



Contactor, 380 V 400 V 212 kW, 2 N/O, 2 NC, RA 250: 110 - 250 V 40 - 60 Hz/110 - 350 V DC, AC and DC operation, Screw connection

Part no. DILM400/22(RA250)
208209
EL Number 4134085
(Norway)

General specifications		
Product name		Eaton Moeller® series DILM Contactor
Part no.		DILM400/22(RA250)
EAN		4015082082093
Product Length/Depth		216 millimetre
Product height		209 millimetre
Product width		160 millimetre
Product weight		8.505 kilogram
Certifications		North America (UL listed, CSA certified) UL/CSA EN 45545: Fire protection on railway vehicles CE marking CSA file No. 012528 IEC 61373: Vibration and shock, tested for category 1 class B UL Category Control No.: NLDX VDE 0660 UL File No.: E29096 UL 60947-4-1 IEC/EN 60947-4-1 CSA Class No.: 3211-04
Product Tradename		DILM
Product Type		Contactor
Product Sub Type		None
Catalog Notes		EN 45545 - Fire protection on railway vehicles: Fire protection class of all plastics according to UL94: V-0 / plastic weight in total: 2.576 kg Also suitable for motors with efficiency class IE3. Also tested according to AC-3e up to 500 V. Contacts according to EN 50012
General information		
Accessories		Fitting options auxiliary contacts: on the side: 2 x DILM820-XHI11(V)-SI; 2 x DILM820-XHI11-SA
Application		Contactors for Motors
Connection		Screw terminals
Degree of protection		IP00
Electromagnetic compatibility		Designed for operation in industrial environments. Its use in residential environments may cause radio-frequency interference, requiring additional noise suppression.
Fitted with:		Suppressor circuit in actuating electronics
Lifespan, electrical		100,000 Operations (at Condensor operation)
Lifespan, mechanical		7,000,000 Operations (AC operated) 7,000,000 Operations (DC operated)
Operating frequency		2000 mechanical Operations/h (DC operated) 2000 mechanical Operations/h (AC operated) 200 Operations/h
Overvoltage category		III
Pollution degree		3
Product category		Contactors
Protection		Finger and back-of-hand proof with terminal shroud or terminal block, Protection against direct contact when actuated from front (EN 50274)
Rated impulse withstand voltage (Uimp)		8000 V AC
Resistance		500 mΩ (Admissible transitional contact resistance - of the external control circuit device when actuating A11)
Shock resistance		10 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, Half-sinusoidal shock 10 ms 8 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms

Signal level		5 V - 15 V, PLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2), Magnet systems
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/DC
Climatic environmental conditions		
Altitude		Max. 2000 m
Ambient operating temperature - min		-40 °C
Ambient operating temperature - max		60 °C
Ambient operating temperature (enclosed) - min		-40 °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
Terminal capacities		
Terminal capacity (busbar)		25 mm width, Main connection
Terminal capacity (copper band)		Fixing with flat cable terminal or cable terminal blocks; See terminal capacity for cable terminal blocks
Terminal capacity (flexible with cable lug)		50 - 240 mm ²
Terminal capacity (flexible with ferrule)		2 x (0.75 - 2.5) mm ² , Control circuit cables 1 x (0.75 - 2.5) mm ² , Control circuit cables
Terminal capacity (solid)		2 x (0.75 - 2.5) mm ² , Control circuit cables 1 x (0.75 - 2.5) mm ² , Control circuit cables
Terminal capacity (solid/stranded AWG)		18 - 14, Control circuit cables 2/0 - 500 MCM, Main cables
Terminal capacity (stranded with cable lug)		70 - 240 mm ²
Width across flats		16 mm
Screw size		M3.5, Terminal screw, Control circuit cables M10, Terminal screw, Main connections
Screwdriver size		2, Terminal screw, Control circuit cables, Pozidriv screwdriver
Tightening torque		1.2 Nm, Screw terminals, Control circuit cables 24 Nm, Main cable connection screw/bolt
Electrical rating		
Inrush current		Max. 30 x I _e (peak)
Rated breaking capacity at 220/230 V		5000 A
Rated breaking capacity at 380/400 V		5000 A
Rated breaking capacity at 500 V		5000 A
Rated breaking capacity at 660/690 V		5000 A
Rated breaking capacity at 1000 V		950 A
Rated insulation voltage (U _i)		1000 V
Rated making capacity (cos phi to IEC/EN 60947)		5500 A
Rated operational current (I _e)		177 A at 690 V (Individual compensation, three-phase capacitors, open) 307 A at up to 525 V (Individual compensation, three-phase capacitors, open)
Rated operational current (I _e) at AC-1, 380 V, 400 V, 415 V		612 A
Rated operational current (I _e) at AC-3, 220 V, 230 V, 240 V		400 A
Rated operational current (I _e) at AC-3, 380 V, 400 V, 415 V		400 A
Rated operational current (I _e) at AC-3, 440 V		400 A
Rated operational current (I _e) at AC-3, 500 V		400 A
Rated operational current (I _e) at AC-3, 660 V, 690 V		325 A
Rated operational current (I _e) at AC-3, 1000 V		95 A
Rated operational current (I _e) at AC-4, 220 V, 230 V, 240 V		296 A
Rated operational current (I _e) at AC-4, 440 V		296 A
Rated operational current (I _e) at AC-4, 500 V		296 A
Rated operational current (I _e) at AC-4, 660 V, 690 V		260 A
Rated operational current (I _e) at AC-4, 1000 V		95 A
Rated operational power at AC-3, 240 V, 50 Hz		132 kW
Rated operational power at AC-3, 380/400 V, 50 Hz		200 kW
Rated operational power at AC-3, 415 V, 50 Hz		232 kW

