

Contactor, 3 pole, 380 V 400 V 4 kW, 1 N/O, 24 V DC, DC operation, Screw terminals



Part no. DILM9-10(24VDC)

276705

EL Number (Norway)

4130288

General specifications		
Product name		Eaton Moeller® series DILM contactor
Part no.		DILM9-10(24VDC)
EAN		4015082767051
Product Length/Depth		75 millimetre
Product height		68 millimetre
Product width		45 millimetre
Product weight		0.296 kilogram
Certifications		UL 60947-4-1 UL File No.: E29096 CSA Class No.: 2411-03, 3211-04 IEC/EN 60947-4-1 IEC/EN 60947 UL CSA-C22.2 No. 60947-4-1-14 CSA File No.: 012528 VDE 0660 UL Category Control No.: NLDX CE CSA
Product Tradename		DILM
Product Type		Contactor
Product Sub Type		None
Catalog Notes		Contacts according to EN 50012
Features & Functions		
Fitted with:		Varistor suppressor circuit
General information		
Application		Contactors for Motors
Degree of protection		IP20
Frame size		FS1
Lifespan, mechanical		10,000,000 Operations (DC operated)
Operating frequency		9000 mechanical Operations/h (DC 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		4.6 mΩ
Suitable for		Also motors with efficiency class IE3
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
Voltage type		DC
Ambient conditions, mechanical		
Shock resistance		10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 5.7 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms 3.4 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms 5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 3.4 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms

<b>Climatic environmental conditions</b>		
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
<b>Electro magnetic compatibility</b>		
Emitted interference		According to EN 60947-1
Interference immunity		According to EN 60947-1
<b>Terminal capacities</b>		
Terminal capacity (flexible with ferrule)		1 x (0.75 - 2.5) mm <sup>2</sup> 2 x (0.75 - 2.5) mm <sup>2</sup>
Terminal capacity (solid)		2 x (0.75 - 2.5) mm <sup>2</sup> 1 x (0.75 - 4) mm <sup>2</sup>
Terminal capacity (solid/stranded AWG)		Single 18 - 10, double 18 - 14
Stripping length (main cable)		10 mm
Stripping length (control circuit cable)		10 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		70 A
Rated breaking capacity at 660/690 V		50 A
Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V		22 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		7 A
Rated operational current (Ie) at AC-3, 660 V, 690 V		5 A
Rated operational current (Ie) at AC-4, 220 V, 230 V, 240 V		6 A
Rated operational current (Ie) at AC-4, 440 V		6 A
Rated operational current (Ie) at AC-4, 500 V		5 A
Rated operational current (Ie) at AC-4, 660 V, 690 V		4.5 A
Rated operational current (Ie) at DC-1, 60 V		20 A
Rated operational current (Ie) at DC-1, 110 V		20 A
Rated operational current (Ie) at DC-1, 220 V		15 A
Rated insulation voltage (Ui)		690 V
Rated making capacity up to 690 V (cos phi to IEC/EN 60947)		126 A
Rated operational power at AC-3, 240 V, 50 Hz		3 kW
Rated operational power at AC-3, 380/400 V, 50 Hz		4 kW
Rated operational power at AC-3, 415 V, 50 Hz		5.5 kW
Rated operational power at AC-3, 440 V, 50 Hz		5.5 kW
Rated operational power at AC-3, 500 V, 50 Hz		4.5 kW
Rated operational power at AC-3, 690 V, 50 Hz		4.5 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		1.6 kW
Rated operational power at AC-4, 415 V, 50 Hz		2.8 kW
Rated operational power at AC-4, 440 V, 50 Hz		3 kW
Rated operational power at AC-4, 500 V, 50 Hz		2.8 kW

