

# Eaton 277000

Catalog Number: 277000

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 7.5 kW, 1 N/O, 42 V 50 Hz, 48 V 60 Hz, AC operation, Screw terminals DILM17-10(42V50HZ,48V60HZ)



## General specifications

<b>Product Name</b>	<b>Catalog Number</b>
Eaton Moeller® series DILM contactor	277000
<b>Model Code</b>	<b>EAN</b>
DILM17-10(42V50HZ,48V60HZ)	4015082770006
<b>Product Length/Depth</b>	<b>Product Height</b>
97 mm	85 mm
<b>Product Width</b>	<b>Product Weight</b>
45 mm	0.428 kg
<b>Certifications</b>	<b>Catalog Notes</b>
CSA Certified	Contacts according to EN 50012
UL Listed	
IEC/EN 60947	
CSA Class No.: 2411-03, 3211-04	
UL	
CSA-C22.2 No. 60947-4-1-14	
UL 60947-4-1	
UL Category Control No.: NLDX	
CSA	
CSA File No.: 012528	
IEC/EN 60947-4-1	
CE	
UL File No.: E29096	
VDE 0660	

**Electrical connection type for auxiliary- and control-current circuit**

Screw connection

**Amperage Rating**

170A

**HP rating - max**

2, 3/ 5, 5, 10, 15 hp (1/3PH @115,230/200,230,460,575 V)

**Number Of Poles**

Three-pole

**Type**

Full voltage non-reversing small contactor

**Voltage rating**

400 V

**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.

**Catalogs**

Product Range Catalog Switching and protecting motors

SmartWire-DT Catalog

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

**Characteristic curve**

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

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

[eaton-contactors-switch-dilm-characteristic-curve-002.eps](#)

**Declarations of conformity**

[DA-DC-00004816.pdf](#)

[DA-DC-00004783.pdf](#)

**Drawings**

[eaton-contactors-mounting-dilm-dimensions.eps](#)

[eaton-contactors-mounting-dilm-dimensions-002.eps](#)

[eaton-contactors-contact-dilm-dimensions-002.eps](#)

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

[eaton-contactors-dilm-3d-drawing-009.eps](#)

[eaton-general-ie-ready-dilm-contactor-standards.eps](#)

**eCAD model**

[ETN.277000.edz](#)

**Installation instructions**

[IL03407014Z2021\\_09.pdf](#)

**Installation videos**

[WIN-WIN with push-in technology](#)

**mCAD model**

[DA-CD-dil\\_m17\\_38](#)

[DA-CS-dil\\_m17\\_38](#)

**Specifications and datasheets**

[Eaton Specification Sheet - 277000](#)

**System overview**

[eaton-contactors-dilm-contactor-system-overview.eps](#)

**Wiring diagrams**

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

#### 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.

#### Frequency rating

60 Hz

#### Operating frequency

5000 mechanical Operations/h (AC operated)

#### Pollution degree

3

#### Used with

Can be combined with auxiliary contacts: DILM32-XHI, DILA-XHI(V)

#### Climatic proofing

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

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

#### Connection to SmartWire-DT

No

#### Rated impulse withstand voltage (Uimp)

8000 V AC

#### Utilization category

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

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

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

#### Connection

Screw terminals

#### Frame size

FS2

#### Ambient operating temperature - max

60 °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

2 HP

#### Assigned motor power at 200/208 V, 60 Hz, 3-phase

5 HP

#### Assigned motor power at 230/240 V, 60 Hz, 1-phase

3 HP

#### Assigned motor power at 230/240 V, 60 Hz, 3-phase

5 HP

Assigned motor power at 460/480 V, 60 Hz, 3-phase

10 HP

Assigned motor power at 575/600 V, 60 Hz, 3-phase

15 HP

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

80 A

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

32 A

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

37 A

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

88 A

Equipment heat dissipation, current-dependent  $P_{vid}$

2.1 W

Heat dissipation capacity  $P_{diss}$

0 W

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

0.7 W

Application

Contactors for Motors

Product category

Contactors

Protection

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

Terminals

Screw terminals

Arcing time

10 ms

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

IP00

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 contacts (normally open contacts)

