DATASHEET - DILM50(110V50/60HZ)

Contactor, 3 pole, 380 V 400 V 22 kW, 110 V 50/60 Hz, AC operation, Screw terminals

Part no. **DILM50(110V50/60HZ)**
277836

Powering Business Worldwide™

General specifications

Product name	Eaton Moeller® series DILM contactor
Part no.	DILM50(110V50/60HZ)
EAN	4015082778361
Product Length/Depth	132.1 millimetre
Product height	115 millimetre
Product width	55 millimetre
Product weight	0.872 kilogram
Compliances	CE Marked
Certifications	UL 508 EN 60947-4-1 IEC 60947-4-1 CSA Std. C22.2 No. 14-05 VDE CSA CSA-C22.2 No. 60947-4-1-14 UL 60947-4-1 CSA Class No.: 2411-03, 3211-04 VDE 0660 IEC/EN 60947 CE UL IEC/EN 60947-4-1 UL Category Control No.: NLDX UL File No.: E29096 CSA File No.: 012528
Product Tradename	DILM
Product Type	Contactor
Product Sub Type	None
Catalog Notes	Contacts according to EN 50012

General information

Application	Contactors for Motors
Connection	Screw terminals
Degree of protection	IP00
Frame size	FS3
Lifespan, mechanical	7,000,000 Operations (Coil 50/60 Hz) 10,000,000 Operations (AC operated)
Operating frequency	5000 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
Resistance per pole	1.9 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	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 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 when tabletop-mounted, 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

	10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, 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 9 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 (0.75 - 35) mm^2, Main cables 2 x (0.75 - 25) mm^2, Main cables 1 x (0.75 - 2.5) mm^2, Control circuit cables
Terminal capacity (solid)	2 x (0.75 - 16) mm^2, Main cables 1 x (0.75 - 16) mm^2, Main cables 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 14 - 1, double 14 - 2, Main cables
Terminal capacity (stranded)	1 x (16 - 50) mm^2, Main cables 2 x (16 - 35) mm^2, Main cables
Stripping length (main cable)	14 mm
Stripping length (control circuit cable)	10 mm
Screw size	M3.5, Terminal screw, Control circuit cables M6, Terminal screw, Main cables
Screwdriver size	2, Terminal screw, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver
Tightening torque	3.3 Nm, Screw terminals, Main cables 1.2 Nm, Screw terminals, Control circuit cables
Electrical rating	
Rated breaking capacity at 220/230 V	500 A
Rated breaking capacity at 380/400 V	500 A
Rated breaking capacity at 500 V	500 A
Rated breaking capacity at 660/690 V	320 A
Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V	80 A
Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V	50 A
Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V	50 A
Rated operational current (Ie) at AC-3, 440 V	50 A
Rated operational current (Ie) at AC-3, 500 V	50 A
Rated operational current (Ie) at AC-3, 660 V, 690 V	32 A
Rated operational current (Ie) at AC-4, 220 V, 230 V, 240 V	21 A
Rated operational current (Ie) at AC-4, 440 V	21 A
Rated operational current (Ie) at AC-4, 500 V	21 A
Rated operational current (Ie) at AC-4, 660 V, 690 V	17 A
Rated operational current (Ie) at DC-1, 60 V	60 A
Rated operational current (Ie) at DC-1, 110 V	50 A
Rated operational current (Ie) at DC-1, 220 V	45 A
Rated insulation voltage (Ui)	690 V
Rated making capacity up to 690 V (cos phi to IEC/EN 60947)	700 A
Rated operational power at AC-3, 240 V, 50 Hz	17 kW
Rated operational power at AC-3, 380/400 V, 50 Hz	22 kW

