

# Specifications



Photo is representative



## Eaton 051795

Eaton Moeller® series DILEM Contactor, 230 V 50 Hz, 240 V 60 Hz, 3 pole, 380 V 400 V, 4 kW, Contacts N/C = Normally closed= 1 NC, Screw terminals, AC operation DILEM-01(230V50HZ,240V60HZ)

### General specifications

PRODUCT NAME	Eaton Moeller® series DILEM Mini contactor
CATALOG NUMBER	051795
MODEL CODE	DILEM-01(230V50HZ,240V60HZ)
EAN	4015080517955
PRODUCT LENGTH/DEPTH	52 mm
PRODUCT HEIGHT	58 mm
PRODUCT WIDTH	45 mm
PRODUCT WEIGHT	0.17 kg
CERTIFICATIONS	CE UL 508 CSA-C22.2 No. 14-05 UL Category Control No.: NLDX IEC/EN 60947-4-1 CSA Class No.: 3211-04 VDE 0660 UL File No.: E29096 UL CSA File No.: 012528 IEC/EN 60947 CSA
CATALOG NOTES	Also tested according to AC-3e.



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## Features & Functions

### FEATURES

Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module

### FITTED WITH:

Auxiliary contact

### NUMBER OF POLES

Three-pole

## General

### APPLICATION

Mini Contactors for Motors and Resistive Loads

### LIFESPAN, MECHANICAL

150,000 Operations (at 240 V, DC, L/R = 50 ms: 2 contacts in series 0.5 A)  
10,000,000 Operations  
7,000,000 Operations (Coil 50/60 Hz)  
200,000 Operations (at 240 V, AC-15)

### MOUNTING POSITION

As required (except vertical with terminals A1/A2 at the bottom)

### OPERATING FREQUENCY

9000 mechanical Operations/h

### 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)

6000 V AC

### SHOCK RESISTANCE

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  
10 g, N/C auxiliary contact, Basic unit without auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms  
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
<b>SUITABLE FOR</b>	Also motors with efficiency class IE3
<b>UTILIZATION CATEGORY</b>	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
<b>VOLTAGE TYPE</b>	AC

## Climatic environmental conditions

<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-25 °C
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	50 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b>	-25 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b>	40 °C
<b>AMBIENT STORAGE TEMPERATURE - MIN</b>	-40 °C
<b>AMBIENT STORAGE TEMPERATURE - MAX</b>	80 °C
<b>CLIMATIC PROOFING</b>	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78

## Terminal capacities

<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>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>STRIPPING LENGTH (MAIN CABLE)</b>	8 mm
<b>SCREWDRIVER SIZE</b>	2, Terminal screw, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver
<b>TIGHTENING TORQUE</b>	1.2 Nm, Screw terminals

## Electrical rating

**RATED BREAKING  
CAPACITY AT 220/230 V** 90 A

**RATED BREAKING  
CAPACITY AT 380/400 V** 90 A

**RATED BREAKING  
CAPACITY AT 500 V** 64 A

**RATED OPERATIONAL  
POWER AT AC-3, 240 V, 50  
HZ** 2.5 kW

**RATED OPERATIONAL  
POWER AT AC-3, 380/400  
V, 50 HZ** 4 kW

**RATED OPERATIONAL  
POWER AT AC-3, 415 V, 50  
HZ** 4.3 kW

**RATED BREAKING  
CAPACITY AT 660/690 V** 42 A

**RATED MAKING  
CAPACITY UP TO 440 V  
(COS PHI TO IEC/EN  
60947)** 110 A

**RATED OPERATIONAL  
POWER AT AC-4, 220/230  
V, 50 HZ** 1.5 kW

**RATED OPERATIONAL  
POWER AT AC-4, 240 V, 50  
HZ** 1.8 kW

**RATED OPERATIONAL  
POWER AT AC-4, 415 V, 50  
HZ** 3.1 kW

**RATED OPERATIONAL  
POWER AT AC-4, 440 V, 50  
HZ** 3.3 kW

**RATED OPERATIONAL  
POWER AT AC-4, 500 V, 50  
HZ** 3 kW

**RATED OPERATIONAL  
POWER AT AC-4, 660/690  
V, 50 HZ** 3 kW

**RATED OPERATIONAL  
VOLTAGE (UE) AT AC -  
MAX** 690 V

**RATED INSULATION  
VOLTAGE (UI)** 690 V

**RATED OPERATIONAL  
CURRENT (IE)** 2.5 A at 24 V, DC L/R ≤ 15  
ms (with 1 contact in  
series)  
2.5 A at 60 V, DC L/R ≤ 15  
ms (with 2 contacts in  
series)  
0.5 A at 220 V, DC L/R ≤ 15

## Short-circuit rating

**SHORT-CIRCUIT CURRENT  
RATING (BASIC RATING)** 5 kA, SCCR (UL/CSA)  
45 A, max. Fuse, SCCR  
(UL/CSA)

### SHORT-CIRCUIT PROTECTION

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  
6 A gG/gL, Max. Fuse 500V,  
Auxiliary contacts, Short-  
circuit rating without  
welding

