DATASHEET - NZMH2-A100-FIA30-BT

Circuit-breaker, 3p, 100A, box terminals, +residual current circuit-breaker, 30mA, AC/DC sensitive

Part no. **NZMH2-A100-FIA30-BT**
158531

General specifications

Product name	Eaton Moeller series NZM molded case circuit breaker thermo-magnetic
Part no.	NZMH2-A100-FIA30-BT
EAN	4015081550814
Product Length/Depth	293 millimetre
Product height	145 millimetre
Product width	140 millimetre
Product weight	5.58 kilogram
Compliances	RoHS conform
Certifications	EN 62423: Type B VDE 0660 IEC/EN 60947 IEC
Product Tradename	NZM
Product Type	Molded case circuit breaker
Product Sub Type	Thermo-magnetic

Delivery program

Application	Use in unearthed supply systems at 400 V
Type	Circuit breaker
Circuit breaker frame type	NZM2
Number of poles	Three-pole
Amperage Rating	100 A
Release system	Thermomagnetic release, AC/DC sensitive earth-fault release
Features	Motor drive optional Protection unit
Special features	Rated current = rated uninterrupted current: 100 A 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 Icn) Depending on the cable manufacturer up to 240 mm^2 can be connected Rated fault current I△n = 0.03 A Rated frequency 50 Hz Rated operating voltage 400 V AC (+/- 10 %) Adjusting buttons can be sealed. Not UL/CSA approved Type A functionality even without operational voltage for rated frequency of 50 Hz Operational voltage range Type B 50 - 400 V AC (+ 10 %) Personnel protection and preventive fire protection for 0 - 100 kHz fault current frequency Suitability for the application in three-phase systems without neutral conductor Ready-to-connect combination consisting of type B circuit-breaker and residual current circuit-breaker and type A passive section For equipment with power electronics, such as inverters and variable frequency drives

Technical Data - Electrical

Voltage rating	400 V - 400 V
Rated insulation voltage (Ui)	1000 V AC
Rated impulse withstand voltage (Uimp) at auxiliary contacts	6000 V
Rated impulse withstand voltage (Uimp) at main contacts	8000 V
Rated short-time withstand current (t = 0.3 s)	1.9 kA
Rated short-time withstand current (t = 1 s)	1.9 kA
Instantaneous current setting (Ii) - min	600 A
Instantaneous current setting (Ii) - max	1000 A
Overload current setting (Ir) - min	80 A
Overload current setting (Ir) - max	100 A
Short delay current setting (Isd) - min	0 A
Short delay current setting (Isd) - max	0 A

Short-circuit release non-delayed setting - min	600 A
Short-circuit release non-delayed setting - max	1000 A
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz	150 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz	150 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz	130 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz	37.5 kA
Rated short-circuit making capacity Icm at 240 V, 50/60 Hz	330 kA
Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz	330 kA
Rated short-circuit making capacity Icm at 440 V, 50/60 Hz	286 kA
Rated short-circuit making capacity Icm at 525 V, 50/60 Hz	105 kA
Rated short-circuit making capacity Icm at 690 V, 50/60 Hz	40 kA
Short-circuit total breaktime	< 10 ms
Electrical connection type of main circuit	Frame clamp
Isolation	500 V AC (between auxiliary contacts and main contacts) 300 V AC (between the auxiliary contacts)
Number of operations per hour - max	120
Handle type	Rocker lever
Utilization category	A (IEC/EN 60947-2)
Overvoltage category	III
Pollution degree	3
Lifespan, electrical	10000 operations at 415 V AC-1 10000 operations at 400 V AC-1 6500 operations at 400 V AC-3 7500 operations at 690 V AC-1 5000 operations at 690 V AC-3 6500 operations at 415 V AC-3
Direction of incoming supply	Bottom

