

# Eaton 109914

Catalog Number: 109914

Eaton Moeller® series DILMP Contactor, 4 pole, 160 A, RAC 24:  
24 V 50/60 Hz, AC operation



## General specifications

### Product Name

Eaton Moeller® series DILMP 4-pole  
contactor

### Catalog Number

109914

### Model Code

DILMP160(RAC24)

### EAN

4015081094806

### Product Length/Depth

160 mm

### Product Height

170 mm

### Product Width

122 mm

### Product Weight

2.73 kg

### Certifications

IEC/EN 60947-4-1

CE

IEC/EN 60947

CSA Class No.: 2411-03, 3211-04

UL Category Control No.: NLDX

CSA File No.: 012528

UL File No.: E29096

CSA-C22.2 No. 60947-4-1-14

VDE 0660

CSA

UL

UL 60947-4-1

### Catalog Notes

Contacts according to EN 50012

## Features & Functions

### Fitted with:

Suppressor circuit in actuating electronics

### Number Of Poles

Four-pole

## General

### Application

Contactors for 4 pole electric consumers

### Lifespan, mechanical

10,000,000 Operations (AC operated)

10,000,000 Operations (DC operated)

### Operating frequency

3600 mechanical Operations/h (DC operated)

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 $\Omega$

### Utilization category

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

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

### Voltage type

AC

## Ambient conditions, mechanical

### 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, Half-sinusoidal shock 10 ms

## Climatic environmental conditions

### Ambient operating temperature - min

-25 °C

### Ambient operating temperature - max

60 °C

10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms

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 60068-2-3

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

## Electro Magnetic Compatibility

### 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)

1 x (0.75 - 1.5) mm<sup>2</sup>

2 x (0.75 - 1.5) mm<sup>2</sup>

### Terminal capacity (flexible)

1 x (0.75 - 2.5) mm<sup>2</sup>

2 x (0.75 - 2.5) mm<sup>2</sup>

### Terminal capacity (solid)

2 x (0.75 - 4) mm<sup>2</sup>, Control circuit cables

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

1 x (0.75 - 2.5) mm<sup>2</sup>

### Terminal capacity (solid/stranded AWG)

18 - 14, Control circuit cables

8 - 3/0, Main cables

### Terminal capacity (stranded)

2 x (16 - 95) mm<sup>2</sup>, Main cables

1 x (16 - 120) mm<sup>2</sup>, Main cables

### Stripping length (main cable)

15 mm

### Stripping length (control circuit cable)

10 mm

### Screw size

M10, Terminal screw, Main cables

M3.5, Terminal screw, Control circuit cables

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

950 A

Rated breaking capacity at 380/400 V

950 A

Rated breaking capacity at 500 V

950 A

Rated breaking capacity at 660/690 V

750 A

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

160 A

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

95 A

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

95 A

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

95 A

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

95 A

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

80 A

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

65 A

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

160 A

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

160 A

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

160 A

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

690 V

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

160 A

Rated operational power at AC-1, 240 V, 50 Hz

63 kW

Rated operational power at AC-1, 380/400 V, 50 Hz

100 kW

Rated operational power at AC-1, 415 V, 50 Hz

109 kW

Rated operational power at AC-1, 440 V, 50 Hz

116 kW

Rated operational power at AC-1, 500 V, 50 Hz

132 kW

Rated operational power at AC-1, 690 V, 50 Hz

174 kW

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

33 kW

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

45 kW

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

57 kW

Rated operational voltage (Ue) at AC - max

690 V

## Conventional thermal current

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

373 A

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

128 A

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

143 A

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

415 A

## Short-circuit rating

Short-circuit current rating (basic rating)

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

10 kA, 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)

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

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

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

30 kA, CB, SCCR (UL/CSA)

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

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

350 A, max. 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

## Switching capacity

Switching capacity (main contacts, general use)

125 A, Maximum motor rating (UL/CSA)

## Switching time

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

28 ms

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

33 ms

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

35 ms

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

max  
41 ms

## Magnet system

### Drop-out voltage

AC operated:  $0.6 - 0.25 \times UC$ , AC operated

### Duty factor

100 %

### Pick-up voltage

$0.8 - 1.15 \text{ V AC/DC} \times U_s$

$0.8 - 1.15 \text{ V AC} \times U_c$

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

180 VA, Dual-frequency coil in a cold state and  $1.0 \times U_s$

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

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

180 VA, Dual-frequency coil in a cold state and  $1.0 \times U_s$

### Power consumption, sealing, 50 Hz

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

### Power consumption, sealing, 60 Hz

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

2.3 W, Dual-frequency coil in a cold state and  $1.0 \times U_s$

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

24 V

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

24 V

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

24 V

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

24 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

## Communication

Connection to SmartWire-DT

No

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

25 HP

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

15 HP

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

40 HP

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

75 HP

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

100 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 elevator control

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

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

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

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

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

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

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

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

Special purpose rating of refrigeration control (CSA only)

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

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

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

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

Special purpose rating of resistance air heating

110 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, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)

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

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 P<sub>vid</sub>

36.3 W

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

0 W

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

160 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.

### 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.

## Resources

### Catalogues

Product Range Catalog Switching and protecting motors

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

Switching and protecting motors - catalog

SmartWire-DT Catalog

### Characteristic curve

[eaton-contactors-switching-dilmp-characteristic-curve.eps](#)

2110DIA-3

### Declarations of conformity

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

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

### Drawings

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

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

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

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

2110DIM-15

[eaton-contactors-dimensions-2110dim-14.eps](#)

[eaton-contactors-dimensions-2110dim-15.eps](#)

210N018

210N017

2110DIM-14

[eaton-contactors-characteristic-curve-2110dia-3.eps](#)

### eCAD model

[DA-CE-ETN.DILMP160\(RAC24\)](#)

[ETN.109914.edz](#)

### Installation instructions

[IL03407049Z](#)

### Installation videos

WIN-WIN with push-in technology

### mCAD model

[eaton-cadenas-front\\_view-dil\\_mp125\\_200\\_front.pra](#)

[DA-CD-dil\\_mp125\\_200](#)

[eaton-cadenas-drill\\_view-dil\\_mp125\\_200\\_drill.pra](#)

[eaton-cadenas-side\\_view-dil\\_mp125\\_200\\_side.pra](#)

eaton-cadenas-path-01-geo-dil\_mp125\_200.3db

DA-CS-dil\_mp125\_200

Wiring diagrams

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

210S028



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