

# Eaton 278435

Catalog Number: 278435

Eaton Moeller® series ZB Overload relay, ZB12, Ir= 0.6 - 1 A, 1 N/O, 1 N/C, Direct mounting, IP20

## General specifications



### Product Name

Eaton Moeller® series ZB Thermal  
overload relay

### Catalog Number

278435

### Model Code

ZB12-1

### EAN

4015082784355

### Product Length/Depth

88 mm

### Product Height

67 mm

### Product Width

45 mm

### Product Weight

0.141 kg

### Certifications

IEC/EN 60947-4-1

UL 60947-4-1

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

VDE 0660

UL

UL Category Control No.: NKCR

CSA Class No.: 3211-03

IEC/EN 60947

UL File No.: E29184

CSA

CE

CSA File No.: 012528

## Product specifications

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

1 A

### Terminal capacity (flexible with ferrule)

2 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables

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

2 x (1 - 4) mm<sup>2</sup>, Main cables

1 x (1 - 4) mm<sup>2</sup>, Main cables

### 10.11 Short-circuit rating

Is the panel builder's responsibility. The specifications for the switchgear must be observed.

### Stripping length (control circuit cable)

8 mm

### Ambient operating temperature (enclosed) - min

25 °C

### 10.4 Clearances and creepage distances

Meets the product standard's requirements.

### 10.12 Electromagnetic compatibility

Is the panel builder's responsibility. The specifications for the switchgear must be observed.

### Mounting method

Direct attachment

Direct mounting

### 10.2.5 Lifting

Does not apply, since the entire switchgear needs to be evaluated.

### Stripping length (main cable)

10 mm

### Ambient operating temperature (enclosed) - max

40 °C

### 10.2.3.1 Verification of thermal stability of enclosures

Meets the product standard's requirements.

### Reset function

Push-button

Automatic

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

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

100 kA, Fuse, SCCR (UL/CSA)

## Resources

### Catalogues

[Product Range Catalog Switching and protecting motors](#)

### Characteristic curve

[eaton-tripping-devices-zb-overload-relay-characteristic-curve-006.eps](#)

[eaton-tripping-zb-overload-relay-characteristic-curve-002.eps](#)

### Drawings

[eaton-tripping-devices-overload-relay-zb-overload-relay-dimensions-003.eps](#)

[eaton-tripping-devices-overload-relay-zb-overload-relay-3d-drawing.eps](#)

### eCAD model

[ETN.ZB12-1](#)

### Installation instructions

[IL03407015Z](#)

[IL03407195Z](#)

### mCAD model

[DA-CD-zb12](#)

[DA-CS-zb12](#)

### User guides

[eaton-motor-protective-relay-zb12-zb32-overload-monitoring-exe-manual-mn03407004z-de-de-en-us.pdf](#)

### Wiring diagrams

[eaton-tripping-devices-overload-relay-zb-overload-relay-wiring-diagram-002.eps](#)

#### 10.8 Connections for external conductors

Is the panel builder's responsibility.

##### Screw size

M3.5, Terminal screw, Control circuit cables

M4, Terminal screw

##### Adjustable current range - min

0.6 A

##### Protection

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

##### Ambient operating temperature - max

55 °C

##### Climatic proofing

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

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

##### Features

Trip-free release

Test/off button

Phase-failure sensitivity (according to IEC/EN 60947, VDE 0660 Part 102)

Reset pushbutton manual/auto

##### Static heat dissipation, non-current-dependent P<sub>vs</sub>

0 W

##### Electrical connection type of main circuit

Screw connection

#### 10.9.3 Impulse withstand voltage

Is the panel builder's responsibility.

##### Voltage rating - max

600 VAC

##### Ambient operating temperature - min

-25 °C

#### 10.6 Incorporation of switching devices and components

Does not apply, since the entire switchgear needs to be evaluated.

#### 10.5 Protection against electric shock

Does not apply, since the entire switchgear needs to be evaluated.

##### Safe isolation

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

440 V AC, Between main circuits, According to EN 61140  
440 V AC, Between auxiliary contacts and main contacts,  
According to EN 61140

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

Class

CLASS 10 A

#### 10.13 Mechanical function

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

#### 10.2.6 Mechanical impact

Does not apply, since the entire switchgear needs to be evaluated.

#### 10.9.4 Testing of enclosures made of insulating material

Is the panel builder's responsibility.

Number of contacts (normally closed contacts)

1

#### 10.3 Degree of protection of assemblies

Does not apply, since the entire switchgear needs to be evaluated.

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

Heat dissipation per pole, current-dependent Pvid  
2.3 W

Product category

Accessories

Overload relay ZB up to 150 A

Overload release current setting - min

0.6 A

Rated operational current (Ie) at DC-13, 60 V  
0.75 A

Equipment heat dissipation, current-dependent Pvid  
6.9 W

Heat dissipation capacity Pdis  
0 W

Suitable for

Branch circuits, (UL/CSA)

Temperature compensation

$\leq 0.25 \text{ \%}/\text{K}$ , residual error for  $T > 40^\circ$

Continuous

#### Terminal capacity (solid)

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

1 x (1 - 6) mm<sup>2</sup>, Main cables

2 x (1 - 6) mm<sup>2</sup>, Main cables

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

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

1

#### 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.

#### Rated operational current (I<sub>e</sub>) at DC-13, 220 V, 230 V

0.2 A

#### Conventional thermal current I<sub>th</sub> of auxiliary contacts (1-pole, open)

6 A

#### Overload release current setting - max

1 A

#### Terminal capacity (solid/stranded AWG)

18 - 8, Main cables

2 x (18 - 14), Control circuit cables

#### 10.9.2 Power-frequency electric strength

Is the panel builder's responsibility.

#### Degree of protection

IP20

#### Overvoltage category

III

#### Number of auxiliary contacts (change-over contacts)

0

#### Pollution degree

3

#### 10.7 Internal electrical circuits and connections

Is the panel builder's responsibility.

#### Rated impulse withstand voltage (U<sub>imp</sub>)

6000 V AC

4000 V (auxiliary and control circuits)

#### 10.10 Temperature rise

The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.

#### Tightening torque

1.8 Nm, Screw terminals, Main cables

1.2 Nm, Screw terminals, Control circuit cables

#### Adjustable current range - max

1 A

#### Frame size

ZB12

#### Screwdriver size

1 x 6 mm, Terminal screw, Standard screwdriver

2, Terminal screw, Pozidriv screwdriver

#### Rated operational current (Ie) at AC-15, 120 V

1.5 A

#### 10.2.2 Corrosion resistance

Meets the product standard's requirements.

#### 10.2.4 Resistance to ultra-violet (UV) radiation

Meets the product standard's requirements.

#### 10.2.7 Inscriptions

Meets the product standard's requirements.

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

1

#### Short-circuit protection rating

Max. 6 A gG/gL, fuse, Without welding, Auxiliary and control circuits

4 A gG/gL, Fuse, Type "2" coordination

25 A gG/gL, Fuse, Type "1" coordination

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

1

#### Rated operational current (Ie) at DC-13, 110 V

0.4 A

#### Rated operational voltage (Ue) - max

690 V

#### Shock resistance

10 g, Mechanical, Sinusoidal, Shock duration 10 ms

#### Rated operational current (Ie) at DC-13, 24 V

0.9 A

Switching capacity (auxiliary contacts, pilot duty)

B300 at opposite polarity, AC operated (UL/CSA)

B600 at opposite polarity, AC operated (UL/CSA)

R300, DC operated (UL/CSA)



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