Specifications

Eaton 139537

Eaton Moeller® series DILM Contactor, 380 V 400 V 90 kW, 2 N/O, 2 NC, RAC 240: 190 - 240 V 50/60 Hz, AC operation, Screw connection

General specifications	
PRODUCT NAME	Eaton Moeller® series DILM Contactor
CATALOG NUMBER	139537
MODEL CODE	DILM185A/22(RAC240)
EAN	4015081363155
PRODUCT LENGTH/DEPTH	158 mm
PRODUCT HEIGHT	190 mm
PRODUCT WIDTH	140 mm
PRODUCT WEIGHT	3.54 kg
CERTIFICATIONS	IEC/EN 60947-4-1 VDE 0660 UL 60947-4-1 CSA Class No.: 3211-04 CSA CSA-C22.2 No. 60947-4-1-14 UL Category Control No.: NLDX UL IEC/EN 60947 CSA File No.: 2389068 CE UL File No.: E29096
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. • Conventional thermal current Ith of main contacts (1-pole, open) at 60°

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AC-1/Conventional thermal current Ith

CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)	613 A
CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)	245 A
CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)	337 A
CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)	301 A
CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)	287 A
CONVENTIONAL THERMAL CURRENT ITH AT 60°C (3-POLE, OPEN)	275 A
CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)	688 A

Climatic environmental conditions

ALTITUDE	Max. 2000 m
AMBIENT OPERATING TEMPERATURE - MAX	60 °C
AMBIENT STORAGE TEMPERATURE - MAX	80 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX	40 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

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

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.
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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	16 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	5.33 W

RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	185 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	2.1 W

Electrical rating

INRUSH CURRENT	Max. 30 x Ie (peak)
RATED BREAKING CAPACITY AT 1000 V	760 A
RATED BREAKING CAPACITY AT 220/230 V	2250 A
RATED BREAKING CAPACITY AT 380/400 V	2250 A
RATED BREAKING CAPACITY AT 500 V	2250 A
RATED BREAKING CAPACITY AT 660/690 V	2250 A
RATED INSULATION VOLTAGE (UI)	1000 V
RATED MAKING CAPACITY (COS PHI TO IEC/EN 60947)	2700 A
RATED OPERATIONAL CURRENT (IE)	220 A at up to 525 V (Individual compensation, three-phase capacitors, open) 133 A at 690 V (Individual compensation, three-phase capacitors, open)
RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V	337 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 1000 V	76 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V	185 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V	185 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V	185 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V	185 A
RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V	150 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 1000 V	55 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V	136 A

General information

ACCESSORIES	Fitting options auxiliary contacts: on the side: 2 x DILM1000-XHI(V)11-SI; 2 x DILM1000-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)
OPERATING FREQUENCY	3000 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
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

RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V	136 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V	136 A
RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V	110 A
RATED OPERATIONAL POWER AT AC-3, 1000 V, 50 HZ	108 kW
RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ	62 kW
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	90 kW
RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ	110 kW
RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ	115 kW
RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ	132 kW
RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ	140 kW
RATED OPERATIONAL POWER AT AC-4, 1000 V, 50 HZ	77 kW
RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ	41 kW
RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ	45 kW
RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ	80 kW
RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ	85 kW
RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ	96 kW
RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ	102 kW
RATED OPERATIONAL VOLTAGE (UE) AT AC -	1000 V
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

MAX	
SAFE ISOLATION	1000 V AC, Between coil and contacts, According to EN 61140
SPECIAL PURPOSE RATING OF DEFINITE PURPOSE RATING	280 A, FLA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 1680 A, LRA 600 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 336 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA) 2016 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)

