

MCCB, 1600A, 4P (N=60%), 150kA

Cat Number: NZMH4-4-AE1600/1000



Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 4p, 1600A, 1000A in 4th pole, H4-4-AE1600/1000

#### Technical Specifications:

Product Length/Depth | 401 mm

Product Height | 207 mm

Product Width | 280 mm

Product Weight | 27 kg

Compliances | RoHS conform

Certifications | IEC

IEC/EN 60947

Rated operational current for specified heat dissipation ( $I_n$ ) | 1600 A

10.11 Short-circuit rating | Is the panel builder's responsibility. The specifications for the switchgear must be observed.

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 690 V, 50/60 Hz | 37 kA

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 | Built-in device fixed built-in technique

Fixed

Amperage Rating | 1600 A

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

Terminal capacity (copper strip) | Max. 10 segments of 32 mm x 1 mm (2x) at flat conductor terminal

10 segments of 80 mm x 1 mm (2x) at rear-side width extension

Min. 5 segments of 25 mm x 1 mm at rear-side connection (punched)

Min. 6 segments of 16 mm x 0.8 mm at flat conductor terminal

10 segments of 50 mm x 1 mm (2x) at 1-hole module plate

Max. 10 segments of 50 mm x 1 mm (2x) at rear-side connection (punched)

Handle type | Rocker lever

10.2.3.1 Verification of thermal stability of enclosures | Meets the product standard's requirements.

Ambient storage temperature - min | 40 °C

Protection against direct contact | Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110

Terminal capacity (copper busbar) | Max. 80 mm x 10 mm (2x) at rear-side width extension

Max. 50 mm x 10 mm (2x) at rear-side 1-hole module plate

Max. 50 mm x 10 mm (2x) direct at switch rear-side connection

Min. 60 mm x 10 mm at rear-side width extension

50 mm x 10 mm (2x) at rear-side 2-hole module plate

Min. 25 mm x 5 mm at rear-side 1-hole module plate

Min. 25 mm x 5 mm direct at switch rear-side connection

M10 at rear-side screw connection

10.8 Connections for external conductors | Is the panel builder's responsibility.

Special features | Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit breaker (Rated short-circuit breaking capacity  $I_{cn}$ )

Rated current = rated uninterrupted current: 1600 A

Reduced neutral conductor protection

Set value in neutral conductor is synchronous with set value  $I_r$  of main pole.

R.m.s. value measurement and "thermal memory"

Ambient operating temperature - max | 70 °C

Position of connection for main current circuit | Front side

Current rating of neutral conductor | 1000 A

60% of phase conductor

Rated insulation voltage ( $U_i$ ) | 1000 V AC

Climatic proofing | Damp heat, cyclic, to IEC 60068-2-30

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

Terminal capacity (copper stranded conductor/cable) | 50 mm<sup>2</sup> - 185 mm<sup>2</sup> (4x) direct at switch rear-side connection

120 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) direct at switch rear-side connection

Features | Motor drive optional

Protection unit

Lifespan, electrical | 2000 operations at 690 V AC-1

1000 operations at 690 V AC-3

2000 operations at 415 V AC-3

3000 operations at 400 V AC-1

2000 operations at 400 V AC-3

3000 operations at 415 V AC-1

Electrical connection type of main circuit | Screw connection

Short-circuit total breaktime | < 25 ms ( $\leq$  415 V); < 35 ms (> 415 V)

Rated impulse withstand voltage ( $U_{imp}$ ) at main contacts | 8000 V

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 400/415 V, 50/60 Hz | 50 kA

10.9.3 Impulse withstand voltage | Is the panel builder's responsibility.

Utilization category | A (IEC/EN 60947-2)

Number of poles | Four-pole

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.

Overload current setting ( $I_r$ ) | 500 A - 1000 A

10.5 Protection against electric shock | Does not apply, since the entire switchgear needs to be evaluated.

Terminal capacity (control cable) | 0.75 mm<sup>2</sup> - 1.5 mm<sup>2</sup> (2x)

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

Equipment heat dissipation, current-dependent | 284 W

Instantaneous current setting ( $I_i$ ) - min | 3200 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.