Technical Data - Mechanical

Mounting Method	Built-in device fixed built-in technique DIN rail (top hat rail) mounting optional Fixed
Degree of protection	IP20 IP20 (basic degree of protection, in the operating controls area)
Degree of protection (IP), front side	IP66 (with door coupling rotary handle) IP40 (with insulating surround)
Degree of protection (terminations)	IP10 (tunnel terminal) IP00 (terminations, phase isolator and strip terminal)
Protection against direct contact	Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
Shock resistance	20 g (half-sinusoidal shock 20 ms)
Number of auxiliary contacts (change-over contacts)	0
Number of auxiliary contacts (normally closed contacts)	0
Number of auxiliary contacts (normally open contacts)	0
Position of connection for main current circuit	Front side
Climatic proofing	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Special features	Rated current = rated uninterrupted current: 100 A 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 Icn) Depending on the cable manufacturer up to 240 mm^2 can be connected Rated fault current I△n = 0.03 A Rated frequency 50 Hz Rated operating voltage 400 V AC (+/- 10 %) Adjusting buttons can be sealed. Not UL/CSA approved Type A functionality even without operational voltage for rated frequency of 50 Hz Operational voltage range Type B 50 - 400 V AC (+ 10 %) Personnel protection and preventive fire protection for 0 - 100 kHz fault current frequency Suitability for the application in three-phase systems without neutral conductor Ready-to-connect combination consisting of type B circuit-breaker and residual current circuit-breaker and type A passive section For equipment with power electronics, such as inverters and variable frequency drives
Lifespan, mechanical	20000 operations

Technical Data - Mechanical - Terminals

Standard terminals	Box terminal

Optional terminals	Connection on rear. Screw terminal. Tunnel terminal
Terminal capacity (control cable)	0.75 mm^2 - 1.5 mm^2 (2x) 0.75 mm^2 - 2.5 mm^2 (1x)
Terminal capacity (aluminum solid conductor/cable)	16 mm^2 (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)	25 mm^2 - 185 mm^2 (1x) at tunnel terminal
Terminal capacity (copper busbar)	M8 at rear-side screw connection Min. 16 mm x 5 mm direct at switch rear-side connection Max. 24 mm x 8 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)	16 mm^2 (1x) at tunnel terminal 6 mm^2 - 16 mm^2 (2x) at box terminal 6 mm^2 - 16 mm^2 (2x) direct at switch rear-side connection 10 mm^2 - 16 mm^2 (1x) direct at switch rear-side connection 10 mm^2 - 16 mm^2 (1x) at box terminal
Terminal capacity (copper stranded conductor/cable)	25 mm^2 - 70 mm^2 (2x) at box terminal 25 mm^2 - 185 mm^2 (1x) at 1-hole tunnel terminal 25 mm^2 - 185 mm^2 (1x) at box terminal 25 mm^2 - 185 mm^2 (1x) direct at switch rear-side connection 25 mm^2 - 70 mm^2 (2x) direct at switch rear-side connection
Terminal capacity (copper strip)	Min. 2 segements of 16 mm x 0.8 mm at rear-side connection (punched) Max. 8 segments of 24 mm x 1 mm (2x) at box terminal Min. 2 segments of 9 mm x 0.8 mm at box terminal Max. 10 segments of 16 mm x 0.8 mm at box terminal Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched)

Design verification as per IEC/EN 61439 - technical data

Rated operational current for specified heat dissipation (In)	100 A
Equipment heat dissipation, current-dependent	8.25 W
Ambient operating temperature - min	-25 °C
Ambient operating temperature - max	70 °C
Ambient storage temperature - min	40 °C
Ambient storage temperature - max	70 °C

Design verification as per IEC/EN 61439

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.

Additional information

Functions	System and cable protection, fire protection, personnel protection

Technical data ETIM 9.0

Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss13-27-37-04-09 [AJZ716018])

Rated permanent current Iu		A	100
Rated voltage		V	400 - 400
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz		kA	150
Overload release current setting		A	80 - 100
Adjustment range short-term delayed short-circuit release		A	0 - 0
Adjustment range undelayed short-circuit release		A	600 - 1000
Power loss		W	25.7
Device construction			Built-in device fixed built-in technique
Integrated earth fault protection			No
Type of electrical connection of main circuit			Frame clamp
Suitable for DIN rail (top hat rail) mounting			No
DIN rail (top hat rail) mounting optional			Yes
Number of auxiliary contacts as normally closed contact			0
Number of auxiliary contacts as normally open contact			0
Number of auxiliary contacts as change-over contact			0
With switched-off indicator			No
With integrated under voltage release			No
Number of poles			3
Position of connection for main current circuit			Front side
Type of control element			Rocker lever
Complete device with protection unit			Yes
Motor drive integrated			No
Motor drive optional			Yes
Degree of protection (IP)			IP20

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