Specifications

# Eaton 052509

## Catalog Number: 052509

Eaton Moeller® series DILER Contactor relay, 230 V 50/60 Hz, N/O = Normally open: 3 N/O, N/C = Normally closed: 1 NC, Screw terminals, AC operation



## General specifications

**Product Name**
Eaton Moeller® series DILER Control relay

**Catalog Number**
052509

**EAN**
4015080525097

**Product Length/Depth**
51 mm

**Product Height**
58 mm

**Product Width**
45 mm

**Product Weight**
0.17 kg

**Certifications**

UL
CE
IEC/EN 60947-4-1
UL File No.: E29184
UL Category Control No.: NKCR
CSA Class No.: 3211-03
CSA-C22.2 No. 14-05
CSA File No.: 012528
IEC/EN 60947
UL 508
EN 60947-5-1
VDE 0660
CSA

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## Features & Functions

### Features

Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module

### Fitted with:

Interlocked opposing contacts

## General

### Application

Contactor relays

### Lifespan, mechanical

10,000,000 Operations (AC operated)

### Mounting method

DIN-rail/screw

### Mounting position

As required (except vertical with terminals A1/A2 at the bottom)

### Operating frequency

9000 Operations/h

### Overvoltage category

III

### Pollution degree

3

### Product category

DILER Mini-contactors

### Protection

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

### Rated impulse withstand voltage (Uimp)

6000 V AC

### Shock resistance

10 g, N/O auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
8 g, N/C auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms

### Voltage type

AC

## Climatic environmental conditions

### Ambient operating temperature - min

-25 °C

### Ambient operating temperature - max

50 °C

## Terminal capacities

### Terminal capacity (flexible with ferrule)

1 x (0.75 - 1.5) mm²
2 x (0.75 - 1.5) mm²

### Terminal capacity (solid)

Ambient operating temperature (enclosed) - min

25 °C

Ambient operating temperature (enclosed) - max

40 °C

Climatic proofing

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

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

1 x (0.75 - 2.5) mm²

2 x (0.75 - 2.5) mm²

Terminal capacity (solid/stranded AWG)

1 x (18 - 14)

2 x (18 - 14)

18 - 14

Stripping length (main cable)

8 mm

Screwdriver size

2, Terminal screw, Pozidriv screwdriver

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

Tightening torque

1.2 Nm, Screw terminals

## Electrical rating

Rated operational voltage (Ue) at AC - max

600 V

Rated insulation voltage (Ui)

690 V

Rated operational current (Ie)

2.5 A at 60 V, DC L/R ≤ 15 ms (with 2 contacts in series)

1.5 A at 110 V, DC L/R ≤ 15 ms (with 3 contacts in series)

2.5 A at 24 V, DC L/R ≤ 15 ms (with 1 contact in series)

0.5 A at 220 V, DC L/R ≤ 15 ms (with 3 contacts in series)

10 A

Rated operational current (Ie) at AC-15, 220 V, 230 V, 240 V

6 A

Rated operational current (Ie) at AC-15, 380 V, 400 V, 415 V

3 A

Rated operational current (Ie) at AC-15, 500 V

1.5 A

Safe isolation

300 V AC, Between auxiliary contacts, According to EN 61140

300 V AC, Between coil and auxiliary contacts, According to EN 61140

## Short-circuit rating

Short-circuit protection rating

10 A fast, 500V, Maximum fuse, Short-circuit rating without welding, Contacts

Short-circuit protection rating without welding

6 A gG/gL, 500 V, Max. Fuse, Contacts

## Switching capacity

Switching capacity (auxiliary contacts, general use)

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

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

Switching capacity (auxiliary contacts, pilot duty)

P300, DC operated (UL/CSA)

A600, AC operated (UL/CSA)

## Magnet system

Duty factor

100 %

Pick-up voltage

0.85 - 1.1 V AC x Uc (voltage tolerance - dual frequency coil 50/60 Hz)

0.8 - 1.1 V AC x Uc (voltage tolerance - single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz)

Power consumption, sealing, 50 Hz

1.8 W, Dual-frequency coil in a cold state and 1.0 x Us

3.9 VA, Dual-frequency coil in a cold state and 1.0 x Us

5.4 VA, Dual-frequency coil in a cold state and 1.0 x Us

Power consumption, sealing, 60 Hz

3.9 VA, Dual-frequency coil in a cold state and 1.0 x Us

1.8 W, Dual-frequency coil in a cold state and 1.0 x Us

5.4 VA, Dual-frequency coil in a cold state and 1.0 x Us

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

230 V

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

230 V

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

230 V

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

230 V

Rated control supply voltage (Us) at DC - min

0 V

Rated control supply voltage (Us) at DC - max

0 V

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

14 ms

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

21 ms

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

8 ms

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

18 ms

Switching time (AC operated, N/O, with auxiliary contact module, closing delay)

45 ms

## Contacts

Code number

31E

Control circuit reliability

< 2 λ, < 1 failure at 100,000,000 Operations (at $U_e$ = 24 V DC, Umin = 17 V, Imin = 5.4 mA)

Number of auxiliary contacts (change-over contacts)

0

Number of auxiliary contacts (normally closed contacts)

1

Number of auxiliary contacts (normally open contacts)

3

## Design verification

Equipment heat dissipation, current-dependent Pvid

0 W

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0.4 W

Rated operational current for specified heat dissipation (In)

6 A

Static heat dissipation, non-current-dependent Pvs

1.8 W

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.

## Resources

### Catalogs

Switching and protecting motors - catalog

Product Range Catalog Switching and protecting motors

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

### Characteristic curve

eaton-contactors-diler-relay-characteristic-curve.eps

### Declarations of conformity

DA-DC-00004763.pdf

DA-DC-00004748.pdf

### Drawings

eaton-contactors-dimensions-210x002.eps

eaton-contactors-dimensions-210x007.eps

eaton-contactors-dimensions-210x003.eps

eaton-contactors-dimensions-210x001.eps

eaton-contactors-dimensions-210x005.eps

eaton-tripping-devices-mounting-diler-contactor-relay-symbol.eps

### eCAD model

ETN.052509.edz

### Installation instructions

IL03407009Z

### mCAD model

DA-CD-dil_em

DA-CS-dil_em

### System overview

eaton-contactors-accessory-diler-relay-system-overview.eps

### Wiring diagrams

eaton-contactors-contact-diler-relay-wiring-diagram-002.eps

### 10.13 Mechanical function

The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

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