

# Specifications



Photo is representative



## Eaton 051644

Eaton Moeller® series DILEEM Contactor, 12 V DC, 3 pole, 380 V 400 V, 3 kW, Contacts N/O = Normally open= 1 N/O, Screw terminals, DC operation

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller® series DILEEM Mini contactor
<b>CATALOG NUMBER</b>	051644
<b>MODEL CODE</b>	DILEEM-10-G(12VDC)
<b>EAN</b>	4015080516446
<b>PRODUCT LENGTH/DEPTH</b>	54 mm
<b>PRODUCT HEIGHT</b>	58 mm
<b>PRODUCT WIDTH</b>	45 mm
<b>PRODUCT WEIGHT</b>	0.206 kg
<b>CERTIFICATIONS</b>	CSA-C22.2 No. 14-05 VDE 0660 CSA IEC/EN 60947-4-1 CE IEC/EN 60947 UL Category Control No.: NLDX CSA Class No.: 3211-04 CSA File No.: 012528 UL File No.: E29096 UL UL 508
<b>CATALOG NOTES</b>	Also tested according to AC-3e.
<b>GLOBAL CATALOG</b>	051644

## Product specifications

<b>NUMBER OF POLES</b>	Three-pole
<b>FEATURES</b>	Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module
<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF</b>	Does not apply, since the

## Resources

<b>CATALOGS</b>	<a href="#">Product Range Catalog Switching and protecting motors</a> <a href="#">eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf</a>
<b>CHARACTERISTIC CURVE</b>	<a href="#">eaton-contactors-component-dilm-characteristic-curve-003.eps</a> <a href="#">eaton-contactors-short-time-loading-dilm-characteristic-curve.eps</a>
<b>DECLARATIONS OF CONFORMITY</b>	<a href="#">eaton-mini-contactor-declaration-of-conformity-uk251242en.pdf</a> <a href="#">eaton-mini-contactor-declaration-of-conformity-eu250759en.pdf</a>
<b>DRAWINGS</b>	<a href="#">eaton-contactors-dilem-dimensions.eps</a> <a href="#">eaton-contactors-diler-dimensions-005.eps</a> <a href="#">eaton-contactors-diler-dimensions-004.eps</a> <a href="#">eaton-tripping-devices-mounting-diler-contactor-relay-symbol.eps</a> <a href="#">eaton-general-ie-ready-dilm-contactor-standards.eps</a>
<b>ECAD MODEL</b>	<a href="#">ETN.051644.edz</a>
<b>INSTALLATION INSTRUCTIONS</b>	<a href="#">IL03407009Z</a>
<b>MCAD MODEL</b>	<a href="#">DA-CD-dil_em</a> <a href="#">DA-CS-dil_em</a>
<b>PEP ECO-PASSPORT</b>	<a href="#">eaton-iec-contactors-pep-eato-00136-v0101-en.pdf</a>
<b>SYSTEM OVERVIEW</b>	<a href="#">eaton-contactors-accessory-dilem-system-overview.eps</a>
<b>WIRING DIAGRAMS</b>	<a href="#">eaton-contactors-contact-dilm-wiring-diagram.eps</a>

<b>PROTECTION OF ASSEMBLIES</b>	entire switchgear needs to be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
<b>FITTED WITH:</b>	Auxiliary contact
<b>OPERATING FREQUENCY</b>	9000 mechanical Operations/h
<b>POLLUTION DEGREE</b>	3
<b>CLIMATIC PROOFING</b>	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	6000 V AC
<b>UTILIZATION CATEGORY</b>	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
<b>CONNECTION</b>	Screw terminals
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	50 °C
<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-25 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b>	40 °C
<b>AMBIENT OPERATING</b>	-25 °C

