

Eaton 051806

Catalog Number: 051806

Eaton Moeller® series DILEM Contactor, 400 V 50 Hz, 440 V 60 Hz, 4 pole, 380 V 400 V, 4 kW, Screw terminals, AC operation



General specifications

Product Name

Eaton Moeller® series DILEM Mini contactor

Catalog Number

051806

Model Code

DILEM4(400V50HZ,440V60HZ)

EAN

4015080518068

Product Length/Depth

52 mm

Product Height

58 mm

Product Width

45 mm

Product Weight

0.17 kg

Warranty

1 year

Compliances

RoHS Compliant
CE Marked

Certifications

EN 60947
UL Listed
IEC 60947
CSA Certified
VDE 0660
CSA
UL 508
UL File No.: E29096
CSA File No.: 012528
CSA-C22.2 No. 14-05
IEC/EN 60947-4-1
CSA Class No.: 3211-04
UL
CE
IEC/EN 60947
UL Category Control No.: NLDX

defaultTaxonomyAttributeLabel

Amperage Rating

15A

HP rating - max

0.5, 1.5/ 2, 3, 5, 5 hp (1/3PH @120,240/208,240,480,600 V)

Number Of Poles

Four-pole

Type

Full voltage non-reversing miniature contactor

Features

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

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

Resources

Catalogs

Product Range Catalog Switching and protecting motors

[eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf](#)

[Switching and protecting motors - catalog](#)

Characteristic curve

[eaton-contactors-short-time-loading-dilm-characteristic-curve.eps](#)

[eaton-contactors-switch-dilm-characteristic-curve.eps](#)

[eaton-contactors-component-dilm-characteristic-curve-003.eps](#)

Declarations of conformity

[DA-DC-00004812.pdf](#)

[DA-DC-00004788.pdf](#)

Drawings

[eaton-contactors-diler-dimensions-005.eps](#)

[eaton-contactors-diler-dimensions-004.eps](#)

[eaton-contactors-dilem-dimensions.eps](#)

[eaton-tripping-devices-mounting-diler-contactor-relay-symbol.eps](#)

eCAD model

[ETN.051806.edz](#)

Installation instructions

[IL03407009Z](#)

mCAD model

[DA-CD-dil_em](#)

[DA-CS-dil_em](#)

Specifications and datasheets

[Eaton Specification Sheet - 051806](#)

System overview

[eaton-contactors-accessory-dilem-system-overview.eps](#)

Wiring diagrams

[eaton-contactors-contact-dilem-wiring-diagram.eps](#)

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.

Frequency rating

50-60 Hz

Operating frequency

9000 mechanical Operations/h

Pollution degree

3

Climatic proofing

Damp heat, constant, to IEC 60068-2-78

Damp heat, cyclic, to IEC 60068-2-30

Rated impulse withstand voltage (Uimp)

6000 V AC

Utilization category

AC-4: Normal AC induction motors: starting, plugging, reversing, inching

AC-1: Non-inductive or slightly inductive loads, resistance furnaces

AC-3: Normal AC induction motors: starting, switch off during running

Connection

Screw terminals

Ambient operating temperature - max

50 °C

Ambient operating temperature - min

-25 °C

Ambient operating temperature (enclosed) - max

40 °C

Ambient operating temperature (enclosed) - min

25 °C

Ambient storage temperature - max

80 °C

Ambient storage temperature - min

40 °C

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

Conventional thermal current i_{th} (1-pole, enclosed)

50 A

Conventional thermal current i_{th} (3-pole, enclosed)

16 A

Conventional thermal current i_{th} at 55°C (3-pole, open)

19 A

Conventional thermal current I_{th} of auxiliary contacts (1-pole, open)

10 A

Conventional thermal current I_{th} of main contacts (1-pole, open)

60 A

Equipment heat dissipation, current-dependent P_{vid}

9.56 W

Heat dissipation capacity P_{diss}

0 W

Heat dissipation per pole, current-dependent P_{vid}

2.39 W

Switching time (AC operated, N/O, with auxiliary contact module, closing delay)

45 ms

Application

Mini Contactors for Motors and Resistive Loads

Product category

Contactors

Protection

Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)

Arcing time

12 ms at 690 V AC

Electrical connection type of main circuit

Screw connection

Screwdriver size

0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver

2, Terminal screw, Pozidriv screwdriver

Voltage type

AC

Degree of protection

IP20

Mounting position

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

Number of auxiliary contacts (normally closed contacts)

0

Number of auxiliary contacts (normally open contacts)

0

Number of contacts (normally closed) as main contact

0

Number of main contacts (normally open contact)

4

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 breaking capacity at 660/690 V

42 A

Rated control supply voltage (Us) at AC, 50 Hz - max

400 V

Rated control supply voltage (Us) at AC, 50 Hz - min

400 V

Rated control supply voltage (Us) at AC, 60 Hz - max

440 V

Rated control supply voltage (Us) at AC, 60 Hz - min

440 V

Coil voltage

400-440 Vac, 50/60 Hz

Continuous ampere rating

9 A

Overvoltage category

III

Control circuit reliability

$< 2 \lambda$, < 1 failure at 100,000,000 Operations (at $U_e = 24$ V DC,
 $U_{min} = 17$ V, $I_{min} = 5.4$ mA)