1

Number of main contacts (normally open contact)

3

Operating temperature - max

60 °C

Operating temperature - min

-25 °C

Rated breaking capacity at 220/230 V

170 A

Rated breaking capacity at 380/400 V

170 A

Rated breaking capacity at 500 V

170 A

Rated breaking capacity at 660/690 V

120 A

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

42 V

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

42 V

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

48 V

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

48 V

Coil voltage

48 Vac, 60 Hz

Contact configuration

1 NO

Continuous ampere rating

18 A

#### Drop-out voltage

AC operated:  $0.6 - 0.3 \times UC$ , AC operated

#### Overvoltage category

III

#### Duty factor

100 %

#### Number of contacts

1 NO

#### Emitted interference

According to EN 60947-1

#### Operation

Reversing

#### Interference immunity

According to EN 60947-1

#### Lifespan, mechanical

10,000,000 Operations (AC operated)

#### Pick-up voltage

$0.8 - 1.1 \text{ V AC} \times U_c$

#### Power consumption, pick-up, 50 Hz

52 VA, Dual-frequency coil in a cold state and  $1.0 \times U_s$ , at 50 Hz

#### Safe isolation

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

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

#### Power consumption, pick-up, 60 Hz

67 VA, Dual-frequency coil in a cold state and  $1.0 \times U_s$ , at 60 Hz

#### Screw size

M5, Terminal screw, Main cables

M3.5, Terminal screw, Control circuit cables

#### Power consumption, sealing, 50 Hz

7.1 VA, Dual-frequency coil in a cold state and  $1.0 \times U_s$ , at 50 Hz

2.1 W, Dual-frequency coil in a cold state and  $1.0 \times U_s$ , at 50 Hz

#### Power consumption, sealing, 60 Hz

2.1 W, Dual-frequency coil in a cold state and  $1.0 \times U_s$ , at 60 Hz

8.7 VA, Dual-frequency coil in a cold state and  $1.0 \times U_s$ , at 60 Hz

#### Terminal capacity (stranded)

1 x 16 mm<sup>2</sup>, Main cables

#### Switching capacity (auxiliary contacts, general use)

1 A, 250 V DC, (UL/CSA)  
10 A, 600 V AC, (UL/CSA)

#### Switching capacity (auxiliary contacts, pilot duty)

P300, DC operated (UL/CSA)  
A600, AC operated (UL/CSA)

#### Terminal capacity (flexible with ferrule)

1 x (0.75 - 16) mm<sup>2</sup>, Main cables  
2 x (0.75 - 10) mm<sup>2</sup>, Main cables  
2 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables  
1 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables

#### Shock resistance

5 g, N/C auxiliary contact, Mechanical, according to IEC/EN  
60068-2-27, Half-sinusoidal shock 10 ms  
3.5 g, N/C auxiliary contact, Mechanical, according to IEC/EN  
60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10  
ms  
6.9 g, N/O main contact, Mechanical, according to IEC/EN  
60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10  
ms  
7 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  
5.3 g, N/O auxiliary contact, Mechanical, according to IEC/EN  
60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10  
ms

#### Terminal capacity (solid)

2 x (0.75 - 10) mm<sup>2</sup>, Main cables  
1 x (0.75 - 4) mm<sup>2</sup>, Control circuit cables  
2 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables  
1 x (0.75 - 16) mm<sup>2</sup>, Main cables

#### Terminal capacity (solid/stranded AWG)

Single 18 - 6, double 18 - 8, Main cables  
18 - 14, Control circuit cables

#### Switching capacity (main contacts, general use)

40 A, Maximum motor rating (UL/CSA)

#### Power consumption

7.5 kW

#### Tightening torque

1.2 Nm, Screw terminals, Control circuit cables  
3.2 Nm, Screw terminals, Main cables

#### 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 690 V (cos phi to IEC/EN 60947)

238 A

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

40 A

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

18 A

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

18 A

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

18 A

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

18 A

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

12 A

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

10 A

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

10 A

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

10 A

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

10 A

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

8 A

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

35 A

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

35 A

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

35 A

Rated operational current for specified heat dissipation (In)

