DATASHEET - DILM170(RAC240)

Contactor, 3 pole, 380 V 400 V 90 kW, RAC 240: 190 - 240 V 50/60 Hz, AC operation, Screw terminals

Powering Business Worldwide

Part no.	**DILM170(RAC240)**
	107013
EL Number (Norway)	**4130443**

General specifications

Product name	Eaton Moeller® series DILM contactor
Part no.	DILM170(RAC240)
EAN	4015081067817
Product Length/Depth	160 millimetre
Product height	170 millimetre
Product width	90 millimetre
Product weight	2.25 kilogram
Certifications	CE CSA File No.: 012528 IEC/EN 60947 CSA Class No.: 2411-03, 3211-04 CSA UL IEC/EN 60947-4-1 UL File No.: E29096 CSA-C22.2 No. 60947-4-1-14 VDE 0660 UL 60947-4-1 UL Category Control No.: NLDX
Product Tradename	DILM
Product Type	Contactor
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	10 g, N/O main 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 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 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, 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, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

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)	2 x (0.75 - 2.5) mm^2, Control circuit cables 1 x (10 - 95) mm^2, Main cables 1 x (0.75 - 2.5) mm^2, Control circuit 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 M10, Terminal screw, Main cables 5 mm AF, Hexagon socket-head spanner, 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	14 Nm, Screw terminals, Main cables 1.2 Nm, Screw terminals, Control circuit 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)	600 A, max. Fuse, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 10 kA, SCCR (UL/CSA)
Short-circuit current rating (high fault at 480 V)	65 kA, CB, SCCR (UL/CSA) 250 A, max. 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) 350 A, max. CB, SCCR (UL/CSA) 300/600 A, Class J, max. Fuse, 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 Ith	
Conventional thermal current ith (1-pole, enclosed)	415 A
Conventional thermal current ith (3-pole, enclosed)	166 A
Conventional thermal current ith at 55°C (3-pole, open)	190 A
Conventional thermal current ith at 60°C (3-pole, open)	185 A
Conventional thermal current ith 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 Uc
Power consumption, pick-up, 50 Hz	180 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz
Power consumption, pick-up, 60 Hz	170 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz
Power consumption, sealing, 50 Hz	2.3 W, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz 3.1 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz
Power consumption, sealing, 60 Hz	2.3 W, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 3.1 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz
Rated control supply voltage (Us) at AC, 50 Hz - min	190 V
Rated control supply voltage (Us) at AC, 50 Hz - max	240 V
Rated control supply voltage (Us) at AC, 60 Hz - min	190 V
Rated control supply voltage (Us) at AC, 60 Hz - max	240 V
Rated control supply voltage (Us) at DC - min	0 V
Rated control supply voltage (Us) 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 (600V 60Hz 3phase, 347V 60Hz 1phase) 160 A (480V 60Hz 3phase, 277V 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	92 A, 200 V 60 Hz 3-ph, (UL/CSA) 40 HP, 240 V 60 Hz 3-ph, (UL/CSA) 75 HP, 480 V 60 Hz 3-ph, (UL/CSA) 30 HP, 200 V 60 Hz 3-ph, (UL/CSA) 100 HP, 600 V 60 Hz 3-ph, (UL/CSA) 99 A, 600 V 60 Hz 3-ph, (UL/CSA) 104 A, 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) 540 A, LRA 480 V 60 Hz 3phase; (CSA) 90 A, FLA 600 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 Pvid	41.1 W
Heat dissipation capacity Pdiss	0 W
Heat dissipation per pole, current-dependent Pvid	13.7 W
Rated operational current for specified heat dissipation (In)	170 A
Static heat dissipation, non-current-dependent Pvs	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	190 - 240
Rated control supply voltage AC 60 Hz		V	190 - 240
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 Ie at AC-1, 400 V		A	225
Rated operation current Ie at AC-3, 400 V		A	170
Rated operation power at AC-3, 400 V		kW	90
Rated operation current Ie 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