Product specifications

# Eaton 277166

## Catalog Number: 277166

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 11 kW, 1 NC, 400 V 50 Hz, 440 V 60 Hz, AC operation, Screw terminals




## General specifications

**Product Name**
Eaton Moeller® series DILM contactor

**Catalog Number**
277166

**Model Code**
DILM25-01(400V50HZ,440V60HZ)

**EAN**
4015082771669

**Product Length/Depth**
97 mm

**Product Height**
85 mm

**Product Width**
45 mm

**Product Weight**
0.428 kg

**Compliances**
CE Marked

**Certifications**
IEC 60947-4-1
UL 508
CSA Std. C22.2 No. 14-05
EN 60947-4-1
VDE
VDE 0660
UL
IEC/EN 60947
CSA

**Catalog Notes**
Contacts according to EN 50012

Powering Business Worldwide

## Features & Functions

Fitted with:

Mirror contact

Number Of Poles

Three-pole

## General

Application

Contactors for Motors

Frame size

FS2

Lifespan, mechanical

10,000,000 Operations (AC operated)

Operating frequency

5000 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

Resistance per pole

2.7 m Ω

Suitable for

Also motors with efficiency class IE3

Utilization category

AC-3: Normal AC induction motors: starting, switch off during running
AC-4: Normal AC induction motors: starting, plugging, reversing, inching
AC-1: Non-inductive or slightly inductive loads, resistance furnaces

Voltage type

AC

## Ambient conditions, mechanical

Shock resistance

6.9 g, N/O main contact, Mechanical, according to IEC/EN

## Climatic environmental conditions

Ambient operating temperature - min

-25 °C

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

### 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, constant, to IEC 60068-2-78
Damp heat, cyclic, to IEC 60068-2-30

## Electro Magnetic Compatibility

### Emitted interference

According to EN 60947-1

### Interference immunity

According to EN 60947-1

## Terminal capacities

### Terminal capacity (flexible with ferrule)

2 x (0.75 - 10) mm², Main cables
1 x (0.75 - 2.5) mm², Control circuit cables
1 x (0.75 - 16) mm², Main cables
2 x (0.75 - 2.5) mm², Control circuit cables

### Terminal capacity (solid)

1 x (0.75 - 16) mm², Main cables
1 x (0.75 - 4) mm², Control circuit cables
2 x (0.75 - 10) mm², Main cables
2 x (0.75 - 2.5) mm², Control circuit cables

### Terminal capacity (solid/stranded AWG)

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

### Terminal capacity (stranded)

1 x 16 mm², Main cables

### Stripping length (main cable)

10 mm

### Stripping length (control circuit cable)

10 mm

### Screw size

M5, Terminal screw, Main cables
M3.5, Terminal screw, Control circuit cables

### Screwdriver size

2, Terminal screw, Pozidriv screwdriver

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

### Tightening torque

3.2 Nm, Screw terminals, Main cables

1.2 Nm, Screw terminals, Control circuit cables

## Electrical Rating

### Rated breaking capacity at 220/230 V

250 A

### Rated breaking capacity at 380/400 V

250 A

### Rated breaking capacity at 500 V

250 A

### Rated breaking capacity at 660/690 V

150 A

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

45 A

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

25 A

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

25 A

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

25 A

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

25 A

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

15 A

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

13 A

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

13 A

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

13 A

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

10 A

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

40 A

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

40 A

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

40 A

### Rated insulation voltage (Ui)

690 V

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

45 A

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

8.5 kW

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

11 kW

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

14.5 kW

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

3.5 kW

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

4 kW

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

6.5 kW

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

7 kW

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

8 kW

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

8.5 kW

Rated operational voltage (Ue) at AC - max

690 V

## Short-circuit rating

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

100 A gG/gL

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

## Conventional thermal current

Conventional thermal current ith (1-pole, enclosed)

90 A

Conventional thermal current ith (3-pole, enclosed)

36 A

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

42 A

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

100 A

## Switching time

Arcing time

10 ms

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

16 ms

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

22 ms

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

8 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

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

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

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

### Power consumption, sealing, 50 Hz

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

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

### Power consumption, sealing, 60 Hz

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

8.7 VA, 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

400 V

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

400 V

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

440 V

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

440 V

### Rated control supply voltage (Us) at DC - min

0 V

### Rated control supply voltage (Us) at DC - max

0 V

## Communication

### Connection

Screw terminals

### Connection to SmartWire-DT

No

## Contacts

### Number of contacts (normally closed contacts)

1

### Number of auxiliary contacts (normally closed contacts)

1

### Number of auxiliary contacts (normally open contacts)

0

## Safety

### Safe isolation

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

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

## Design verification

### Equipment heat dissipation, current-dependent Pvid

4.2 W

### Heat dissipation capacity Pdiss

0 W

### Rated operational current for specified heat dissipation (In)

25 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.

### 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.

## Resources

### Catalogs

Switching and protecting motors - catalog

SmartWire-DT Catalog

Product Range Catalog Switching and protecting motors

### Characteristic curve

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

eaton-contactors-switch-dilm-characteristic-curve-002.eps

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

### Declarations of conformity

DA-DC-00004816.pdf

DA-DC-00004783.pdf

### Drawings

eaton-contactors-mounting-dilm-dimensions-002.eps

eaton-contactors-dilm-dimensions.eps

eaton-contactors-mounting-dilm-dimensions.eps

eaton-contactors-contact-dilm-dimensions-002.eps

eaton-general-ie-ready-dilm-contactor-standards.eps

eaton-contactors-dilm-3d-drawing-009.eps

### eCAD model

DA-CE-ETN.DILM25-01(400V50HZ,440V60HZ)

### Installation instructions

IL03407014Z

### Installation videos

WIN-WIN with push-in technology

### mCAD model

DA-CD-dil_m17_38

DA-CS-dil_m17_38

### System overview

eaton-contactors-dilm-contactor-system-overview.eps

### Wiring diagrams

2100SWI-117

eaton-contactors-contact-dilm-wiring-diagram-002.eps

### 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.

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

© 2024 Eaton. All Rights Reserved.

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Eaton.com/socialmedia