Rated operational power at AC-3, 415 V, 50 Hz	30 kW
Rated operational power at AC-3, 440 V, 50 Hz	32 kW
Rated operational power at AC-3, 500 V, 50 Hz	36 kW
Rated operational power at AC-3, 690 V, 50 Hz	30 kW
Rated operational power at AC-4, 220/230 V, 50 Hz	6 kW
Rated operational power at AC-4, 240 V, 50 Hz	6.5 kW
Rated operational power at AC-4, 415 V, 50 Hz	11 kW
Rated operational power at AC-4, 440 V, 50 Hz	12 kW
Rated operational power at AC-4, 500 V, 50 Hz	13 kW
Rated operational power at AC-4, 660/690 V, 50 Hz	14 kW
Rated operational voltage (Ue) at AC - max	690 V
Short-circuit rating	
Short-circuit current rating (basic rating)	10 kA, SCCR (UL/CSA) 250 A, max. CB, SCCR (UL/CSA) 250 A, max. Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault at 480 V)	100 A, max. CB, SCCR (UL/CSA) 65 kA, CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 250/150 A, Class J, max. Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault at 600 V)	250/150 A, Class J, max. Fuse, SCCR (UL/CSA) 30 kA, CB, SCCR (UL/CSA) 250 A, max. CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA)
Short-circuit protection rating (type 1 coordination) at 400 V	160 A gG/gL
Short-circuit protection rating (type 1 coordination) at 690 V	80 A gG/gL
Short-circuit protection rating (type 2 coordination) at 400 V	80 A gG/gL
Short-circuit protection rating (type 2 coordination) at 690 V	63 A gG/gL
Conventional thermal current Ith	
Conventional thermal current ith (1-pole, enclosed)	145 A
Conventional thermal current ith (3-pole, enclosed)	58 A
Conventional thermal current ith at 55°C (3-pole, open)	68 A
Conventional thermal current ith at 60°C (3-pole, open)	65 A
Conventional thermal current ith of main contacts (1-pole, open)	162 A
Switching capacity	
Switching capacity (main contacts, general use)	80 A, Maximum motor rating (UL/CSA)
Magnet system	
Arcing time	10 ms
Drop-out voltage	AC operated: 0.6 - 0.3 x UC, AC operated
Duty factor	100 %
Pick-up voltage	0.8 - 1.1 V AC x Uc
Power consumption, pick-up, 50 Hz	154 VA, Dual-frequency coil in a cold state and 1.0 x Us 168 VA, Dual-frequency coil in a cold state and 1.0 x Us
Power consumption, pick-up, 60 Hz	154 VA, Dual-frequency coil in a cold state and 1.0 x Us 168 VA, Dual-frequency coil in a cold state and 1.0 x Us
Power consumption, sealing, 50 Hz	4.1 W, Dual-frequency coil in a cold state and 1.0 x Us
Power consumption, sealing, 60 Hz	4.1 W, Dual-frequency coil in a cold state and 1.0 x Us 14 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 22 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	110 V
Rated control supply voltage (Us) at AC, 50 Hz - max	110 V
Rated control supply voltage (Us) at AC, 60 Hz - min	110 V
Rated control supply voltage (Us) at AC, 60 Hz - max	110 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	12 ms
Switching time (AC operated, make contacts, closing delay) - max	18 ms
Switching time (AC operated, make contacts, opening delay) - min	8 ms
Switching time (AC operated, make contacts, opening delay) - max	13 ms
Motor rating	

Assigned motor power at 115/120 V, 60 Hz, 1-phase	3 HP
Assigned motor power at 200/208 V, 60 Hz, 3-phase	15 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase	10 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase	20 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	40 HP
Assigned motor power at 575/600 V, 60 Hz, 3-phase	50 HP
Communication	
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	440 V AC, Between coil and contacts, According to EN 61140 440 V AC, Between the contacts, According to EN 61140
Special purpose ratings	
Special purpose rating of ballast electrical discharge lamps	79 A (480V 60Hz 3phase, 277V 60Hz 1phase) 79 A (600V 60Hz 3phase, 347V 60Hz 1phase)
Special purpose rating of elevator control	40 HP, 600 V 60 Hz 3-ph, (UL/CSA) 41 A, 600 V 60 Hz 3-ph, (UL/CSA) 10 HP, 200 V 60 Hz 3-ph, (UL/CSA) 32.2 A, 200 V 60 Hz 3-ph, (UL/CSA) 15 HP, 240 V 60 Hz 3-ph, (UL/CSA) 42 A, 240 V 60 Hz 3-ph, (UL/CSA) 30 HP, 480 V 60 Hz 3-ph, (UL/CSA) 40 A, 480 V 60 Hz 3-ph, (UL/CSA)
Special purpose rating of resistance air heating	79 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 79 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
Special purpose rating of tungsten incandescent lamps	74 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 74 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
Design verification	
Equipment heat dissipation, current-dependent Pvid	9.9 W
Heat dissipation capacity Pdiss	0 W
Heat dissipation per pole, current-dependent Pvid	3.3 W
Rated operational current for specified heat dissipation (In)	50 A
Static heat dissipation, non-current-dependent Pvs	4.1 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	110 - 110
Rated control supply voltage AC 60 Hz		V	110 - 110
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	80
Rated operation current Ie at AC-3, 400 V		A	50
Rated operation power at AC-3, 400 V		kW	22
Rated operation current Ie at AC-4, 400 V		A	21
Rated operation power at AC-4, 400 V		kW	10
Rated operation power NEMA		kW	29.8
Number of auxiliary contacts as normally open contact			0
Number of auxiliary contacts as normally closed contact			0
Modular version			No
Width		mm	55
Height		mm	115
Depth		mm	132.1