265785
NZMN4-ME1400

Overview | Specifications | Resources

DELIVERY PROGRAM

Product range
Circuit-breaker

Protective function
Motor protection

IE3

Standard/Approval
IEC

Installation type
Fixed

Release system
Electronic release

Construction size
NZM4

Description
IEC/EN 60947-4-1, IEC/EN 60947-2
The circuit-breaker fulfills all requirements for AC-3 switching category.

R.m.s. value measurement and “thermal memory”
Adjustable time delay setting to overcome current peaks tr at 6 x Ir also infinity (without overload releases)
All AC-3 rating data applies to direct switching by the circuit-breaker under normal operating conditions. If, for example, a contactor takes over AC-3 switching under normal operating conditions, the full rated uninterrupted current applies to the circuit-breaker, In = Iu.

Number of poles
3 pole

Standard equipment
Screw connection

Switching capacity

400/415 V 50 Hz [I_{cu}]
50 kA

Rated current = rated uninterrupted current [$I_n = I_u$]
1400 A

Setting range

Overload trip
[I_r]
700 - 1400 A

Short-circuit releases [I_{rm}]
Non-delayed [$I_i = I_n$ x …]
2 - 14

Motor rating AC-3 50/60 Hz [P]

380 V 400 V [P]
630 kW

660 V 690 V [P]

600 kW

Motor rating AC-3 50/60 Hz [P]

400 V [P]
630 kW

660 V 690 V [P]
600 kW

Rated operational current AC-3 50/60 Hz [I_e]

400 V [I_e]
1066 A

690 V
588 A

TECHNICAL DATA

General

Standards
IEC/EN 60947

Protection against direct contact
Finger and back of hand proof to VDE 0106 Part 100

Climatic proofing
Damp heat, constant, to IEC 60068-2-78
Damp heat, cyclic, to IEC 60068-2-30

Ambient temperature
Ambient temperature, storage
- 40 - + 70 °C

Ambient temperature
Operation
-25 - +70 °C

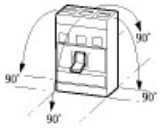
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27
15 (half-sinusoidal shock 11 ms) g

Safe isolation to EN 61140
Between auxiliary contacts and main contacts
500 V AC

Safe isolation to EN 61140
between the auxiliary contacts
300 V AC

Mounting position

Vertical and 90° in all directions



With XFI earth-fault release:

- NZM1, N1, NZM2, N2: vertical and 90° in all directions

with plug-in unit

- NZM1, N1, NZM2, N2: vertical, 90° right/left

with withdrawable unit:

- NZM3, N3: vertical, 90° right/left

- NZM4, N4: vertical

with remote operator:

- NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions

Direction of incoming supply
as required

Degree of protection
Device
In the operating controls area: IP20 (basic degree of protection)

Degree of protection
Enclosures
With insulating surround: IP40
With door coupling rotary handle: IP66

Degree of protection
Terminations
Tunnel terminal: IP10
Phase isolator and strip terminal: IP00

Other technical data (sheet catalogue)
Temperature dependency, Derating

Circuit-breakers

Rated current = rated uninterrupted current [$I_n = I_u$]
1400 A

Rated surge voltage invariability [U_{imp}]
Main contacts
8000 V

Rated surge voltage invariability [U_{imp}]
Auxiliary contacts
6000 V

Rated operational voltage [U_e]
690 V AC

Overvoltage category/pollution degree
III/3

Rated insulation voltage [U_i]
1000 V

Use in unearthed supply systems
☐ 525 V

Switching capacity

Rated short-circuit making capacity [I_{cm}]
240 V [I_{cm}]
105 kA

Rated short-circuit making capacity [I_{cm}]
400/415 V [I_{cm}]
105 kA

Rated short-circuit making capacity [I_{cm}]
440 V 50/60 Hz [I_{cm}]
74 kA

Rated short-circuit making capacity [I_{cm}]
525 V 50/60 Hz [I_{cm}]

53 kA

Rated short-circuit making capacity [I_{cm}]
690 V 50/60 H [Ic]
40 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Icu to IEC/EN 60947 test cycle O-t-CO [Icu]
240 V 50/60 Hz [I_{cu}]
50 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Icu to IEC/EN 60947 test cycle O-t-CO [Icu]
400/415 V 50/60 Hz [I_{cu}]
50 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Icu to IEC/EN 60947 test cycle O-t-CO [Icu]
440 V 50/60 Hz [I_{cu}]
35 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Icu to IEC/EN 60947 test cycle O-t-CO [Icu]
525 V 50/60 Hz [I_{cu}]
25 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Icu to IEC/EN 60947 test cycle O-t-CO [Icu]
690 V 50/60 Hz [I_{cu}]
20 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]
240 V 50/60 Hz [I_{cs}]
37 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]
400/415 V 50/60 Hz [I_{cs}]
37 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]
440 V 50/60 Hz [I_{cs}]
26 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]
525 V 50/60 Hz [I_{cs}]
19 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]
690 V 50/60 Hz [I_{cs}]
15 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]
Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.

