

# Eaton 239394

Catalog Number: 239394

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 37 kW, 42 V 50 Hz, 48 V 60 Hz, AC operation, Screw terminals



Photo is representative

## General specifications

<b>Product Name</b>	<b>Catalog Number</b>
Eaton Moeller® series DILM contactor	239394
<b>Model Code</b>	<b>EAN</b>
DILM80(42V50HZ,48V60HZ)	4015082393946
<b>Product Length/Depth</b>	<b>Product Height</b>
160 mm	170 mm
<b>Product Width</b>	<b>Product Weight</b>
90 mm	2.18 kg
<b>Certifications</b>	<b>Catalog Notes</b>
CSA File No.: 012528	Contacts according to EN 50012
IEC/EN 60947-4-1	
UL 60947-4-1	
CSA Class No.: 2411-03, 3211-04	
UL Category Control No.: NLDX	
UL File No.: E29096	
CE	
CSA-C22.2 No. 60947-4-1-14	
IEC/EN 60947	
UL	
CSA	
VDE 0660	

## Features & Functions

### Number Of Poles

Three-pole

## General

### Application

Contactors for Motors

### Frame size

FS4

### Lifespan, mechanical

10,000,000 Operations (AC operated)

### Operating frequency

3600 mechanical Operations/h (AC operated)

### 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)

8000 V AC

### Residual current

1 mA (with actuation of A1 - A2 by the electronics with "0" signal)

### Resistance per pole

0.6 m $\Omega$

### Suitable for

Also motors with efficiency class IE3

### 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

### Voltage type

AC

## Ambient conditions, mechanical

## Climatic environmental conditions

### Shock resistance

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

### Ambient operating temperature - min

-25 °C

### Ambient operating temperature - max

60 °C

### Ambient operating temperature (enclosed) - min

25 °C

### Ambient operating temperature (enclosed) - max

40 °C

### Ambient storage temperature - min

40 °C

### Ambient storage temperature - max

80 °C

### Climatic proofing

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

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

## Electro Magnetic Compatibility

### Emitted interference

According to EN 60947-1

### Interference immunity

According to EN 60947-1

## Terminal capacities

### Terminal capacity (copper band)

2 x (6 x 16 x 0.8) mm (Number of segments x width x thickness),  
Main cables

### Terminal capacity (flexible with ferrule)

2 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables  
1 x (10 - 70) mm<sup>2</sup>, Main cables  
2 x (10 - 50) mm<sup>2</sup>, Main cables  
1 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables

### Terminal capacity (solid)

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

### Terminal capacity (solid/stranded AWG)

Single 8...3/0, double 8...2/0, Main cables  
18 - 14, Control circuit cables

### Terminal capacity (stranded)

2 x (16 - 50) mm<sup>2</sup>, Main cables  
1 x (16 - 70) mm<sup>2</sup>, Main cables

### Stripping length (main cable)

24 mm

### Stripping length (control circuit cable)

10 mm

### Screw size

5 mm AF, Hexagon socket-head spanner, Terminal screw, Main cables

M10, Terminal screw, Main cables

M3.5, Terminal screw, Control circuit cables

### Screwdriver size

2, Terminal screw, Control circuit cables, Pozidriv screwdriver

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

### Tightening torque

1.2 Nm, Screw terminals, Control circuit cables

14 Nm, Screw terminals, Main cables

## Electrical Rating

Rated breaking capacity at 220/230 V

800 A

Rated breaking capacity at 380/400 V

800 A

Rated breaking capacity at 500 V

800 A

Rated breaking capacity at 660/690 V

650 A

Rated operational current (I<sub>e</sub>) at AC-1, 380 V, 400 V, 415 V

110 A

Rated operational current (I<sub>e</sub>) at AC-3, 220 V, 230 V, 240 V

80 A

Rated operational current (I<sub>e</sub>) at AC-3, 380 V, 400 V, 415 V

80 A

Rated operational current (I<sub>e</sub>) at AC-3, 440 V

80 A

Rated operational current (I<sub>e</sub>) at AC-3, 500 V

80 A

Rated operational current (I<sub>e</sub>) at AC-3, 660 V, 690 V

65 A

Rated operational current (I<sub>e</sub>) at AC-4, 220 V, 230 V, 240 V

40 A

Rated operational current (I<sub>e</sub>) at AC-4, 400 V

40 A

Rated operational current (I<sub>e</sub>) at AC-4, 500 V

40 A

Rated operational current (I<sub>e</sub>) at AC-4, 660 V, 690 V

27 A

Rated operational current (I<sub>e</sub>) at DC-1, 60 V

110 A

Rated operational current (I<sub>e</sub>) at DC-1, 110 V

110 A

Rated operational current (I<sub>e</sub>) at DC-1, 220 V

70 A

Rated insulation voltage (U<sub>i</sub>)

690 V

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

110 A

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

27.5 kW

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

37 kW

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

48 kW

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

11.5 kW

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

13 kW

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

24 kW

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

25 kW

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

29 kW

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

26 kW

Rated operational voltage ( $U_e$ ) at AC - max

690 V

## Short-circuit rating

Short-circuit current rating (basic rating)

