

Contactors, 3 pole, 380 V 400 V 90 kW, RAC 120: 100 - 120 V 50/60 Hz, AC operation, Screw terminals



Part no. DILM170(RAC120)

107012

EL Number

4130442

(Norway)

General specifications		
Product name		Eaton Moeller® series DILM contactor
Part no.		DILM170(RAC120)
EAN		4015081067800
Product Length/Depth		160 millimetre
Product height		170 millimetre
Product width		90 millimetre
Product weight		2.25 kilogram
Certifications		CSA Class No.: 2411-03, 3211-04 UL Category Control No.: NLDX UL IEC/EN 60947 CSA VDE 0660 CSA-C22.2 No. 60947-4-1-14 CE UL File No.: E29096 IEC/EN 60947-4-1 UL 60947-4-1 CSA File No.: 012528
Product Tradename		DILM
Product Type		Contactors
Product Sub Type		None
Catalog Notes		Contacts according to EN 50012
Features & Functions		
Fitted with:		Suppressor circuit in actuating electronics
General information		
Application		Contactors for Motors
Degree of protection		IP00
Frame size		FS4
Lifespan, mechanical		10,000,000 Operations (AC operated)
Operating frequency		3000 mechanical Operations/h (AC 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
Residual current		1 mA (with actuation of A1 - A2 by the electronics with "0" signal)
Resistance per pole		0.6 mΩ
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
Voltage type		AC
Ambient conditions, mechanical		
Shock resistance		7 g, N/O 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 when tabletop-mounted, Half-sinusoidal shock 10 ms 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 when tabletop-mounted, Half-sinusoidal shock 10 ms 5 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

Climatic environmental conditions		
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
Electro magnetic compatibility		
Emitted interference		According to EN 60947-1
Interference immunity		According to EN 60947-1
Terminal capacities		
Terminal capacity (copper band)		2 x (6 x 16 x 0.8) mm (Number of segments x width x thickness), Main cables
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 1 x (10 - 95) mm ² , Main cables 2 x (10 - 70) mm ² , Main cables
Terminal capacity (solid)		1 x (0.75 - 4) mm ² , Control circuit cables 2 x (0.75 - 2.5) mm ² , Control circuit cables
Terminal capacity (solid/stranded AWG)		18 - 14, Control circuit cables Single 8...3/0, double 8...2/0, Main cables
Terminal capacity (stranded)		1 x (16 - 95) mm ² , Main cables 2 x (16 - 70) mm ² , Main cables
Stripping length (main cable)		24 mm
Stripping length (control circuit cable)		10 mm
Screw size		M3.5, Terminal screw, Control circuit cables 5 mm AF, Hexagon socket-head spanner, Terminal screw, Main cables M10, Terminal screw, Main cables
Screwdriver size		2, Terminal screw, Control circuit cables, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Control circuit cables, Standard screwdriver
Tightening torque		1.2 Nm, Screw terminals, Control circuit cables 14 Nm, Screw terminals, Main cables
Electrical rating		
Rated breaking capacity at 220/230 V		1500 A
Rated breaking capacity at 380/400 V		1500 A
Rated breaking capacity at 500 V		1500 A
Rated breaking capacity at 660/690 V		1320 A
Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V		225 A
Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V		170 A
Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V		170 A
Rated operational current (Ie) at AC-3, 440 V		170 A
Rated operational current (Ie) at AC-3, 500 V		170 A
Rated operational current (Ie) at AC-3, 660 V, 690 V		100 A
Rated operational current (Ie) at AC-4, 220 V, 230 V, 240 V		65 A
Rated operational current (Ie) at AC-4, 440 V		65 A
Rated operational current (Ie) at AC-4, 500 V		65 A
Rated operational current (Ie) at AC-4, 660 V, 690 V		50 A
Rated operational current (Ie) at DC-1, 60 V		160 A
Rated operational current (Ie) at DC-1, 110 V		160 A
Rated operational current (Ie) at DC-1, 220 V		90 A
Rated insulation voltage (Ui)		690 V
Rated making capacity up to 690 V (cos phi to IEC/EN 60947)		2100 A
Rated operational power at AC-3, 240 V, 50 Hz		57 kW
Rated operational power at AC-3, 380/400 V, 50 Hz		90 kW
Rated operational power at AC-3, 415 V, 50 Hz		100 kW
Rated operational power at AC-3, 440 V, 50 Hz		105 kW
Rated operational power at AC-3, 500 V, 50 Hz		120 kW