Rated operational power at AC-3, 440 V, 50 Hz		250 kW
Rated operational power at AC-3, 500 V, 50 Hz		280 kW
Rated operational power at AC-3, 690 V, 50 Hz		300 kW
Rated operational power at AC-3, 1000 V, 50 Hz		132 kW
Rated operational power at AC-4, 220/230 V, 50 Hz		92 kW
Rated operational power at AC-4, 240 V, 50 Hz		100 kW
Rated operational power at AC-4, 415 V, 50 Hz		176 kW
Rated operational power at AC-4, 440 V, 50 Hz		186 kW
Rated operational power at AC-4, 500 V, 50 Hz		210 kW
Rated operational power at AC-4, 660/690 V, 50 Hz		240 kW
Rated operational voltage (Ue) at AC - max		1000 V
Rated operational power at AC-4, 1000 V, 50 Hz		132 kW
Safe isolation		1000 V AC, Between coil and contacts, According to EN 61140
Special purpose rating of definite purpose rating		420 A, FLA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 3300 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 3120 A, LRA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 550 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
Short-circuit rating		
Short-circuit current rating (basic rating)		800 A, max. Fuse, SCCR (UL/CSA) 30 kA, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA)
Short-circuit current rating (high fault at 480 V)		100 kA, CB, SCCR (UL/CSA) 800/600 A, Class J, max. Fuse, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 30/100 kA, Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault at 600 V)		30/100 kA, Fuse, SCCR (UL/CSA) 800/600 A, Class J, max. Fuse, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 30 kA, CB, SCCR (UL/CSA)
Short-circuit protection rating (type 1 coordination) at 1000 V		250 A gG/gL
Short-circuit protection rating (type 1 coordination) at 400 V		630 A gG/gL
Short-circuit protection rating (type 1 coordination) at 690 V		630 A gG/gL
Short-circuit protection rating (type 2 coordination) at 1000 V		200 A gG/gL
Short-circuit protection rating (type 2 coordination) at 400 V		500 A gG/gL
Short-circuit protection rating (type 2 coordination) at 690 V		500 A gG/gL
AC-1/Conventional thermal current Ith		
Conventional thermal current Ith at 40°C (3-pole, open)		612 A
Conventional thermal current Ith at 50°C (3-pole, open)		548 A
Conventional thermal current Ith at 55°C (3-pole, open)		522 A
Conventional thermal current Ith at 60°C (3-pole, open)		500 A
Conventional thermal current Ith (3-pole, enclosed)		450 A
Conventional thermal current Ith of main contacts (1-pole, open)		1250 A
Conventional thermal current Ith (1-pole, enclosed)		1125 A
Switching capacity		
Switching capacity (main contacts, general use)		450 A, Maximum motor rating (UL/CSA)
Switching capacity (auxiliary contacts, general use)		1 A, 250 V DC, (UL/CSA) 15 A, 600 V AC, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)		P300, DC operated (UL/CSA) A600, AC operated (UL/CSA)
Magnet system		
Behavior in marginal and transitional conditions		Sealing - Voltage interruptions (0 - 0.2 x Uc min ≤ 10 ms: Time is bridged successfully Sealing - Voltage drops (0.2 - 0.6 x Uc min ≤ 12 ms: Time is bridged successfully Sealing - Excess voltage (1.15 - 1.3 x Uc max): Contactor remains switched on Sealing - Voltage drops (0.2 - 0.6 x Uc min) > 12 ms: Drop-out of the contactor Sealing - Pick-up phase (0 - 0.7 x Uc min: Contactor does not switch on Sealing - Voltage drops (0.6 - 0.7 x Uc min: Contactor remains switched on Sealing - Pick-up phase (0.7 x Uc min - 1.15 x Uc max): Contactor switches on with certainty Sealing - Voltage interruptions 0 - 0.2 x Uc min) > 10 ms: Drop-out of the contactor
Drop-out voltage		0.2 x US max - 0.6 x US min, DC operated AC operated: 0.2 x US max - 0.6 x US min, AC operated
Duty factor		100 %
Pick-up voltage		0.7 - 1.15 V DC x Us