10 kA, SCCR (UL/CSA)

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

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

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

65 kA, CB, SCCR (UL/CSA)

300/300 A, Class J, max. Fuse, SCCR (UL/CSA)

30/100 kA, Fuse, SCCR (UL/CSA)

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

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

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

30/100 kA, Fuse, SCCR (UL/CSA)

300/300 A, Class J, max. Fuse, SCCR (UL/CSA)

30 kA, CB, SCCR (UL/CSA)

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

250 A gG/gL

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

200 A gG/gL

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

160 A gG/gL

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

160 A gG/gL

## Conventional thermal current

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

200 A

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

80 A

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

94 A

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

225 A

## Switching capacity

Switching capacity (main contacts, general use)

125 A, Maximum motor rating (UL/CSA)

## Switching time

Arcing time

15 ms

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

14 ms

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

20 ms

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

9 ms

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

14 ms

## Magnet system

Drop-out voltage

AC operated: 0.6 - 0.3 x UC, AC operated

Duty factor

100 %

Pick-up voltage

0.8 - 1.1 V AC x Uc

Power consumption, pick-up, 50 Hz

310 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz

Power consumption, pick-up, 60 Hz

345 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz

Power consumption, sealing, 50 Hz

5.8 W, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz  
26 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 50 Hz

Power consumption, sealing, 60 Hz

30 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz  
5.8 W, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz

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

42 V

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

42 V

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

48 V

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

48 V

Rated control supply voltage (Us) at DC - min

0 V

Rated control supply voltage (Us) at DC - max

0 V

## Motor Rating

Assigned motor power at 115/120 V, 60 Hz, 1-phase

7.5 HP

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

25 HP

## Communication

Connection to SmartWire-DT

No

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

15 HP

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

30 HP

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

60 HP

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

75 HP

## Special purpose ratings

Special purpose rating of ballast electrical discharge lamps

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

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

Special purpose rating of definite purpose rating

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

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

Special purpose rating of elevator control

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

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

25 HP, 240 V 60 Hz 3-ph, (UL/CSA)

50 HP, 480 V 60 Hz 3-ph, (UL/CSA)

68 A, 240 V 60 Hz 3-ph, (UL/CSA)

62 A, 600 V 60 Hz 3-ph, (UL/CSA)

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

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

Special purpose rating of refrigeration control (CSA only)

70 A, FLA 600 V 60 Hz 3phase; (CSA)

90 A, FLA 480 V 60 Hz 3phase; (CSA)

540 A, LRA 480 V 60 Hz 3phase; (CSA)

420 A, LRA 600 V 60 Hz 3phase; (CSA)

Special purpose rating of resistance air heating

100 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)

100 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)

Special purpose rating of tungsten incandescent lamps

100 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)

## Contacts

Number of auxiliary contacts (normally closed contacts)

0

Number of auxiliary contacts (normally open contacts)

0

## Safety

Safe isolation

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

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

## Design verification

Equipment heat dissipation, current-dependent P<sub>vid</sub>

9 W

Heat dissipation capacity P<sub>diss</sub>

0 W

Rated operational current for specified heat dissipation (I<sub>n</sub>)

80 A

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.

100 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)

#### 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.

#### 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.

## Catalogues

Switching and protecting motors - catalog

SmartWire-DT Catalog

Product Range Catalog Switching and protecting motors

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

## Certification reports

0000SPC-571

## Characteristic curve

210U038

2100DIA-8

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

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

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

210U040

2100DIA-7

[eaton-contactors-short-time-loading-dilm-characteristic-curve-002.eps](#)

## Declarations of conformity

[DA-DC-00004781.pdf](#)

[DA-DC-00004818.pdf](#)

## Drawings

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

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

[eaton-contactors-dilm-dimensions-011.eps](#)

210X203

210N018

210T016

[eaton-contactors-dilm-dimensions-003.eps](#)

[eaton-contactors-dimensions-210x203.eps](#)

210N017

## Drawings

2100DRW-296

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

2110DRW-4

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

[eaton-contactors-dilm-3d-drawing-013.eps](#)

## eCAD model

[ETN.239394.edz](#)

ETN.DILM80(42V50HZ,48V60HZ).edz

#### Installation instructions

[eaton-dil-contactors-instruction-leaflet-il03407039z.pdf](#)

#### Installation videos

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

#### mCAD model

[eaton-cadenas-front\\_view-dil\\_m80\\_170\\_front.pra](#)

[eaton-cadenas-path-01-geo-dil\\_m80\\_170.3db](#)

[eaton-cadenas-side\\_view-dil\\_m80\\_170\\_side.pra](#)

[DA-CS-dil\\_m80\\_170](#)

[eaton-cadenas-drill\\_view-dil\\_m80\\_170\\_drill.pra](#)

[DA-CD-dil\\_m80\\_170](#)

#### System overview

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

210O154

#### Wiring diagrams

[eaton-contactors-contact-dilm-wiring-diagram-003.eps](#)

210S045



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