Rated short-time withstand current
t = 0.3 s [I_{cw}]
19.2 kA

Rated short-time withstand current
t = 1 s [I_{cw}]
19.2 kA

Utilization category to IEC/EN 60947-2
B

Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release) [Operations]
10000

Lifespan, electrical
AC-1
400 V 50/60 Hz [Operations]
3000

Lifespan, electrical
AC-1
415 V 50/60 Hz [Operations]
3000

Lifespan, electrical
AC-1
690 V 50/60 Hz [Operations]
2000

Lifespan, electrical
AC--3
400 V 50/60 Hz [Operations]
2000

Lifespan, electrical
AC--3
415 V 50/60 Hz [Operations]

2000

Lifespan, electrical
AC--3
690 V 50/60 Hz [Operations]
1000

Lifespan, electrical
Max. operating frequency
60 Ops/h

Total break time at short-circuit
< 25 □ 415 V; < 35 > 415 V ms

Terminal capacity

Standard equipment
Screw connection

Optional accessories
Tunnel terminal
connection on rear
Strip terminal

Round copper conductor
Tunnel terminal
Stranded
4-hole
4 x (50 - 240) mm^2

Round copper conductor
Bolt terminal and rear-side connection
Direct on the switch
Stranded
1 x (120 - 185)
4 x (50 - 185) mm^2

Round copper conductor
Bolt terminal and rear-side connection
Module plate
Single hole [min.]
1 x (120 - 300) mm^2

Round copper conductor
Bolt terminal and rear-side connection
Module plate
Single hole [max.]
2 x (95 - 300) mm^2

Round copper conductor
Bolt terminal and rear-side connection
Module plate
Double hole [min.]
2 x (95 - 185) mm^2

Round copper conductor
Bolt terminal and rear-side connection
Module plate
Double hole [max.]
4 x (35 - 185) mm^2

Round copper conductor
Bolt terminal and rear-side connection
Connection width extension
Connection width extension
4 x 300
6 x (95 - 240) mm^2

Al circular conductor
Tunnel terminal
Stranded
4-hole
4 x (50 - 240) mm^2

Al circular conductor
Bolt terminal and rear-side connection
Module plate
Single hole [min.]
1 x (185 - 240) mm^2

Al circular conductor
Bolt terminal and rear-side connection
Module plate
Single hole [max.]
2 x (70 - 185) mm^2

Al circular conductor
Bolt terminal and rear-side connection
Module plate
Double hole
4 x 50 mm^2

Al circular conductor
Bolt terminal and rear-side connection
Connection width extension
Connection width extension
2 x 240
6 x (70 - 240) mm^2

Cu strip (number of segments x width x segment thickness)
Flat conductor terminal [min.]

6 x 16 x 0.8 mm

Cu strip (number of segments x width x segment thickness)
Flat conductor terminal [max.]
(2 x) 10 x 32 x 1.0 mm

Cu strip (number of segments x width x segment thickness)
Module plate
Single hole
(2 x) 10 x 50 x 1.0 mm

Cu strip (number of segments x width x segment thickness)
Bolt terminal and rear-side connection
Flat copper strip, with holes [min.]
5 x 25 x 1.0 mm

Cu strip (number of segments x width x segment thickness)
Bolt terminal and rear-side connection
Flat copper strip, with holes [max.]
(2 x) 10 x 50 x 1.0 mm

Cu strip (number of segments x width x segment thickness)
Bolt terminal and rear-side connection
Connection width extension
(2 x) 10 x 80 x 1.0 mm

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Screw connection
M10

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Direct on the switch [min.]
25 x 5 mm

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Direct on the switch [max.]
2 x (50 x 10) mm

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Module plate
Single hole [min.]
25 x 5 mm

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Module plate
Single hole [max.]
2 x (50 x 10) mm

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Module plate
Double hole
2 x (50 x 10) mm

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Connection width extension
Connection width extension [min.]
60 x 10 mm

Copper busbar (width x thickness) [mm]
Bolt terminal and rear-side connection
Connection width extension
Connection width extension [max.]
2 x (80 x 10) mm

Control cables
1 x (0.75 - 2.5)
2 x (0.75 - 1.5) mm^2

DESIGN VERIFICATION AS PER IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation [I_n]
1400 A

Equipment heat dissipation, current-dependent [P_{vid}]
217.56 W

Operating ambient temperature min.
-25 °C

Operating ambient temperature max.
+70 °C

IEC/EN 61439 design verification

10.2 Strength of materials and parts
10.2.2 Corrosion resistance
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.5 Lifting
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
10.2.6 Mechanical impact
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
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 Insulation properties
10.9.2 Power-frequency electric strength
Is the panel builder's responsibility.

10.9 Insulation properties
10.9.3 Impulse withstand voltage
Is the panel builder's responsibility.

10.9 Insulation properties
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.

TECHNICAL DATA ETIM 7.0

Low-voltage industrial components (EG000017) / Motor protection circuit-breaker (EC000074)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016])

Overload release current setting
700 - 1400 A

Adjustment range undelayed short-circuit release
1400 - 19600 A

With thermal protection
Yes

Phase failure sensitive
Yes

Switch off technique
Electronic

Rated operating voltage
690 - 690 V

Rated permanent current Iu
1400 A

Rated operation power at AC-3, 230 V
450 kW

Rated operation power at AC-3, 400 V
800 kW

Type of electrical connection of main circuit
Screw connection

Type of control element
Rocker lever

Device construction
Built-in device fixed built-in technique

With integrated auxiliary switch
No

With integrated under voltage release
No

Number of poles
3

Rated short-circuit breaking capacity Icu at 400 V, AC
50 kA

Degree of protection (IP)
IP20

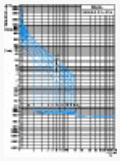
Height
207 mm

Width
210 mm

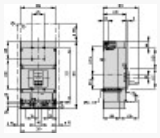
Depth
401 mm

CHARACTERISTICS

Characteristic curve



DIMENSIONS



□ Blow out area, minimum clearance to adjacent parts
Ui ≤ 690 V: 100 mm
Ui ≤ 1500 V: 200 mm
□ Mnimum clearance to adjacent parts
Ui ≤ 1000 V: 15 mm
Ui ≤ 1500 V: 70 mm