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 230 V, 50/60 Hz | 63 kA

Application | Use in unearthed supply systems at 525 V

10.3 Degree of protection of assemblies | Does not apply, since the entire switchgear needs to be evaluated.

Rated short-circuit making capacity  $I_{cm}$  at 240 V, 50/60 Hz | 275 kA

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 440 V, 50/60 Hz | 50 kA

Degree of protection (IP), front side | IP40 (with insulating surround)

IP66 (with door coupling rotary handle)

Rated short-circuit making capacity  $I_{cm}$  at 525 V, 50/60 Hz | 143 kA

Rated short-circuit making capacity  $I_{cm}$  at 690 V, 50/60 Hz | 100 kA

Instantaneous current setting ( $I_i$ ) - max | 19200 A

Overload current setting ( $I_r$ ) - min | 800 A

Short delay current setting ( $I_{sd}$ ) - min | 0 A

Number of auxiliary contacts (normally closed contacts) | 0

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.

Lifespan, mechanical | 10000 operations

Overload current setting ( $I_r$ ) - max | 1600 A

Voltage rating | 690 V - 690 V

Terminal capacity (copper solid conductor/cable) | 50 mm<sup>2</sup> - 240 mm<sup>2</sup> (4x) at 4-hole tunnel terminal

35 mm<sup>2</sup> - 185 mm<sup>2</sup> (4x) at rear-side 2-hole module plate

120 mm<sup>2</sup> - 300 mm<sup>2</sup> (1x) at rear-side 1-hole module plate

95 mm<sup>2</sup> - 300 mm<sup>2</sup> (2x) at rear-side 1-hole module plate

95 mm<sup>2</sup> - 240 mm<sup>2</sup> (6x) at rear-side width extension

300 mm<sup>2</sup> (4x) at rear-side width extension

95 mm<sup>2</sup> - 185 mm<sup>2</sup> (2x) at rear-side 2-hole module plate

Degree of protection (terminations) | IP00 (terminations, phase isolator and strip terminal)

IP10 (tunnel terminal)

Terminal capacity (aluminum stranded conductor/cable) | 50 mm<sup>2</sup> - 240 mm<sup>2</sup> (4x) at 4-hole tunnel terminal

10.9.2 Power-frequency electric strength | Is the panel builder's responsibility.

Short-circuit release non-delayed setting - min | 3200 A

Degree of protection | IP20

IP20 (basic degree of protection, in the operating controls area)

Overvoltage category | III

Rated short-time withstand current ( $t = 1 \text{ s}$ ) | 19.2 kA

Short delay current setting ( $I_{sd}$ ) - max | 0 A

Rated impulse withstand voltage ( $U_{imp}$ ) at auxiliary contacts | 6000 V

Number of auxiliary contacts (change-over contacts) | 0

Rated short-time withstand current ( $t = 0.3 \text{ s}$ ) | 19.2 kA

Ambient storage temperature - max | 70 °C

Release system | Electronic release

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 525 V, 50/60 Hz | 50 kA

Optional terminals | Connection on rear. Strip terminal. Tunnel terminal

Pollution degree | 3

10.7 Internal electrical circuits and connections | 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.

Functions | System and cable protection

Short-circuit release non-delayed setting - max | 19200 A

Rated short-circuit making capacity  $I_{cm}$  at 400/415 V, 50/60 Hz | 187 kA

Standard terminals | Screw terminal

Type | Circuit breaker

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.

Rated short-circuit making capacity  $I_{cm}$  at 440 V, 50/60 Hz | 187 kA

Number of auxiliary contacts (normally open contacts) | 0

Isolation | 500 V AC (between auxiliary contacts and main contacts)

300 V AC (between the auxiliary contacts)

Number of operations per hour - max | 60

Circuit breaker frame type | NZM4

Direction of incoming supply | As required

Shock resistance | 15 g (half-sinusoidal shock 11 ms)

Terminal capacity (aluminum solid conductor/cable) | 70 mm<sup>2</sup> - 185 mm<sup>2</sup> (2x) at rear-side 1-hole

module plate

240 mm<sup>2</sup> (2x) at rear-side width extension

70 mm<sup>2</sup> - 240 mm<sup>2</sup> (6x) at rear-side width extension

50 mm<sup>2</sup> (4x) at rear-side 2-hole module plate

185 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) at rear-side 1-hole module plate