Rated operational power at AC-3, 690 V, 50 Hz	96 kW
Rated operational power at AC-4, 220/230 V, 50 Hz	20 kW
Rated operational power at AC-4, 240 V, 50 Hz	22 kW
Rated operational power at AC-4, 415 V, 50 Hz	39 kW
Rated operational power at AC-4, 440 V, 50 Hz	41 kW
Rated operational power at AC-4, 500 V, 50 Hz	47 kW
Rated operational power at AC-4, 660/690 V, 50 Hz	48 kW
Rated operational voltage (Ue) at AC - max	690 V
Short-circuit rating	
Short-circuit current rating (basic rating)	10 kA, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 600 A, max. Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault at 480 V)	250 A, max. CB, SCCR (UL/CSA) 65 kA, CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 300/300 A, Class J, max. Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault at 600 V)	30/100 kA, Fuse, SCCR (UL/CSA) 30 kA, CB, SCCR (UL/CSA) 300/600 A, Class J, max. Fuse, SCCR (UL/CSA) 350 A, max. CB, SCCR (UL/CSA)
Short-circuit protection rating (type 1 coordination) at 400 V	250 A gG/gL
Short-circuit protection rating (type 1 coordination) at 690 V	250 A gG/gL
Short-circuit protection rating (type 2 coordination) at 400 V	250 A gG/gL
Short-circuit protection rating (type 2 coordination) at 690 V	250 A gG/gL
Conventional thermal current I_{th}	
Conventional thermal current I _{th} (1-pole, enclosed)	415 A
Conventional thermal current I _{th} (3-pole, enclosed)	166 A
Conventional thermal current I _{th} at 55°C (3-pole, open)	190 A
Conventional thermal current I _{th} at 60°C (3-pole, open)	185 A
Conventional thermal current I _{th} of main contacts (1-pole, open)	460 A
Switching capacity	
Switching capacity (main contacts, general use)	225 A, Maximum motor rating (UL/CSA)
Magnet system	
Arcing time	15 ms
Drop-out voltage	AC operated: 0.6 - 0.25 x UC, AC operated
Duty factor	100 %
Pick-up voltage	0.8 - 1.15 V AC x U _c
Power consumption, pick-up, 50 Hz	180 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz
Power consumption, pick-up, 60 Hz	170 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz
Power consumption, sealing, 50 Hz	3.1 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz 2.3 W, Dual-frequency coil in a cold state and 1.0 x U _s , at 50 Hz
Power consumption, sealing, 60 Hz	3.1 VA, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz 2.3 W, Dual-frequency coil in a cold state and 1.0 x U _s , at 60 Hz
Rated control supply voltage (U _s) at AC, 50 Hz - min	100 V
Rated control supply voltage (U _s) at AC, 50 Hz - max	120 V
Rated control supply voltage (U _s) at AC, 60 Hz - min	100 V
Rated control supply voltage (U _s) at AC, 60 Hz - max	120 V
Rated control supply voltage (U _s) at DC - min	0 V
Rated control supply voltage (U _s) at DC - max	0 V
Switching time (AC operated, make contacts, closing delay) - min	28 ms
Switching time (AC operated, make contacts, closing delay) - max	33 ms
Switching time (AC operated, make contacts, opening delay) - min	35 ms
Switching time (AC operated, make contacts, opening delay) - max	41 ms
Motor rating	
Assigned motor power at 115/120 V, 60 Hz, 1-phase	10 HP
Assigned motor power at 200/208 V, 60 Hz, 3-phase	50 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase	30 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase	60 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	125 HP

Assigned motor power at 575/600 V, 60 Hz, 3-phase		125 HP
Communication		
Connection		Screw terminals
Connection to SmartWire-DT		No
Contacts		
Number of auxiliary contacts (normally closed contacts)		0
Number of auxiliary contacts (normally open contacts)		0
Safety		
Safe isolation		690 V AC, Between the contacts, According to EN 61140 690 V AC, Between coil and contacts, According to EN 61140
Special purpose ratings		
Special purpose rating of ballast electrical discharge lamps		160 A (480V 60Hz 3phase, 277V 60Hz 1phase) 160 A (600V 60Hz 3phase, 347V 60Hz 1phase)
Special purpose rating of definite purpose rating		170 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 1020 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
Special purpose rating of elevator control		30 HP, 200 V 60 Hz 3-ph, (UL/CSA) 104 A, 240 V 60 Hz 3-ph, (UL/CSA) 100 HP, 600 V 60 Hz 3-ph, (UL/CSA) 75 HP, 480 V 60 Hz 3-ph, (UL/CSA) 92 A, 200 V 60 Hz 3-ph, (UL/CSA) 99 A, 600 V 60 Hz 3-ph, (UL/CSA) 40 HP, 240 V 60 Hz 3-ph, (UL/CSA) 96 A, 480 V 60 Hz 3-ph, (UL/CSA)
Special purpose rating of refrigeration control (CSA only)		540 A, LRA 600 V 60 Hz 3phase; (CSA) 90 A, FLA 600 V 60 Hz 3phase; (CSA) 540 A, LRA 480 V 60 Hz 3phase; (CSA) 90 A, FLA 480 V 60 Hz 3phase; (CSA)
Special purpose rating of resistance air heating		160 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 160 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
Special purpose rating of tungsten incandescent lamps		160 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 160 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
Design verification		
Equipment heat dissipation, current-dependent P _{vid}		41.1 W
Heat dissipation capacity P _{diss}		0 W
Heat dissipation per pole, current-dependent P _{vid}		13.7 W
Rated operational current for specified heat dissipation (I _n)		170 A
Static heat dissipation, non-current-dependent P _{vs}		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	100 - 120
Rated control supply voltage AC 60 Hz	V	100 - 120
Rated control supply voltage DC	V	0 - 0
Voltage type for actuating		AC
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	230 - 690
Operating voltage AC 60 Hz	V	230 - 690
Rated operation current I _e at AC-1, 400 V	A	225
Rated operation current I _e at AC-3, 400 V	A	170
Rated operation power at AC-3, 400 V	kW	90
Rated operation current I _e at AC-4, 400 V	A	65
Rated operation power at AC-4, 400 V	kW	33
Rated operation power NEMA	kW	93
Number of auxiliary contacts as normally open contact		0
Number of auxiliary contacts as normally closed contact		0
Modular version		No
Width	mm	90
Height	mm	170
Depth	mm	160