<b>TEMPERATURE (ENCLOSED) - MIN</b>	
<b>AMBIENT STORAGE TEMPERATURE - MAX</b>	80 °C
<b>AMBIENT STORAGE TEMPERATURE - MIN</b>	-40 °C
<b>ASSIGNED MOTOR POWER AT 115/120 V, 60 HZ, 1-PHASE</b>	0.25 HP
<b>ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE</b>	1.5 HP
<b>ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE</b>	1 HP
<b>ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE</b>	2 HP
<b>ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE</b>	3 HP
<b>ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE</b>	3 HP
<b>CONVENTIONAL THERMAL CURRENT ITH (1-POLE, ENCLOSED)</b>	40 A
<b>CONVENTIONAL THERMAL CURRENT ITH (3-POLE, ENCLOSED)</b>	16 A
<b>CONVENTIONAL THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)</b>	19 A
<b>CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)</b>	10 A
<b>CONVENTIONAL THERMAL CURRENT ITH OF MAIN CONTACTS (1- POLE, OPEN)</b>	50 A
<b>EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT PVID</b>	0.6 W
<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
<b>HEAT DISSIPATION PER POLE, CURRENT- DEPENDENT PVID</b>	0.2 W
<b>SWITCHING TIME (AC OPERATED, N/O, WITH AUXILIARY CONTACT MODULE, CLOSING</b>	70 ms

<b>DELAY)</b>	
<b>SWITCHING TIME (DC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX</b>	35 ms
<b>SWITCHING TIME (DC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN</b>	26 ms
<b>SWITCHING TIME (DC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX</b>	25 ms
<b>SWITCHING TIME (DC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN</b>	15 ms
<b>APPLICATION</b>	Mini Contactors for Motors and Resistive Loads
<b>PRODUCT CATEGORY</b>	Contactors
<b>PROTECTION</b>	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
<b>ARCING TIME</b>	12 ms at 690 V AC
<b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>	Screw connection
<b>SCREWDRIVER SIZE</b>	2, Terminal screw, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver
<b>VOLTAGE TYPE</b>	DC
<b>DEGREE OF PROTECTION</b>	IP20
<b>MOUNTING POSITION</b>	As required (except vertical with terminals A1/A2 at the bottom)
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	0
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	1
<b>NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT</b>	0
<b>NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)</b>	3

<b>RATED BREAKING CAPACITY AT 220/230 V</b>	90 A
<b>RATED BREAKING CAPACITY AT 380/400 V</b>	90 A
<b>RATED BREAKING CAPACITY AT 500 V</b>	64 A
<b>RATED BREAKING CAPACITY AT 660/690 V</b>	42 A
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX</b>	0 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN</b>	0 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX</b>	0 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN</b>	0 V
<b>OVERVOLTAGE CATEGORY</b>	III
<b>CONTROL CIRCUIT RELIABILITY</b>	< 2 $\lambda$ , < 1 failure at 100,000,000 Operations (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)
<b>DUTY FACTOR</b>	100 %
<b>CHANGEOVER TIME</b>	40 - 50 ms
<b>LIFESPAN, MECHANICAL</b>	20,000,000 Operations 200,000 Operations (at 240 V, AC-15) 150,000 Operations (at 240 V, DC, L/R = 50 ms: 2 contacts in series 0.5 A)
<b>PICK-UP VOLTAGE</b>	0.8 - 1.1 V DC $\times U_c$
<b>SAFE ISOLATION</b>	300 V AC, Between the contacts, According to EN 61140 300 V AC, Between coil and auxiliary contacts, According to EN 61140 300 V AC, Between coil and contacts, According to EN 61140 300 V AC, Between auxiliary contacts, According to EN 61140
<b>SCREW SIZE</b>	M3.5, Terminal screw
<b>RATED OPERATIONAL CURRENT (IE)</b>	2.5 A at 24 V, DC L/R $\leq 15$ ms (with 1 contact in series) 2.5 A at 60 V, DC L/R $\leq 15$ ms (with 2 contacts in

	series) 1.5 A at 100 V, DC L/R $\leq$ 15 ms (with 3 contacts in series) 0.5 A at 220 V, DC L/R $\leq$ 15 ms (with 3 contacts in series)
<b>SWITCHING CAPACITY (AUXILIARY CONTACTS, GENERAL USE)</b>	10 A, 600 V AC, (UL/CSA) 0.5 A, 250 V DC, (UL/CSA)
<b>SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)</b>	P300, DC operated (UL/CSA) A600, AC operated (UL/CSA)
<b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>	1 x (0.75 - 1.5) mm <sup>2</sup> 2 x (0.75 - 1.5) mm <sup>2</sup>
<b>SHOCK RESISTANCE</b>	10 g, N/O main contact, Basic unit without auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 20 g, N/O auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 10 g, N/O main contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 20 g, N/C auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 8 g, N/O auxiliary contact, Basic unit without auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
<b>TERMINAL CAPACITY (SOLID)</b>	2 x (0.75 - 2.5) mm <sup>2</sup> 1 x (0.75 - 2.5) mm <sup>2</sup>
<b>TERMINAL CAPACITY (SOLID/STRANDED AWG)</b>	18 - 14
<b>SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)</b>	15 A, Maximum motor rating (UL/CSA)
<b>POWER CONSUMPTION</b>	Smoothed DC voltage or three-phase bridge rectifier

