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



Part no. NZMH2-A160-BT-NA 107806

General specifications	
Product name	Eaton Moeller series NZM molded case circuit breaker thermo-magnetic
Part no.	NZMH2-A160-BT-NA
EAN	4015081074532
Product Length/Depth	149 millimetre
Product height	195 millimetre
Product width	105 millimetre
Product weight Product weight	2.345 kilogram
Compliances	RoHS conform
Certifications	UL (File No. E31593) IEC/EN 60947 CSA certified UL listed UL 489 CSA (File No. 22086) UL (Category Control Number DIVQ) CSA-C22.2 No. 5-09 IEC IEC 60947-2 CSA (Class No. 1432-01) UL/CSA Specially designed for North America CE marking
Product Tradename	NZM
Product Type	Molded case circuit breaker
Product Sub Type	Thermo-magnetic
Delivery program	
Application	Branch circuits, feeder circuits Use in unearthed supply systems at 690 V
Туре	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 Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. Adjustable overload releases Ir
Technical Data - Electrical	
Voltage rating	690 V - 690 V
Rated operating voltage Ue (UL) - max	600Y/347 V, 480 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 operational current	160 A (660-690 V AC-3, making and breaking capacity) 300 A (415 V AC-1, making and breaking capacity) 300 A (380/400 V AC-1, making and breaking capacity) 160 A (690 V AC-1, making and breaking capacity)
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 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
Low-voltage HBC fuse - max	355 A gG/gL
Electrical connection type of main circuit	Frame clamp
Isolation	300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main 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	5000 operations at 690 V AC-3 7500 operations at 690 V AC-1 10000 operations at 400 V AC-1 6500 operations at 415 V AC-3 6500 operations at 400 V AC-3
Direction of incoming supply	As required
Technical Data - Mechanical	
Mounting Method	Fixed DIN rail (top hat rail) mounting optional Built-in device fixed built-in technique
Degree of protection	IP20 (basic degree of protection, in the operating controls area) IP20
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 Event side
Position of connection for main current circuit	Front side
Climatic proofing	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
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 Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. Adjustable overload releases Ir
Lifespan, mechanical	20000 operations
Technical Data - Mechanical - Terminals	
Standard terminals	Box terminal
Terminal capacity (control cable)	16 mm² - 18 mm² (2x) 14 mm² - 18 mm² (1x)
Terminal capacity (aluminum solid conductor/cable)	16 mm² (1x) at tunnel terminal
Terminal capacity (copper busbar)	Max. 20 mm x 5 mm direct at switch rear-side connection