Duty factor

100 %

Changeover time

16 - 21 ms

Operation

Reversing

Lifespan, mechanical

20,000,000 Operations

150,000 Operations (at 240 V, DC, L/R = 50 ms: 2 contacts in series 0.5 A)

7,000,000 Operations (Coil 50/60 Hz)

200,000 Operations (at 240 V, AC-15)

Pick-up voltage

0.8 - 1.1 V AC x U_c (voltage tolerance - single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz)

1.1 V AC x U_c (voltage tolerance - dual frequency coil 50/60 Hz)

Power consumption, pick-up, 50 Hz

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

Safe isolation

300 V AC, Between coil and contacts, According to EN 61140

300 V AC, Between coil and auxiliary contacts, According to EN 61140

300 V AC, Between auxiliary contacts, According to EN 61140

300 V AC, Between the contacts, According to EN 61140

Power consumption, pick-up, 60 Hz

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

Screw size

M3.5, Terminal screw

Power consumption, sealing, 50 Hz

1.8 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz

4.6 VA, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz

Power consumption, sealing, 60 Hz

1.8 W, AC, Single-frequency coil 50 Hz and Dual-frequency coil 50/60 Hz

Rated operational current (I_e)

1.5 A at 100 V, DC L/R \leq 15 ms (with 3 contacts in series)

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)

0.5 A at 220 V, DC L/R \leq 15 ms (with 3 contacts in series)

Terminal capacity (flexible with ferrule)

1 x (0.75 - 1.5) mm²

2 x (0.75 - 1.5) mm²

Shock resistance

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

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/C auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms

Terminal capacity (solid)

2 x (0.75 - 2.5) mm²

1 x (0.75 - 2.5) mm²

Terminal capacity (solid/stranded AWG)

18 - 14

Switching capacity (main contacts, general use)

15 A, Maximum motor rating (UL/CSA)

Tightening torque

1.2 Nm, Screw terminals

Rated control supply voltage (Us) at DC - max

0 V

Rated control supply voltage (Us) at DC - min

0 V

Rated insulation voltage (Ui)

690 V

Rated making capacity up to 440 V (cos phi to IEC/EN 60947)

110 A

Rated operational current (Ie) at AC-1, 380 V, 400 V, 415 V

22 A

Rated operational current (Ie) at AC-15, 220 V, 230 V, 240 V

6 A

Rated operational current (Ie) at AC-15, 380 V, 400 V, 415 V

3 A

Rated operational current (Ie) at AC-15, 500 V

1.5 A

Rated operational current (I_e) at AC-3, 220 V, 230 V, 240 V

9 A

Rated operational current (I_e) at AC-3, 380 V, 400 V, 415 V

9 A

Rated operational current (I_e) at AC-3, 440 V

9 A

Rated operational current (I_e) at AC-3, 500 V

6.4 A

Rated operational current (I_e) at AC-3, 660 V, 690 V

4.8 A

Rated operational current (I_e) at AC-4, 220 V, 230 V, 240 V

6.6 A

Rated operational current (I_e) at AC-4, 400 V

6.6 A

Rated operational current (I_e) at AC-4, 440 V

6.6 A

Rated operational current (I_e) at AC-4, 500 V

5 A

Rated operational current (I_e) at AC-4, 660 V, 690 V

3.4 A

Rated operational current (I_e) at DC-1, 110 V

20 A

Rated operational current (I_e) at DC-1, 12 V

20 A

Rated operational current (I_e) at DC-1, 220 V

20 A

Rated operational current (I_e) at DC-1, 24 V

20 A

Rated operational current (I_e) at DC-1, 60 V

20 A

Rated operational current for specified heat dissipation (I_n)

22 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 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, 380/400 V, 50 Hz

3 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 power (NEMA)

3.7 kW

Rated operational voltage (Ue) at AC - max

690 V

Resistance per pole

9.18 m Ω

Static heat dissipation, non-current-dependent Pvs

1.8 W

Stripping length (main cable)

8 mm

Switching time (AC operated, make contacts, closing delay) - max

21 ms

Switching time (AC operated, make contacts, closing delay) - min

14 ms

Switching time (AC operated, make contacts, opening delay) - max

18 ms

Switching time (AC operated, make contacts, opening delay) - min

8 ms

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

6 A gG/gL, 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

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

Conventional thermal current i_{th} at 40°C (3-pole, open)

22 A

Conventional thermal current i_{th} at 50°C (3-pole, open)

20 A

Rated operational power at AC-3, 440 V, 50 Hz

4.6 kW

Rated operational power at AC-3, 500 V, 50 Hz

4 kW

Rated operational power at AC-3, 690 V, 50 Hz

4 kW

Actuating voltage

400 V 50 Hz, 440 V 60 Hz

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



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