Magnet system

DROP-OUT VOLTAGE	AC operated: 0.25 x US max - 0.6 x US min, AC operated AC operated: 0.2 x US max - 0.4 x US min, AC operated
DUTY FACTOR	100 %
PICK-UP VOLTAGE	0.8 - 1.15 V AC x Us
POWER CONSUMPTION	90 kW
POWER CONSUMPTION, PICK-UP, 50 HZ	180 W, Pull-in power, Coil in a cold state and 1.0 x Us 210 VA, Pull-in power, Coil in a cold state and 1.0 x Us
POWER CONSUMPTION, PICK-UP, 60 HZ	210 VA, Pull-in power, Coil in a cold state and 1.0 x Us 180 W, Pull-in power, Coil in a cold state and 1.0 x Us
POWER CONSUMPTION, SEALING, 50 HZ	2.6 VA, Coil in a cold state and 1.0 x Us 2.1 W, Coil in a cold state and 1.0 x Us
POWER CONSUMPTION, SEALING, 60 HZ	2.1 W, Coil in a cold state and 1.0 x Us 2.6 VA, Coil in a cold state and 1.0 x Us
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	190 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	190 V
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX	60 ms
SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX	40 ms

Motor rating

ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE	50 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	150 HP

Short-circuit rating

SHORT-CIRCUIT CURRENT RATING (BASIC RATING)	800 A, max. CB, SCCR (UL/CSA) 10 kA, SCCR (UL/CSA) 700 A, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 480 V)	350 A, max. CB, SCCR (UL/CSA) 100 kA, Fuse, SCCR (UL/CSA) 65 kA, CB, SCCR (UL/CSA) 600 A, Class J, max. Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)	600 A, Class J, max. Fuse, SCCR (UL/CSA) 100 kA, Fuse, SCCR (UL/CSA) 350 A, max. CB, SCCR (UL/CSA) 50 kA, CB, 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	315 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	250 A gG/gL

Switching capacity

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)
SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)	250 A, Maximum motor rating (UL/CSA)

Terminal capacities

SCREW SIZE	M10, Terminal screw, Main connections M3.5, Terminal screw, Control circuit cables
SCREWDRIVER SIZE	2, Terminal screw, Control circuit cables, Pozidriv screwdriver
TERMINAL CAPACITY (BUSBAR)	32 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 - 185 mm²
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	2 x (0.75 - 2.5) mm², Control circuit cables 1 x (0.75 - 2.5) mm², Control circuit cables
TERMINAL CAPACITY (SOLID)	1 x (0.75 - 2.5) mm², Control circuit cables 2 x (0.75 - 2.5) mm², Control circuit cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	1/0 - 350 MCM, Main cables 18 - 14, Control circuit cables
TERMINAL CAPACITY (STRANDED WITH CABLE LUG)	50 - 185 mm²
TIGHTENING TORQUE	1.2 Nm, Screw terminals, Control circuit cables 24 Nm, Main cable connection screw/bolt
WIDTH ACROSS FLATS	16 mm

Resources

BROCHURES	eaton-product-brochure-dilmdilh-power-contactors-brochure-br034010en-en-us.pdf
CHARACTERISTIC CURVE	eaton-contactors-component-dilm-characteristic-curve.eps eaton-contactors-component-dilm-characteristic-curve-003.eps eaton-contactors-short-time-loading-dilm-characteristic-curve-002.eps eaton-contactors-component-dilm-characteristic-curve-002.eps
DECLARATIONS OF CONFORMITY	eaton-contactor-declaration-of-conformity-uk251101en.pdf eaton-contactor-declaration-of-conformity-eu250618en.pdf
DRAWINGS	eaton-contactors-mounting-dilm-dimensions-002.eps eaton-contactors-mounting-dilm-dimensions.eps eaton-contactors-dilm-dimensions-006.eps eaton-contactors-dilm-3d-drawing-002.eps eaton-contactors-dilm-3d-drawing.eps
ECAD MODEL	DA-CE-ETN.DILM185A_22(RAC240)
INSTALLATION INSTRUCTIONS	eaton-contactors-dilm185a-dilm225a-il03406001z.pdf
MCAD MODEL	eaton-iec-contactors-mcad-3d-models-dil-m185-225.stp eaton-iec-contactors-mcad-drawings-dil-m185-225.dwg

PEP ECO-PASSPORT	eaton-iec-contactors-pep-eato-00135-v0101-en.pdf
SYSTEM OVERVIEW	eaton-contactors-system55-dilm-explosion-drawing.eps
WIRING DIAGRAMS	eaton-contactors-contact-dilm-wiring-diagram-004.eps

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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