DATASHEET - NZMH2-A160-BT

Circuit-breaker, 3p, 160A, box terminals

Part no. NZMH2-A160-BT
110293

EL Number (Norway) 4358760

General specifications			
Product name			Eaton Moeller series NZM molded case circuit breaker thermo-magnetic
Part no.			NZMH2-A160-BT
EAN			4015081098415
Product Length/Depth			149 millimetre
Product height			184 millimetre
Product width			105 millimetre
Product weight			2.492 kilogram
Compliances			RoHS conform
Certifications			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 690 V
Type			Circuit breaker
Circuit breaker frame type			NZM2
Number of poles			Three-pole
Amperage Rating			160 A
Release system			Thermomagnetic release
Features			Motor drive optional Protection unit
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 Icn) Rated current = rated uninterrupted current: 160 A
Technical Data - Electrical			
Voltage rating			690 V - 690 V
Voltage rating (DC)			750 V DC
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			960 A
Instantaneous current setting (Ii) - max			1600 A
Overload current setting (Ir) - min			125 A
Overload current setting (Ir) - max			160 A
Short delay current setting (Isd) - min			0 A
Short delay current setting (Isd) - max			0 A
Short-circuit release non-delayed setting - min			960 A
Short-circuit release non-delayed setting - max			1600 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 breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz			5 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 500 V DC			15 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 750 V DC			15 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	3000 operations at 500 V DC-3 6500 operations at 415 V AC-3 10000 operations at 415 V AC-1 3000 operations at 750 V DC-3 5000 operations at 690 V AC-3 10000 operations at 400 V AC-1 6500 operations at 400 V AC-3 7500 operations at 500 V DC-1 7500 operations at 750 V DC-1 7500 operations at 690 V AC-1
Direction of incoming supply	As required
Technical Data - Mechanical	
Mounting Method	Built-in device fixed built-in technique Fixed DIN rail (top hat rail) mounting optional
Degree of protection	IP20 IP20 (basic degree of protection, in the operating controls area)
Degree of protection (IP), front side	IP40 (with insulating surround) IP66 (with door coupling rotary handle)
Degree of protection (terminations)	IP00 (terminations, phase isolator and strip terminal) IP10 (tunnel 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	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) Rated current = rated uninterrupted current: 160 A
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 - 2.5 mm^2 (1x) 0.75 mm^2 - 1.5 mm^2 (2x)
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)	6 mm^2 - 16 mm^2 (2x) at box terminal 10 mm^2 - 16 mm^2 (1x) at box terminal 10 mm^2 - 16 mm^2 (1x) direct at switch rear-side connection 6 mm^2 - 16 mm^2 (2x) direct at switch rear-side connection 16 mm^2 (1x) at tunnel terminal
Terminal capacity (copper stranded conductor/cable)	25 mm^2 - 70 mm^2 (2x) direct at switch rear-side connection 25 mm^2 - 185 mm^2 (1x) at box terminal 25 mm^2 - 70 mm^2 (2x) at box terminal 25 mm^2 - 185 mm^2 (1x) direct at switch rear-side connection

			25 mm^2 - 185 mm^2 (1x) at 1-hole tunnel terminal
Terminal capacity (copper strip)			Min. 2 segments of 9 mm x 0.8 mm at box terminal Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched) 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 Max. 10 segments of 16 mm x 0.8 mm at box terminal
Design verification as per IEC/EN 61439 - technical data			
Rated operational current for specified heat dissipation (In)			160 A
Equipment heat dissipation, current-dependent			38.4 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

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	160
Rated voltage		V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz		kA	150
Overload release current setting		A	125 - 160
Adjustment range short-term delayed short-circuit release		A	0 - 0
Adjustment range undelayed short-circuit release		A	960 - 1600
Power loss		W	38.4
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