18 A

Rated operational power at AC-3, 240 V, 50 Hz

5.5 kW

Rated operational power at AC-3, 380/400 V, 50 Hz

7.5 kW

Rated operational power at AC-3, 415 V, 50 Hz

10 kW

Rated operational power at AC-4, 220/230 V, 50 Hz

2.5 kW

Rated operational power at AC-4, 240 V, 50 Hz

3 kW

Rated operational power at AC-4, 380/400 V, 50 Hz

4.5 kW

Rated operational power at AC-4, 415 V, 50 Hz

5 kW

Rated operational power at AC-4, 440 V, 50 Hz

5.5 kW

Rated operational power at AC-4, 500 V, 50 Hz

6 kW

Rated operational power at AC-4, 660/690 V, 50 Hz

6.5 kW

Rated operational power (NEMA)

7.4 kW

Rated operational voltage (U<sub>e</sub>) at AC - max

690 V

Resistance per pole

2.7 mΩ

Static heat dissipation, non-current-dependent P<sub>vs</sub>

2.1 W

Stripping length (control circuit cable)

10 mm

Stripping length (main cable)

10 mm

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

22 ms

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

16 ms

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

14 ms

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

8 ms

Short-circuit current rating (basic rating)

5 kA, SCCR (UL/CSA)

125 A, max. Fuse, SCCR (UL/CSA)

125 A, max. CB, SCCR (UL/CSA)

Short-circuit current rating (high fault at 480 V)

10/100 kA, Fuse, SCCR (UL/CSA)

10/65 kA, CB, SCCR (UL/CSA)

125/70 A, Class J, max. Fuse, SCCR (UL/CSA)

50/32 A, max. CB, SCCR (UL/CSA)

Short-circuit current rating (high fault at 600 V)

10/22 kA, CB, SCCR (UL/CSA)

50/32 A, max. CB, SCCR (UL/CSA)

10/100 kA, Fuse, SCCR (UL/CSA)

125/70 A, Class J, max. Fuse, SCCR (UL/CSA)

Short-circuit protection rating (type 1 coordination) at 400 V

63 A gG/gL

Suitable for

Also motors with efficiency class IE3

Short-circuit protection rating (type 1 coordination) at 690 V

50 A gG/gL

Short-circuit protection rating (type 2 coordination) at 400 V

35 A gG/gL

Short-circuit protection rating (type 2 coordination) at 690 V

35 A gG/gL

Special purpose rating of ballast electrical discharge lamps

40 A (480V 60Hz 3phase, 277V 60Hz 1phase)

40 A (600V 60Hz 3phase, 347V 60Hz 1phase)

Special purpose rating of definite purpose rating

108 A, LRA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)

18 A, FLA 480 V 60 Hz 3-ph, 100,000 cycles acc. to UL 1995, (UL/CSA)

Special purpose rating of elevator control

3 HP, 200 V 60 Hz 3-ph, (UL/CSA)

11 A, 200 V 60 Hz 3-ph, (UL/CSA)

11 A, 480 V 60 Hz 3-ph, (UL/CSA)

10 HP, 600 V 60 Hz 3-ph, (UL/CSA)

11 A, 600 V 60 Hz 3-ph, (UL/CSA)  
3 HP, 240 V 60 Hz 3-ph, (UL/CSA)  
9.6 A, 240 V 60 Hz 3-ph, (UL/CSA)  
7.5 HP, 480 V 60 Hz 3-ph, (UL/CSA)

#### Special purpose rating of refrigeration control (CSA only)

180 A, LRA 600 V 60 Hz 3phase; (CSA)  
40 A, FLA 480 V 60 Hz 3phase; (CSA)  
240 A, LRA 480 V 60 Hz 3phase; (CSA)  
30 A, FLA 600 V 60 Hz 3phase; (CSA)

#### Special purpose rating of resistance air heating

40 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)  
40 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)

#### Special purpose rating of tungsten incandescent lamps

40 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)  
40 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)

#### Operating temperature

-25° to 60°C

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

40 A

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

38 A

#### Conventional thermal current $i_{th}$ at 60°C (3-pole, open)

35 A

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

10.5 kW

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

12 kW

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

11 kW

#### Actuating voltage

42 V 50 Hz, 48 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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