



**Contactor, 380 V 400 V 132 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.** DILM250/22(RA250)  
**208201**  
**EL Number** 4134083  
**(Norway)**

General specifications		
Product name		Eaton Moeller® series DILM Contactor
Part no.		DILM250/22(RA250)
EAN		4015082082017
Product Length/Depth		208 millimetre
Product height		189 millimetre
Product width		140 millimetre
Product weight		7.065 kilogram
Certifications		UL File No.: E29096 CSA Class No.: 3211-04 UL 60947-4-1 VDE 0660 UL Category Control No.: NLDX IEC/EN 60947-4-1 EN 45545: Fire protection on railway vehicles CE marking North America (UL listed, CSA certified) CSA File No. 1017510 UL/CSA IEC 61373: Vibration and shock, tested for category 1 class B
Product Tradename		DILM
Product Type		Contactor
Product Sub Type		None
Catalog Notes		Contacts according to EN 50012 Also tested according to AC-3e up to 500 V. Also suitable for motors with efficiency class IE3. EN 45545 - Fire protection on railway vehicles: Fire protection class of all plastics according to UL94: V-0 / plastic weight in total: 1.872 kg
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		10,000,000 Operations (AC operated) 10,000,000 Operations (DC operated)
Operating frequency		200 Operations/h 3000 mechanical Operations/h (AC operated) 3000 mechanical Operations/h (DC operated)
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		8 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 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

Signal level			5 V - 15 V, PLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2), Magnet systems
Utilization category			AC-4: Normal AC induction motors: starting, plugging, reversing, inching AC-3: Normal AC induction motors: starting, switch off during running AC-1: Non-inductive or slightly inductive loads, resistance furnaces
Voltage type			AC/DC
<b>Climatic environmental conditions</b>			
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
<b>Terminal capacities</b>			
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 <sup>2</sup>
Terminal capacity (flexible with ferrule)			1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables 2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables
Terminal capacity (solid)			2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables 1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables
Terminal capacity (solid/stranded AWG)			2/0 - 500 MCM, Main cables 18 - 14, Control circuit cables
Terminal capacity (stranded with cable lug)			70 - 240 mm <sup>2</sup>
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
<b>Electrical rating</b>			
Inrush current			Max. 30 x I <sub>e</sub> (peak)
Rated breaking capacity at 220/230 V			2500 A
Rated breaking capacity at 380/400 V			2500 A
Rated breaking capacity at 500 V			2500 A
Rated breaking capacity at 660/690 V			2500 A
Rated breaking capacity at 1000 V			760 A
Rated insulation voltage (U <sub>i</sub> )			1000 V
Rated making capacity (cos phi to IEC/EN 60947)			3000 A
Rated operational current (I <sub>e</sub> )			133 A at 690 V (Individual compensation, three-phase capacitors, open) 220 A at up to 525 V (Individual compensation, three-phase capacitors, open)
Rated operational current (I <sub>e</sub> ) at AC-1, 380 V, 400 V, 415 V			429 A
Rated operational current (I <sub>e</sub> ) at AC-3, 220 V, 230 V, 240 V			250 A
Rated operational current (I <sub>e</sub> ) at AC-3, 380 V, 400 V, 415 V			250 A
Rated operational current (I <sub>e</sub> ) at AC-3, 440 V			250 A
Rated operational current (I <sub>e</sub> ) at AC-3, 500 V			250 A
Rated operational current (I <sub>e</sub> ) at AC-3, 660 V, 690 V			185 A
Rated operational current (I <sub>e</sub> ) at AC-3, 1000 V			76 A
Rated operational current (I <sub>e</sub> ) at AC-4, 220 V, 230 V, 240 V			200 A
Rated operational current (I <sub>e</sub> ) at AC-4, 440 V			200 A
Rated operational current (I <sub>e</sub> ) at AC-4, 500 V			200 A
Rated operational current (I <sub>e</sub> ) at AC-4, 660 V, 690 V			150 A
Rated operational current (I <sub>e</sub> ) at AC-4, 1000 V			76 A
Rated operational power at AC-3, 240 V, 50 Hz			85 kW
Rated operational power at AC-3, 380/400 V, 50 Hz			132 kW
Rated operational power at AC-3, 415 V, 50 Hz			143 kW

