Specifications

Eaton 276741

Catalog Number: 276741

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 4 kW, 1 NC, 48 V DC, DC operation, Screw terminals

Photo is representative

General specifications

Product Name	**Catalog Number**
Eaton Moeller® series DILM contactor	276741
Model Code	**EAN**
DILM9-01(48VDC)	4015082767419
Product Length/Depth	**Product Height**
75 mm	68 mm
Product Width	**Product Weight**
45 mm	0.296 kg
Certifications	**Catalog Notes**
IEC/EN 60947-4-1	Contacts according to EN 50012
CSA-C22.2 No. 60947-4-1-14	
UL	
UL Category Control No.: NLDX	
UL File No.: E29096	
CE	
CSA File No.: 012528	
IEC/EN 60947	
CSA	
VDE 0660	
CSA Class No.: 2411-03, 3211-04	
UL 508	
VDE	

Powering Business Worldwide

Features & Functions

Fitted with:

Varistor suppressor circuit

Mirror contact

Number Of Poles

Three-pole

General

Application

Contactors for Motors

Frame size

FS1

Lifespan, mechanical

10,000,000 Operations (DC operated)

Operating frequency

9000 mechanical Operations/h (DC 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

4.6 mΩ

Suitable for

Also motors with efficiency class IE3

Utilization category

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

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

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

Voltage type

DC

Ambient conditions, mechanical

Shock resistance

3.4 g, N/C auxiliary 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
5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
3.4 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
5.7 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, 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)

1 x (0.75 - 2.5) mm²
2 x (0.75 - 2,5) mm²

Terminal capacity (solid)

1 x (0.75 - 4) mm²
2 x (0.75 - 2.5) mm²

Terminal capacity (solid/stranded AWG)

Single 18 - 10, double 18 - 14

Stripping length (main cable)

10 mm

Stripping length (control circuit cable)

10 mm

Screw size

M3.5, Terminal screw

Screwdriver size

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

Tightening torque

1.2 Nm, Screw terminals

Electrical Rating

Short-circuit rating

Rated breaking capacity at 220/230 V

90 A

Rated breaking capacity at 380/400 V

90 A

Rated breaking capacity at 500 V

70 A

Rated breaking capacity at 660/690 V

50 A

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

22 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

7 A

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

5 A

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

6 A

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

6 A

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

5 A

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

4.5 A

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

20 A

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

20 A

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

15 A

Rated insulation voltage (Ui)

690 V

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

Short-circuit current rating (basic rating)

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

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

5 kA, SCCR (UL/CSA)

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

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

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

65 kA, CB, SCCR (UL/CSA)

25 A, Class RK5/ 20 A Class J, max. Fuse, SCCR (UL/CSA)

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

25 A, Class RK5/20 A, Class J, max. Fuse, SCCR (UL/CSA)

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

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

35 A gG/gL

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

20 A gG/gL

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

20 A gG/gL

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

16 A gG/gL

Conventional thermal current

Conventional thermal current ith (1-pole, enclosed)

45 A

Conventional thermal current ith (3-pole, enclosed)

18 A

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

21 A

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

50 A

Switching capacity

Switching capacity (main contacts, general use)

20 A, Maximum motor rating (UL/CSA)

Switching capacity (auxiliary contacts, general use)

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

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

22 A

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

3 kW

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

4 kW

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

5.5 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

1.6 kW

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

2.8 kW

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

3 kW

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

2.8 kW

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

3.6 kW

Rated operational voltage (Ue) at AC - max

690 V

Switching capacity (auxiliary contacts, pilot duty)

A600, AC operated (UL/CSA)

P300, DC operated (UL/CSA)

Switching time

Arcing time

10 ms

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

31 ms

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

12 ms

Magnet system

Drop-out voltage

0.6 - 0.15 x UC, DC operated

At least smoothed two-phase bridge rectifier or three-phase rectifier

Duty factor

100 %

Pick-up voltage

0.8 - 1.1 V DC x Uc

0.85 - 1.1 V DC x Uc (only with auxiliary contact module with 3 or more N/C contacts)

Power consumption (pick-up) at DC

4.5 W

Power consumption (sealing) at DC

4.5 W

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

0 V

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

0 V

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

0 V

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

0 V

Rated control supply voltage (Us) at DC - min

48 V

Rated control supply voltage (Us) at DC - max

48 V

Motor Rating

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

3 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

7.5 HP

Communication

Connection to SmartWire-DT

No

Contacts

Number of contacts (normally closed contacts)

1

Number of contacts (normally open contacts)

0

Number of auxiliary contacts (normally closed contacts)

1

Number of auxiliary contacts (normally open contacts)

0

Safety

Safe isolation

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

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

Special purpose ratings

Special purpose rating of ballast electrical discharge lamps

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

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

Special purpose rating of definite purpose rating

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

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

Special purpose rating of elevator control

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

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

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

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

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

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

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

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

Special purpose rating of refrigeration control (CSA only)

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

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

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

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

Special purpose rating of resistance air heating

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

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

Special purpose rating of tungsten incandescent lamps

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

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

Design verification

Equipment heat dissipation, current-dependent Pvid

0.9 W

Heat dissipation capacity Pdiss

0 W

Rated operational current for specified heat dissipation (In)

9 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

eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf

SmartWire-DT Catalog

Product Range Catalog Switching and protecting motors

Switching and protecting motors - catalog

Certification reports

0000SPC-571

Characteristic curve

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

2100DIA-8

210U038

210U039

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

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

eaton-contactors-short-time-loading-dilm-characteristic-curve.eps

2100DIA-7

Declarations of conformity

DA-DC-00004810.pdf

DA-DC-00004792.pdf

Drawings

eaton-contactors-mounting-dilm-dimensions.eps

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

eaton-contactors-module-dilm-dimensions.eps

210N017

2110DIM-1

2110DIM-2

210N018

210T013

eaton-contactors-frame-dilm-dimensions.eps

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

Drawings

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

eaton-contactors-dilm-3d-drawing-007.eps

210I044

eCAD model

DA-CE-ETN.DILM9-01(48VDC)

ETN.276741.edz

Installation instructions

eaton-contactors-dila-dilm7-15-dilmp20-instruction-leaflet-il03407013z.pdf

Installation videos

WIN-WIN with push-in technology

mCAD model

eaton-cadenas-front_view-dil_m7_15_front.pra

eaton-cadenas-drill_view-dil_m7_15_drill.pra

eaton-cadenas-path-01-geo-dil_m7_15.3db

DA-CD-dil_m7_15

eaton-cadenas-side_view-dil_m7_15_side.pra

DA-CS-dil_m7_15

System overview

210O154

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

Wiring diagrams

2100SWI-117

2100SWI-126

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