observed.		Min. 16 mm x 5 mm direct at switch rear-side connection M8 at rear-side screw connection
# arm ** 30 mm* (1st direct at switch rear-side connection 4 mm* ** 300 mm* (1st direct at switch rear-side connection 4 mm* ** 300 mm* (1st direct at switch rear-side connection 4 mm* ** 300 mm* (1st direct at switch rear-side connection 4 mm* ** 300 mm* (1st direct at switch rear-side connection 6 mm* ** 300 mm* (1st direct at switch rear-side connection 6 mm* ** 300 mm* (1st direct at switch rear-side connection 6 mm* ** 300 mm* (1st direct at switch rear-side connection 6 mm* ** 300 mm* (1st direct at switch rear-side connection 6 mm* ** 300 mm* 300 mm* ** 300 mm* 300 mm* ** 300 mm* ** 300 mm* 300	Terminal capacity (copper solid conductor/cable)	6 mm <sup>2</sup> - 11 mm <sup>2</sup> (1x) direct at switch rear-side connection
Min. 2 segements of 16 mm x 08 mm at rear-side connection (punched) Min. 2 segements of 6 mm x 08 mm at rear-side connection (punched) Min. 2 segements of 6 mm x 08 mm at rear-side connection (punched) Min. 3 segments of 16 mm x 08 mm at rear-side connection (punched)  Bestign verification as per IEC/EN 61439 - technical data  Rated operational current for specified that dissipation (in) Equipment heat dissipation, current-dependent  Ambient operating temperature - min  Ambient operating temperature - min  Ambient storage temperature - min  Mest the product standard's requirements.  102.2 Orrosion resistance  102.2 In verification of instalation antonials to normal heat 102.2.3 I Verification of insulations antonials to normal heat 102.2.4 Resistance of insulations antonials to normal heat 102.4 Resistance of insulations antonials to normal heat 102.5 Lifting  102.6 Mest the product standard's requirements.  Meets the product standard's requirements.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching decises and components 10.7 Internal electrical circuits and connectors 10.8 Connectors for external conductors 10.9 Frotection against electric shock 10.9 Septement of the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  10.9 Protection against electric shock 10.9 Septement and connectors 10.9 Frotection against electric shock 10.9 Septement and connectors 10.1 Tentral electrical circuits and connectors 10.1 Tentral electrical circuits and connectors 10.2 Frotection against electric shock 10.3 Tentral electrical circuits and connectors 10.4 Septement an	Terminal capacity (copper stranded conductor/cable)	4 mm <sup>2</sup> - 3/0 mm <sup>2</sup> (1x) direct at switch rear-side connection
Rated operational current for specified heat dissipation (in)  Equipment heat dissipation, current-dependent  Ambient operating temperature - min  Ambient operating temperature - min  Ambient storage temperature - max  70 °C  Dosign verification as per IEC/EN 61439  10.2.2 Corrosion resistance  10.2.3.1 Verification of thermal stability of enclosures  10.2.3.2 Verification of resistance of insulating materials to normal heat  10.2.3.2 Resist of insul, mar. to abnormal heat/fire by internal elect. effects  10.2.4 Resistance to ultra-violet (IV) radiation  10.2.5 Liffing  10.2.5 Liffing  10.2.5 Liffing  10.2.5 Liffing  10.2.5 Liffing  10.2.6 Mechanical impact  10.2.7 Inscriptions  10.3 Departments  10.4 Clearances and creepage distances  10.5 Protocion of assemblies  10.5 Protocion against electric shock  10.5 Protocion against electric shock  10.5 Incorporation of switching devices and components  10.5 Recomporation of switching devices and components  10.5 Recomporation of switching devices and components  10.5 Recomporation of switching devices and components  10.5 Internal electrical circuits and commections  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and commections  10.8 Protocion against electric shock  10.9 Protocion against electric shock  10.1 Internal electrical circuits and commections  10.2 Protocion against electric shock  10.	Terminal capacity (copper strip)	Min. 2 segements of 16 mm x 0.8 mm at rear-side connection (punched) Min. 2 segments of 9 mm x 0.8 mm at box terminal
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10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility. The specifications for the switchgear must to observed.  In the device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  Additional information  Functions  System and cable protection	10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  The panel builder's responsibility.  The panel builder is responsibility.  The panel builder is responsibility. The specifications for the switchgear must to observed.  In the panel builder's responsibility. The specifications for the switchgear must to observed.  The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  Additional information  Functions  System and cable protection	10.2.7 Inscriptions	Meets the product standard's requirements.
10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  The panel builder's responsibility.  Is the panel builder is responsibility.  Is the panel builder is responsibility. The specifications for the switchgear must to observed.  Is the panel builder's responsibility. The specifications for the switchgear must to observed.  Additional information  Functions  System and cable protection	10.3 Degree of protection of assemblies	Does not apply, since the entire switchgear needs to be evaluated.
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10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Power-frequency electric strength  10.9.1 Internal electrical circuits and connections  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.13 Mechanical function  10.14 Additional information  Functions  1 Is the panel builder's responsibility. The specifications for the switchgear must lookserved.  10.15 System and cable protection	10.5 Protection against electric shock	Does not apply, since the entire switchgear needs to be evaluated.
10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  1 Is the panel builder's responsibility.  1 Is the panel builder is responsibility.  The panel builder is responsibility of the temperature rise calculation. Eaton will provide heat dissipation data for the devices.  Is the panel builder's responsibility. The specifications for the switchgear must to observed.  Is the panel builder's responsibility. The specifications for the switchgear must to observed.  The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  System and cable protection	10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  10.13 System and cable protection  Is the panel builder's responsibility. The specifications for the switchgear must to observed.  System and cable protection	10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Additional information  Functions  Is the panel builder's responsibility.  Is the panel builder is responsibility.  The panel builder is responsibility.  The panel builder is responsibility. The specifications for the switchgear must loobserved.  Is the panel builder's responsibility. The specifications for the switchgear must loobserved.  The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  System and cable protection	10.8 Connections for external conductors	Is the panel builder's responsibility.
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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 lobserved.  10.12 Electromagnetic compatibility  Is the panel builder's responsibility. The specifications for the switchgear must lobserved.  The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  Additional information  Functions  System and cable protection	10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
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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	10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
Additional information  Functions  System and cable protection	10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
Functions System and cable protection		
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	Functions	

## **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])

protection (eci@ss13-27-37-04-09 [AJZ/16018])		
Rated permanent current lu	Α	160
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	150
Overload release current setting	Α	125 - 160
Adjustment range short-term delayed short-circuit release	Α	0 - 0
Adjustment range undelayed short-circuit release	Α	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