	2.3 VA/W at DC (Pick-up/Sealing power)
<b>TIGHTENING TORQUE</b>	1.2 Nm, Screw terminals
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX</b>	12 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN</b>	12 V
<b>RATED INSULATION VOLTAGE (UI)</b>	690 V
<b>RATED MAKING CAPACITY UP TO 440 V (COS PHI TO IEC/EN 60947)</b>	110 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V</b>	22 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 220 V, 230 V, 240 V</b>	6 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 380 V, 400 V, 415 V</b>	3 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 500 V</b>	1.5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V</b>	6.6 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V</b>	6.6 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V</b>	6.6 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V</b>	5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V</b>	3.5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V</b>	5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V</b>	5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V</b>	5 A
<b>RATED OPERATIONAL</b>	3.7 A



<b>CURRENT (IE) AT AC-4, 500 V</b>	
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V</b>	2.9 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V</b>	20 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 12 V</b>	20 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V</b>	20 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 24 V</b>	20 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 60 V</b>	20 A
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	6.6 A
<b>RATED OPERATIONAL POWER AT AC-3, 240 V, 50 HZ</b>	1.8 kW
<b>RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ</b>	3 kW
<b>RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ</b>	3.1 kW
<b>RATED OPERATIONAL POWER AT AC-4, 220/230 V, 50 HZ</b>	1.1 kW
<b>RATED OPERATIONAL POWER AT AC-4, 240 V, 50 HZ</b>	1.3 kW
<b>RATED OPERATIONAL POWER AT AC-4, 380/400 V, 50 HZ</b>	2.2 kW
<b>RATED OPERATIONAL POWER AT AC-4, 415 V, 50 HZ</b>	2.3 kW
<b>RATED OPERATIONAL POWER AT AC-4, 440 V, 50 HZ</b>	2.4 kW
<b>RATED OPERATIONAL POWER AT AC-4, 500 V, 50 HZ</b>	2.2 kW
<b>RATED OPERATIONAL POWER AT AC-4, 660/690 V, 50 HZ</b>	2.2 kW

<b>RATED OPERATIONAL POWER (NEMA)</b>	2.2 kW
<b>RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX</b>	690 V
<b>RESISTANCE PER POLE</b>	7.86 mΩ
<b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>	2.3 W
<b>STRIPPING LENGTH (MAIN CABLE)</b>	8 mm
<b>SHORT-CIRCUIT CURRENT RATING (BASIC RATING)</b>	5 kA, SCCR (UL/CSA) 45 A, max. Fuse, SCCR (UL/CSA)
<b>SHORT-CIRCUIT PROTECTION</b>	6 A gG/gL, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding 10 A fast, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding PKZM0-4, Maximum overcurrent protective device, Short-circuit protection only, Auxiliary contacts, Short-circuit rating without welding
<b>SUITABLE FOR</b>	Also motors with efficiency class IE3
<b>SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 500 V</b>	20 A gG/gL
<b>SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 500 V</b>	10 A gG/gL
<b>CONVENTIONAL THERMAL CURRENT ITH AT 40°C (3-POLE, OPEN)</b>	22 A
<b>CONVENTIONAL THERMAL CURRENT ITH AT 50°C (3-POLE, OPEN)</b>	20 A
<b>RATED OPERATIONAL POWER AT AC-3, 440 V, 50 HZ</b>	3.3 kW
<b>RATED OPERATIONAL POWER AT AC-3, 500 V, 50 HZ</b>	3 kW
<b>RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ</b>	3 kW

ACTUATING VOLTAGE	12 V DC
ALTITUDE	Max. 2000 m
OPERATING VOLTAGE AT AC, 50 HZ - MIN	24 V
OPERATING VOLTAGE AT AC, 50 HZ - MAX	690 V
OPERATING VOLTAGE AT AC, 60 HZ - MIN	24 V
OPERATING VOLTAGE AT AC, 60 HZ - MAX	690 V

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



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