Rated operational power at AC-4, 660/690 V, 50 Hz		3.6 kW
Rated operational voltage (Ue) at AC - max		690 V
<b>Short-circuit rating</b>		
Short-circuit current rating (basic rating)		60 A, max. CB, SCCR (UL/CSA) 5 kA, SCCR (UL/CSA) 45 A, max. Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault at 480 V)		16 A, max. CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 25 A, Class RK5/ 20 A Class J, max. Fuse, SCCR (UL/CSA) 65 kA, CB, SCCR (UL/CSA)
Short-circuit current rating (high fault at 600 V)		30/100 kA, Fuse, SCCR (UL/CSA) 25 A, Class RK5/20 A, Class J, max. Fuse, SCCR (UL/CSA)
Short-circuit protection rating (type 1 coordination) at 400 V		35 A gG/gL
Short-circuit protection rating (type 1 coordination) at 690 V		20 A gG/gL
Short-circuit protection rating (type 2 coordination) at 400 V		20 A gG/gL
Short-circuit protection rating (type 2 coordination) at 690 V		16 A gG/gL
<b>Conventional thermal current Ith</b>		
Conventional thermal current Ith (1-pole, enclosed)		45 A
Conventional thermal current Ith (3-pole, enclosed)		18 A
Conventional thermal current Ith at 55°C (3-pole, open)		21 A
Conventional thermal current Ith at 60°C (3-pole, open)		20 A
Conventional thermal current Ith of main contacts (1-pole, open)		50 A
<b>Switching capacity</b>		
Switching capacity (main contacts, general use)		20 A, Maximum motor rating (UL/CSA)
Switching capacity (auxiliary contacts, general use)		1 A, 250 V DC, (UL/CSA) 10 A, 600 V AC, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)		A600, AC operated (UL/CSA) P300, DC operated (UL/CSA)
<b>Magnet system</b>		
Arcing time		10 ms
Drop-out voltage		0.6 - 0.15 x Uc, DC operated At least smoothed two-phase bridge rectifier or three-phase rectifier
Duty factor		100 %
Pick-up voltage		0.85 - 1.1 V DC x Uc (only with auxiliary contact module with 3 or more N/C contacts) 0.7 - 1.3 V DC x Uc (without auxiliary contact module and at ambient air temperature + 40 °C) 0.8 - 1.1 V DC x Uc
Power consumption (pick-up) at DC		4.5 W
Power consumption (sealing) at DC		4.5 W
Rated control supply voltage (Us) at AC, 50 Hz - min		0 V
Rated control supply voltage (Us) at AC, 50 Hz - max		0 V
Rated control supply voltage (Us) at AC, 60 Hz - min		0 V
Rated control supply voltage (Us) at AC, 60 Hz - max		0 V
Rated control supply voltage (Us) at DC - min		24 V
Rated control supply voltage (Us) at DC - max		24 V
Switching time (DC operated, make contacts, closing delay) - max		31 ms
Switching time (DC operated, make contacts, opening delay) - max		12 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		3 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		7.5 HP
<b>Communication</b>		
Connection		Screw terminals
Connection to SmartWire-DT		Yes In conjunction with DIL-SWD SmartWire DT contactor module
<b>Contacts</b>		

Number of contacts (normally open contacts)		1
Number of auxiliary contacts (normally closed contacts)		0
Number of auxiliary contacts (normally open contacts)		1
<b>Safety</b>		
Safe isolation		400 V AC, Between coil and contacts, According to EN 61140 400 V AC, Between the contacts, According to EN 61140
<b>Special purpose ratings</b>		
Special purpose rating of ballast electrical discharge lamps		18 A (600V 60Hz 3phase, 347V 60Hz 1phase) 18 A (480V 60Hz 3phase, 277V 60Hz 1phase)
Special purpose rating of definite purpose rating		9 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 54 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
Special purpose rating of elevator control		3 HP, 480 V 60 Hz 3-ph, (UL/CSA) 2 HP, 200 V 60 Hz 3-ph, (UL/CSA) 2 HP, 240 V 60 Hz 3-ph, (UL/CSA) 6.1 A, 600 V 60 Hz 3-ph, (UL/CSA) 5 HP, 600 V 60 Hz 3-ph, (UL/CSA) 7.8 A, 200 V 60 Hz 3-ph, (UL/CSA) 4.8 A, 480 V 60 Hz 3-ph, (UL/CSA) 6.8 A, 240 V 60 Hz 3-ph, (UL/CSA)
Special purpose rating of refrigeration control (CSA only)		10 A, FLA 480 V 60 Hz 3phase; (CSA) 60 A, LRA 480 V 60 Hz 3phase; (CSA) 10 A, FLA 600 V 60 Hz 3phase; (CSA) 60 A, LRA 600 V 60 Hz 3phase; (CSA)
Special purpose rating of resistance air heating		18 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 18 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
Special purpose rating of tungsten incandescent lamps		14 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 14 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
<b>Design verification</b>		
Equipment heat dissipation, current-dependent Pvid		0 W
Heat dissipation capacity Pdis		0 W
Heat dissipation per pole, current-dependent Pvid		0.3 W
Rated operational current for specified heat dissipation (In)		9 A
Static heat dissipation, non-current-dependent Pvs		4.5 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 8.0

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@ss10.0.1-27-37-10-03 [AAB718015])		
Rated control supply voltage Us at AC 50HZ	V	0 - 0

Rated control supply voltage Us at AC 60HZ	V	0 - 0
Rated control supply voltage Us at DC	V	24 - 24
Voltage type for actuating		DC
Rated operation current Ie at AC-1, 400 V	A	22
Rated operation current Ie at AC-3, 400 V	A	9
Rated operation power at AC-3, 400 V	kW	4
Rated operation current Ie at AC-4, 400 V	A	6
Rated operation power at AC-4, 400 V	kW	2.5
Rated operation power NEMA	kW	3.7
Modular version		No
Number of auxiliary contacts as normally open contact		1
Number of auxiliary contacts as normally closed contact		0
Type of electrical connection of main circuit		Screw connection
Number of normally closed contacts as main contact		0
Number of normally open contacts as main contact		3