Rated operational power at AC-3, 440 V, 50 Hz		152 kW
Rated operational power at AC-3, 500 V, 50 Hz		173 kW
Rated operational power at AC-3, 690 V, 50 Hz		170 kW
Rated operational power at AC-3, 1000 V, 50 Hz		108 kW
Rated operational power at AC-4, 220/230 V, 50 Hz		62 kW
Rated operational power at AC-4, 240 V, 50 Hz		68 kW
Rated operational power at AC-4, 415 V, 50 Hz		117 kW
Rated operational power at AC-4, 440 V, 50 Hz		125 kW
Rated operational power at AC-4, 500 V, 50 Hz		138 kW
Rated operational power at AC-4, 660/690 V, 50 Hz		137 kW
Rated operational voltage (Ue) at AC - max		1000 V
Rated operational power at AC-4, 1000 V, 50 Hz		108 kW
Safe isolation		500 V AC, Between the contacts, According to EN 61140 500 V AC, Between coil and contacts, According to EN 61140
Special purpose rating of definite purpose rating		1800 A, LRA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 250 A, FLA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 300 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 2050 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)
<b>Short-circuit rating</b>		
Short-circuit current rating (basic rating)		700 A, max. Fuse, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 18 kA, SCCR (UL/CSA)
Short-circuit current rating (high fault at 480 V)		250 A, max. CB, SCCR (UL/CSA) 18 kA, Fuse, SCCR (UL/CSA) 65 kA, CB, SCCR (UL/CSA) 700 A, Class L, max. Fuse, SCCR (UL/CSA) 700 A, Class L/450 A, Class J, max. Fuse, SCCR (UL/CSA) 18/100 kA, Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault at 600 V)		18 kA, Fuse, SCCR (UL/CSA) 700 A, Class J, max. Fuse, SCCR (UL/CSA) 600 A, max. CB, SCCR (UL/CSA) 18 kA, CB, SCCR (UL/CSA) 700 A, Class L/450 A, Class J, max. Fuse, SCCR (UL/CSA) 18/100 kA, Fuse, SCCR (UL/CSA)
Short-circuit protection rating (type 1 coordination) at 1000 V		200 A gG/gL
Short-circuit protection rating (type 1 coordination) at 400 V		400 A gG/gL
Short-circuit protection rating (type 1 coordination) at 690 V		400 A gG/gL
Short-circuit protection rating (type 2 coordination) at 1000 V		160 A gG/gL
Short-circuit protection rating (type 2 coordination) at 400 V		315 A gG/gL
Short-circuit protection rating (type 2 coordination) at 690 V		315 A gG/gL
<b>Conventional thermal current Ith</b>		
Conventional thermal current ith (1-pole, enclosed)		750 A
Conventional thermal current ith (3-pole, enclosed)		300 A
Conventional thermal current ith at 55°C (3-pole, open)		365 A
Conventional thermal current ith of main contacts (1-pole, open)		875 A
<b>Switching capacity</b>		
Switching capacity (main contacts, general use)		350 A, Maximum motor rating (UL/CSA)
Switching capacity (auxiliary contacts, general use)		15 A, 600 V AC, (UL/CSA) 1 A, 250 V DC, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)		A600, AC operated (UL/CSA) P300, DC operated (UL/CSA)
<b>Magnet system</b>		
Behavior in marginal and transitional conditions		Sealing - Voltage interruptions (0 - 0.2 x Uc min ≤ 10 ms: Time is bridged successfully Sealing - Pick-up phase (0 - 0.7 x Uc min: Contactor does not switch on Sealing - Voltage drops (0.2 - 0.6 x Uc min) > 12 ms: Drop-out of the contactor Sealing - Pick-up phase (0.7 x Uc min - 1.15 x Uc max): Contactor switches on with certainty Sealing - Voltage drops (0.2 - 0.6 x Uc min ≤12 ms: Time is bridged successfully Sealing - Voltage interruptions 0 - 0.2 x Uc min) > 10 ms: Drop-out of the contactor Sealing - Excess voltage (1.15 - 1.3 x Uc max): Contactor remains switched on Sealing - Voltage drops (0.6 - 0.7 x Uc min: Contactor remains switched on
Drop-out voltage		AC operated: 0.2 x US max - 0.6 x US min, AC operated 0.2 x US max - 0.6 x US min, DC operated
Duty factor		100 %
Pick-up voltage		0.7 - 1.15 V AC x Us 0.7 - 1.15 V DC x Us

Power consumption		Control transformer with $u_k \leq 6\%$
Power consumption, pick-up, 50 Hz		250 W, Pull-in power, Coil in a cold state and 1.0 x Us 380 VA, Pull-in power, Coil in a cold state and 1.0 x Us
Power consumption, pick-up, 60 Hz		380 VA, Pull-in power, Coil in a cold state and 1.0 x Us 250 W, Pull-in power, Coil in a cold state and 1.0 x Us
Power consumption, sealing, 50 Hz		10.5 VA, Coil in a cold state and 1.0 x Us 0 CO, Coil in a cold state and 1.0 x Us 5.5 W, Coil in a cold state and 1.0 x Us
Power consumption, sealing, 60 Hz		5.5 W, Coil in a cold state and 1.0 x Us 10.5 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		100 ms
Switching time (AC operated, make contacts, opening delay) - max		110 ms
<b>Motor rating</b>		
Assigned motor power at 200/208 V, 60 Hz, 3-phase		75 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase		100 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase		200 HP
Assigned motor power at 575/600 V, 60 Hz, 3-phase		250 HP
<b>Contacts</b>		
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
<b>Design verification</b>		
Equipment heat dissipation, current-dependent P <sub>vid</sub>		28 W
Heat dissipation capacity P <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent P <sub>vid</sub>		9.33 W
Rated operational current for specified heat dissipation (I <sub>n</sub> )		250 A
Static heat dissipation, non-current-dependent P <sub>vs</sub>		5.5 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		429
Rated operation current Ie at AC-3, 400 V	A		250
Rated operation power at AC-3, 400 V	kW		132
Rated operation current Ie at AC-4, 400 V	A		200
Rated operation power at AC-4, 400 V	kW		110
Rated operation power NEMA	kW		149
Number of auxiliary contacts as normally open contact			2
Number of auxiliary contacts as normally closed contact			2
Modular version			No
Width	mm		140
Height	mm		189
Depth	mm		208