-pole, open)		50 A
<b>Switching capacity</b>		
Switching capacity (main contacts, general use)		15 A, Maximum motor rating (UL/CSA)
Switching capacity (auxiliary contacts, general use)		10 A, 600 V AC, (UL/CSA) 0.5 A, 250 V DC, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)		P300, DC operated (UL/CSA) A600, AC operated (UL/CSA)
<b>Magnet system</b>		
Arcing time		12 ms at 690 V AC
Changeover time		40 - 50 ms
Duty factor		100 %
Pick-up voltage		0.8 - 1.1 V DC x U <sub>c</sub>
Power consumption		Smoothed DC voltage or three-phase bridge rectifier 2.3 VA/W at DC (Pick-up/Sealing power)
Rated control supply voltage (U <sub>s</sub> ) at AC, 50 Hz - min		0 V
Rated control supply voltage (U <sub>s</sub> ) at AC, 50 Hz - max		0 V
Rated control supply voltage (U <sub>s</sub> ) at AC, 60 Hz - min		0 V
Rated control supply voltage (U <sub>s</sub> ) at AC, 60 Hz - max		0 V
Rated control supply voltage (U <sub>s</sub> ) at DC - min		48 V
Rated control supply voltage (U <sub>s</sub> ) at DC - max		48 V
Switching time (AC operated, N/O, with auxiliary contact module, closing delay)		70 ms
Switching time (DC operated, make contacts, closing delay) - min		26 ms
Switching time (DC operated, make contacts, closing delay) - max		35 ms
Switching time (DC operated, make contacts, opening delay) - min		15 ms
Switching time (DC operated, make contacts, opening delay) - max		25 ms
<b>Motor rating</b>		
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
<b>Contacts</b>		
Control circuit reliability		< 2 λ, < 1 failure at 100,000,000 Operations (at U# = 24 V DC, U <sub>min</sub> = 17 V, I <sub>min</sub> = 5.4 mA)
Number of auxiliary contacts (normally closed contacts)		0
Number of auxiliary contacts (normally open contacts)		1
Number of contacts (normally open contacts)		1
<b>Design verification</b>		
Equipment heat dissipation, current-dependent P <sub>vid</sub>		0.9 W

Heat dissipation capacity P <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent P <sub>vid</sub>		0.3 W
Rated operational current for specified heat dissipation (I <sub>n</sub> )		9 A
Static heat dissipation, non-current-dependent P <sub>vs</sub>		2.3 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.
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.

## Technical data ETIM 9.0

Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss13-27-37-10-03 [AAB718020])		
Rated control supply voltage AC 50 Hz	V	0 - 0
Rated control supply voltage AC 60 Hz	V	0 - 0
Rated control supply voltage DC	V	48 - 48
Voltage type for actuating		DC
Number of normally closed contacts as main contact		0
Number of normally open contacts as main contact		3
Type of electrical connection of main circuit		Screw connection
Operating voltage AC 50 Hz	V	24 - 690
Operating voltage AC 60 Hz	V	24 - 690
Rated operation current I <sub>e</sub> at AC-1, 400 V	A	22
Rated operation current I <sub>e</sub> at AC-3, 400 V	A	9
Rated operation power at AC-3, 400 V	kW	4
Rated operation current I <sub>e</sub> at AC-4, 400 V	A	6.6
Rated operation power at AC-4, 400 V	kW	3
Rated operation power NEMA	kW	3.7
Number of auxiliary contacts as normally open contact		1
Number of auxiliary contacts as normally closed contact		0
Modular version		No
Width	mm	45
Height	mm	58
Depth	mm	54