

DATASHEET - DILM72(24V50/60HZ)



Contactor, 3 pole, 380 V 400 V 37 kW, 24 V 50/60 Hz, AC operation, Screw terminals

Part no. DILM72(24V50/60HZ) 109197

General specifications

Product name	Eaton Moeller® series DILM contactor
Part no.	DILM72(24V50/60HZ)
EAN	4015081088171
Product Length/Depth	132.1 millimetre
Product height	115 millimetre
Product width	55 millimetre
Product weight	0.872 kilogram
Certifications	IEC/EN 60947-4-1 UL 60947-4-1 CSA Class No.: 2411-03, 3211-04 CSA VDE 0660 UL UL File No.: E29096 UL Category Control No.: NLDX CSA-C22.2 No. 60947-4-1-14 CSA File No.: 012528 CE IEC/EN 60947
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
Utilization category	AC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching AC-1: Non-inductive or slightly inductive loads, resistance furnaces
Voltage type	AC

Ambient conditions, mechanical

Shock resistance	5 g, N/C 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 7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
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Climatic environmental conditions

Altitude	Max. 2000 m
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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)			1 x (0.75 - 2.5) mm ² , Control circuit cables 1 x (0.75 - 35) mm ² , Main cables 2 x (0.75 - 2.5) mm ² , Control circuit cables 2 x (0.75 - 25) mm ² , Main cables
Terminal capacity (solid)			1 x (0.75 - 16) mm ² , Main cables 1 x (0.75 - 4) mm ² , Control circuit cables 2 x (0.75 - 16) mm ² , Main 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			1.2 Nm, Screw terminals, Control circuit cables 3.3 Nm, Screw terminals, Main cables
Electrical rating			
Rated breaking capacity at 220/230 V			650 A
Rated breaking capacity at 380/400 V			650 A
Rated breaking capacity at 500 V			650 A
Rated breaking capacity at 660/690 V			370 A
Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V			98 A
Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V			72 A
Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V			72 A
Rated operational current (Ie) at AC-3, 440 V			72 A
Rated operational current (Ie) at AC-3, 500 V			72 A
Rated operational current (Ie) at AC-3, 660 V, 690 V			37 A
Rated operational current (Ie) at AC-4, 220 V, 230 V, 240 V			25 A
Rated operational current (Ie) at AC-4, 440 V			25 A
Rated operational current (Ie) at AC-4, 500 V			25 A
Rated operational current (Ie) at AC-4, 660 V, 690 V			20 A
Rated operational current (Ie) at DC-1, 60 V			72 A
Rated operational current (Ie) at DC-1, 110 V			72 A
Rated operational current (Ie) at DC-1, 220 V			65 A
Rated insulation voltage (Ui)			690 V
Rated making capacity up to 690 V (cos phi to IEC/EN 60947)			910 A
Rated operational power at AC-3, 240 V, 50 Hz			25 kW
Rated operational power at AC-3, 380/400 V, 50 Hz			37 kW
Rated operational power at AC-3, 415 V, 50 Hz			41 kW
Rated operational power at AC-3, 440 V, 50 Hz			44 kW
Rated operational power at AC-3, 500 V, 50 Hz			50 kW
Rated operational power at AC-3, 690 V, 50 Hz			35 kW
Rated operational power at AC-4, 220/230 V, 50 Hz			7 kW

Rated operational power at AC-4, 240 V, 50 Hz		7.5 kW
Rated operational power at AC-4, 415 V, 50 Hz		13 kW
Rated operational power at AC-4, 440 V, 50 Hz		14 kW
Rated operational power at AC-4, 500 V, 50 Hz		16 kW
Rated operational power at AC-4, 660/690 V, 50 Hz		17 kW
Rated operational voltage (Ue) at AC - max		690 V
Short-circuit rating		
Short-circuit current rating (basic rating)		250 A, max. Fuse, SCCR (UL/CSA) 250 A, max. CB, SCCR (UL/CSA) 10 kA, SCCR (UL/CSA)
Short-circuit current rating (high fault at 480 V)		30/100 kA, Fuse, SCCR (UL/CSA) 250/150 A, Class J, max. Fuse, SCCR (UL/CSA) 100 A, max. CB, SCCR (UL/CSA) 65 kA, CB, SCCR (UL/CSA)
Short-circuit current rating (high fault at 600 V)		30 kA, CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA) 250 A, max. CB, SCCR (UL/CSA) 250/150 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		100 A gG/gL
Short-circuit protection rating (type 2 coordination) at 400 V		125 A gG/gL
Short-circuit protection rating (type 2 coordination) at 690 V		80 A gG/gL
Conventional thermal current Ith		
Conventional thermal current Ith (1-pole, enclosed)		180 A
Conventional thermal current Ith (3-pole, enclosed)		72 A
Conventional thermal current Ith at 55°C (3-pole, open)		83 A
Conventional thermal current Ith at 60°C (3-pole, open)		80 A
Conventional thermal current Ith of main contacts (1-pole, open)		200 A
Switching capacity		
Switching capacity (main contacts, general use)		88 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		168 VA, Dual-frequency coil in a cold state and 1.0 x Us 154 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		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 4.1 W, Dual-frequency coil in a cold state and 1.0 x Us
Rated control supply voltage (Us) at AC, 50 Hz - min		24 V
Rated control supply voltage (Us) at AC, 50 Hz - max		24 V
Rated control supply voltage (Us) at AC, 60 Hz - min		24 V
Rated control supply voltage (Us) at AC, 60 Hz - max		24 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		5 HP
Assigned motor power at 200/208 V, 60 Hz, 3-phase		20 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase		15 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase		25 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase		50 HP

Assigned motor power at 575/600 V, 60 Hz, 3-phase			60 HP
Communication			
Connection to SmartWire-DT			No
Contacts			
Number of auxiliary contacts (normally closed contacts)			0
Number of auxiliary contacts (normally open contacts)			0
Number of contacts (normally closed) as main contact			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			88 A (480V 60Hz 3phase, 277V 60Hz 1phase) 88 A (600V 60Hz 3phase, 347V 60Hz 1phase)
Special purpose rating of definite purpose rating			72 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 432 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
Special purpose rating of elevator control			42 A, 240 V 60 Hz 3-ph, (UL/CSA) 40 HP, 600 V 60 Hz 3-ph, (UL/CSA) 30 HP, 480 V 60 Hz 3-ph, (UL/CSA) 32.2 A, 200 V 60 Hz 3-ph, (UL/CSA) 10 HP, 200 V 60 Hz 3-ph, (UL/CSA) 41 A, 600 V 60 Hz 3-ph, (UL/CSA) 40 A, 480 V 60 Hz 3-ph, (UL/CSA) 15 HP, 240 V 60 Hz 3-ph, (UL/CSA)
Special purpose rating of resistance air heating			88 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 88 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
Special purpose rating of tungsten incandescent lamps			88 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 88 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
Design verification			
Equipment heat dissipation, current-dependent Pvid			21 W
Heat dissipation capacity Pdis			0 W
Heat dissipation per pole, current-dependent Pvid			7 W
Rated operational current for specified heat dissipation (In)			72 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	24 - 24
Rated control supply voltage AC 60 Hz		V	24 - 24
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	98
Rated operation current Ie at AC-3, 400 V		A	72
Rated operation power at AC-3, 400 V		kW	37
Rated operation current Ie at AC-4, 400 V		A	25
Rated operation power at AC-4, 400 V		kW	12
Rated operation power NEMA		kW	37
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