### SHORT-CIRCUIT PROTECTION RATING (TYPE 1 COORDINATION) AT 500 V

20 A gG/gL

### SHORT-CIRCUIT PROTECTION RATING (TYPE 2 COORDINATION) AT 500 V

10 A gG/gL

	ms (with 3 contacts in series) 1.5 A at 100 V, DC L/R ≤ 15 ms (with 3 contacts in series)
<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>	9 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V</b>	9 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V</b>	9 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V</b>	6.4 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V</b>	4.8 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V</b>	6.6 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V</b>	6.6 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V</b>	5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V</b>	3.4 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>SAFE ISOLATION</b>	300 V AC, Between coil and auxiliary contacts, According to EN 61140 300 V AC, Between the contacts, According to EN 61140 300 V AC, Between auxiliary contacts, According to EN 61140 300 V AC, Between coil and contacts, According to EN 61140

Conventional thermal current Ith	
<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

Switching capacity	
<b>SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)</b>	15 A, Maximum motor rating (UL/CSA)
<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)

## Magnet system

<b>ARCING TIME</b>	12 ms at 690 V AC
<b>CHANGEOVER TIME</b>	16 - 21 ms
<b>DUTY FACTOR</b>	100 %
<b>PICK-UP VOLTAGE</b>	1.1 V AC x U <sub>c</sub> (voltage tolerance - dual frequency coil 50/60 Hz) 0.8 - 1.1 V AC x U <sub>c</sub> (voltage tolerance - single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz)
<b>POWER CONSUMPTION, PICK-UP, 50 HZ</b>	25 VA, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz 22 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz
<b>POWER CONSUMPTION, PICK-UP, 60 HZ</b>	22 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz 25 VA, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz
<b>POWER CONSUMPTION, SEALING, 50 HZ</b>	4.6 VA, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz 1.8 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz
<b>POWER CONSUMPTION, SEALING, 60 HZ</b>	1.8 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN</b>	230 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX</b>	230 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN</b>	240 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX</b>	240 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN</b>	0 V
<b>RATED CONTROL SUPPLY</b>	0 V

## Motor rating

**ASSIGNED MOTOR**  
**POWER AT 115/120 V, 60 HZ, 1-PHASE** 0.5 HP

**ASSIGNED MOTOR**  
**POWER AT 200/208 V, 60 HZ, 3-PHASE** 2 HP

**ASSIGNED MOTOR**  
**POWER AT 230/240 V, 60 HZ, 1-PHASE** 1.5 HP

**ASSIGNED MOTOR**  
**POWER AT 230/240 V, 60 HZ, 3-PHASE** 3 HP

**ASSIGNED MOTOR**  
**POWER AT 460/480 V, 60 HZ, 3-PHASE** 5 HP

**ASSIGNED MOTOR**  
**POWER AT 575/600 V, 60 HZ, 3-PHASE** 5 HP

<b>VOLTAGE (US) AT DC - MAX</b>	
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MIN</b>	14 ms
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, CLOSING DELAY) - MAX</b>	21 ms
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MIN</b>	8 ms
<b>SWITCHING TIME (AC OPERATED, MAKE CONTACTS, OPENING DELAY) - MAX</b>	18 ms
<b>SWITCHING TIME (AC OPERATED, N/O, WITH AUXILIARY CONTACT MODULE, CLOSING DELAY)</b>	45 ms

Contacts	
<b>CONTROL CIRCUIT RELIABILITY</b>	< 2 λ, < 1 failure at 100,000,000 Operations (at U <sub>e</sub> = 24 V DC, U <sub>min</sub> = 17 V, I <sub>min</sub> = 5.4 mA)
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	1
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	0

Design verification	
<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>	1.2 W
<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
<b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>	0.4 W
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	9 A
<b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>	1.8 W
<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</b>	Meets the product standard's requirements.



<b>BY INTERNAL ELECT. EFFECTS</b>	
<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 PROTECTION OF ASSEMBLIES</b>	Does not apply, since the 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>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.

**10.13 MECHANICAL  
FUNCTION**

The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Resources

CATALOGUES	<a href="#">eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf</a> <a href="#">Product Range Catalog Switching and protecting motors</a>
CHARACTERISTIC CURVE	<a href="#">eaton-contactors-short-time-loading-dilm-characteristic-curve.eps</a> <a href="#">eaton-contactors-component-dilm-characteristic-curve-003.eps</a> <a href="#">eaton-contactors-switch-dilm-characteristic-curve.eps</a>
DECLARATIONS OF CONFORMITY	<a href="#">eaton-mini-contactor-declaration-of-conformity-eu250759en.pdf</a> <a href="#">eaton-mini-contactor-declaration-of-conformity-uk251242en.pdf</a>
DRAWINGS	<a href="#">eaton-contactors-diler-dimensions-004.eps</a> <a href="#">eaton-contactors-diler-dimensions-005.eps</a> <a href="#">eaton-contactors-dilem-dimensions.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>
ECAD MODEL	<a href="#">ETN.051795.edz</a>
INSTALLATION INSTRUCTIONS	<a href="#">IL03407009Z</a>
MCAD MODEL	<a href="#">DA-CS-dil_em</a> <a href="#">DA-CD-dil_em</a>
PEP ECO-PASSPORT	<a href="#">eaton-iec-contactors-pep-eato-00133-v0101-en.pdf</a>
SYSTEM OVERVIEW	<a href="#">eaton-contactors-accessory-dilem-system-overview.eps</a>
WIRING DIAGRAMS	<a href="#">eaton-contactors-contact-dilm-wiring-diagram-002.eps</a>

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



**Eaton Corporation plc**  
Eaton House  
30 Pembroke Road  
Dublin 4, Ireland  
Eaton.com

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