Product specifications

Eaton 051785

Catalog Number: 051785

Eaton Moeller® series DILEM Contactor, 220 V 50 Hz, 240 V 60 Hz, 3 pole, 380 V 400 V, 4 kW, Contacts N/O = Normally open= 1 N/O, Screw terminals, AC operation

Photo is representative

General specifications

Product Name
Eaton Moeller® series DILEM Mini contactor

Catalog Number
051785

Model Code
DILEM-10(220V50HZ,240V60HZ)

EAN
4015080517856

Product Length/Depth
52 mm

Product Height
58 mm

Product Width
45 mm

Product Weight
0.17 kg

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

Catalog Notes
Also tested according to AC-3e.

Powering Business Worldwide

defaultTaxonomyAttributeLabel

Number Of Poles

Three-pole

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 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.

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-component-dilm-characteristic-curve-003.eps

eaton-contactors-switch-dilm-characteristic-curve.eps

eaton-contactors-short-time-loading-dilm-characteristic-curve.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-general-ie-ready-dilm-contactor-standards.eps

eaton-tripping-devices-mounting-diler-contactor-relay-symbol.eps

eCAD model

ETN.051785.edz

Installation instructions

IL03407009Z

mCAD model

DA-CD-dil_em

DA-CS-dil_em

System overview

eaton-contactors-accessory-dilem-system-overview.eps

Wiring diagrams

eaton-contactors-contact-dilm-wiring-diagram.eps

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.

Fitted with:

Auxiliary contact

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-3: Normal AC induction motors: starting, switch off during running
AC-1: Non-inductive or slightly inductive loads, resistance furnaces

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 ith (1-pole, enclosed)

40 A

Conventional thermal current ith (3-pole, enclosed)

16 A

Conventional thermal current ith at 55°C (3-pole, open)

19 A

Conventional thermal current ith of auxiliary contacts (1-pole, open)

10 A

Conventional thermal current ith of main contacts (1-pole, open)

50 A

Equipment heat dissipation, current-dependent Pvid

1.2 W

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0.4 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

2, Terminal screw, Pozidriv screwdriver

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

1

Number of contacts (normally closed) as main contact

0

Number of main contacts (normally open contact)

3

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

220 V

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

220 V

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

240 V

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

240 V

Overvoltage category

III

Control circuit reliability

< 2 λ, < 1 failure at 100,000,000 Operations (at U_e = 24 V DC, Umin = 17 V, Imin = 5.4 mA)

Duty factor

100 %

Changeover time

16 - 21 ms

Lifespan, mechanical

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

Pick-up voltage

1.1 V AC x Uc (voltage tolerance - dual frequency coil 50/60 Hz)
0.8 - 1.1 V AC x Uc (voltage tolerance - single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 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 the contacts, According to EN 61140

300 V AC, Between auxiliary 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

Power consumption, pick-up, 60 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

Screw size

M3.5, Terminal screw

Power consumption, sealing, 50 Hz

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

Power consumption, sealing, 60 Hz

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

Rated operational current (Ie)

2.5 A at 24 V, DC L/R ≤ 15 ms (with 1 contact in series)

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

Switching capacity (auxiliary contacts, general use)

10 A, 600 V AC, (UL/CSA)

0.5 A, 250 V DC, (UL/CSA)

Switching capacity (auxiliary contacts, pilot duty)

P300, DC operated (UL/CSA)

A600, AC operated (UL/CSA)

Terminal capacity (flexible with ferrule)

2 x (0.75 - 1.5) mm²

1 x (0.75 - 1.5) mm²

Shock resistance

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
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
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
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

Terminal capacity (solid)

1 x (0.75 - 2.5) mm²
2 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 (Ie) at AC-3, 220 V, 230 V, 240 V

9 A

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

9 A

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

9 A

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

6.4 A

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

4.8 A

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

6.6 A

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

6.6 A

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

6.6 A

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

5 A

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

3.4 A

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

20 A

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

20 A

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

20 A

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

20 A

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

20 A

Rated operational current for specified heat dissipation (In)

9 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 mΩ

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

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
10 A fast, Max. Fuse 500V, Auxiliary contacts, Short-circuit rating without welding

Suitable for

Also motors with efficiency class IE3

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 ith at 40°C (3-pole, open)

22 A

Conventional thermal current ith 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

220 V 50 Hz, 240 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

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

Eaton.com/socialmedia