

## Molded Case Switch, 3p, 160A

**Part no.**                    **NS2-160-BT-NA**  
**107578**

<b>General specifications</b>		
Product name		Eaton Moeller series NZM molded case switch
Part no.		NS2-160-BT-NA
EAN		4015081072545
Product Length/Depth		142 millimetre
Product height		185 millimetre
Product width		105 millimetre
Product weight		2.345 kilogram
Compliances		RoHS conform
Certifications		UL listed IEC UL 489 CSA certified UL (Category Control Number WJAZ) CE marking CSA-C22.2 No. 5-09 CSA (Class No. 4652-06) Specially designed for North America IEC 60947-2 CSA (File No. 22086) UL/CSA UL (File No. E148671)
Product Tradename		NZM
Product Type		Molded case switch
Product Sub Type		None
<b>Delivery program</b>		
Application		Branch circuits, feeder circuits
Type		Switch-disconnector
Circuit breaker frame type		N2
Number of poles		Three-pole
Amperage Rating		160 A
Features		Protection unit Motor drive optional
Special features		IEC/EN 60947-2: circuit breakers without overcurrent (CBI-X) with main switch characteristics and isolating characteristics to IEC/EN 60204. Rated current = rated uninterrupted current: 160 A
<b>Technical Data - Electrical</b>		
Voltage rating		690 V - 690 V
Rated operating voltage Ue (UL) - max		600 Y / 347 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
Current rating (Iu) (UL 489 csa 22.2 no. 5.1)		250 A
Rated current (Iu)		250 A
Instantaneous current setting (Ii) - min		2500 A
Instantaneous current setting (Ii) - max		2500 A
Overload current setting (Ir) - min		0 A
Overload current setting (Ir) - max		0 A
Short delay current setting (Isd) - min		0 A
Short delay current setting (Isd) - max		0 A
Short-circuit release non-delayed setting - min		2500 A
Short-circuit release non-delayed setting - max		2500 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		53 kA
Short-circuit total breaktime		< 10 ms
Electrical connection type of main circuit		Frame clamp
Number of operations per hour - max		120
Handle type		Rocker lever
Overvoltage category		III
Pollution degree		3
Lifespan, electrical		10000 operations at 415 V AC-1 6500 operations at 415 V AC-3 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
Direction of incoming supply		As required
<b>Technical Data - Mechanical</b>		
Mounting Method		DIN rail (top hat rail) mounting optional Fixed Built-in device fixed built-in technique
Degree of protection		In the area of the HMI devices: IP20 (basic protection type) IP20
Degree of protection (IP), front side		IP66 (with door coupling rotary handle) IP40 (with insulating surround)
Degree of protection (terminations)		IP00 (terminations, phase isolator and band terminal) IP10 (tunnel terminal)
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
Switch positions		I, +, 0
Special features		IEC/EN 60947-2: circuit breakers without overcurrent (CBI-X) with main switch characteristics and isolating characteristics to IEC/EN 60204. Rated current = rated uninterrupted current: 160 A
Lifespan, mechanical		20000 operations
<b>Technical Data - Mechanical - Terminals</b>		
Standard terminals		Box terminal
Optional terminals		Connection on rear. Screw terminal. Tunnel terminal
Terminal capacity (aluminum solid conductor/cable)		16 mm <sup>2</sup> (1x) at tunnel terminal 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection
Terminal capacity (aluminum stranded conductor/cable)		25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at 1-hole tunnel terminal 25 mm <sup>2</sup> - 35 mm <sup>2</sup> (1x) direct at switch rear-side connection 25 mm <sup>2</sup> - 35 mm <sup>2</sup> (2x) direct at switch rear-side connection
Terminal capacity (copper busbar)		NA: M8 at rear-side screw connection NA: max. 20 mm x 5 mm direct at switch rear-side connection Max. 24 mm x 8 mm direct at switch rear-side connection Min. 16 mm x 5 mm direct at switch rear-side connection NA: min. 16 mm x 5 mm direct at switch rear-side connection M8 at rear-side screw connection
Terminal capacity (copper solid conductor/cable)		10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) at box terminal 6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) at box terminal 16 mm <sup>2</sup> (1x) at tunnel terminal NA: 12 - 6 AWG (1x) direct at switch rear-side connection NA: 6 AWG (1x) at tunnel terminal 4 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection NA: 12 - 6 AWG (1x) at box terminal
Terminal capacity (copper stranded conductor/cable)		25 mm <sup>2</sup> - 70 mm <sup>2</sup> (2x) direct at switch rear-side connection 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at 1-hole tunnel terminal NA: 4 - 350 AWG/kcmil (1x) at box terminal 25 mm <sup>2</sup> - 70 mm <sup>2</sup> (2x) at box terminal NA: 4 - 350 AWG/kcmil (1x) at 1-hole tunnel terminal 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at box terminal 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) direct at switch rear-side connection

Terminal capacity (copper strip)		NA: max. 10 segments of 16 mm x 0.8 mm at rear-side connection (punched) NA: min. 2 segments 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 Max. 8 segments of 15.5 mm x 0.8 mm (2x) at terminal box Min. 2 segments of 16 mm x 0.8 mm at rear-side connection (punched) Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched) Max. 10 segments of 16 mm x 0.8 mm at box terminal
<b>Design verification as per IEC/EN 61439 - technical data</b>		
Rated operational current for specified heat dissipation (In)		160 A
Equipment heat dissipation, current-dependent		24.35 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
<b>Design verification as per IEC/EN 61439</b>		
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.
<b>Additional information</b>		
Functions		Disconnectors/main switches

## 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	0 - 0
Adjustment range short-term delayed short-circuit release	A	0 - 0
Adjustment range undelayed short-circuit release	A	2500 - 2500
Power loss	W	24.3
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