		0.7 - 1.15 V AC x Us
Power consumption		Control transformer with $u_k \leq 6\%$
Power consumption, pick-up, 50 Hz		450 VA, Pull-in power, Coil in a cold state and 1.0 x Us 350 W, Pull-in power, Coil in a cold state and 1.0 x Us
Power consumption, pick-up, 60 Hz		450 VA, Pull-in power, Coil in a cold state and 1.0 x Us 350 W, Pull-in power, Coil in a cold state and 1.0 x Us
Power consumption, sealing, 50 Hz		14.2 VA, Coil in a cold state and 1.0 x Us 7.9 W, Coil in a cold state and 1.0 x Us
Power consumption, sealing, 60 Hz		7.9 W, Coil in a cold state and 1.0 x Us 14.2 VA, Coil in a cold state and 1.0 x Us
Rated control supply voltage (Us) at AC, 50 Hz - min		110 V
Rated control supply voltage (Us) at AC, 50 Hz - max		250 V
Rated control supply voltage (Us) at AC, 60 Hz - min		110 V
Rated control supply voltage (Us) at AC, 60 Hz - max		250 V
Rated control supply voltage (Us) at DC - min		110 V
Rated control supply voltage (Us) at DC - max		250 V
Switching time (AC operated, make contacts, closing delay) - max		80 ms
Switching time (AC operated, make contacts, opening delay) - max		110 ms
Motor rating		
Assigned motor power at 200/208 V, 60 Hz, 3-phase		125 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase		150 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase		300 HP
Assigned motor power at 575/600 V, 60 Hz, 3-phase		400 HP
Contacts		
Number of auxiliary contacts (normally closed contacts)		2
Number of auxiliary contacts (normally open contacts)		2
Number of contacts (normally closed contacts)		2
Number of contacts (normally open contacts)		2
Design verification		
Equipment heat dissipation, current-dependent Pvid		0 W
Heat dissipation capacity Pdis		0 W
Heat dissipation per pole, current-dependent Pvid		12.33 W
Rated operational current for specified heat dissipation (In)		400 A
Static heat dissipation, non-current-dependent Pvs		7.9 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.
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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 - 250
Rated control supply voltage AC 60 Hz	V		110 - 250
Rated control supply voltage DC	V		110 - 250
Voltage type for actuating			AC/DC
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			Rail connection
Operating voltage AC 50 Hz	V		110 - 250
Operating voltage AC 60 Hz	V		110 - 250
Rated operation current Ie at AC-1, 400 V	A		612
Rated operation current Ie at AC-3, 400 V	A		400
Rated operation power at AC-3, 400 V	kW		200
Rated operation current Ie at AC-4, 400 V	A		296
Rated operation power at AC-4, 400 V	kW		160
Rated operation power NEMA	kW		223
Number of auxiliary contacts as normally open contact			2
Number of auxiliary contacts as normally closed contact			2
Modular version			No
Width	mm		160
Height	mm		209
Depth	mm		216