

# Specifications

Photo is representative

## Eaton 191648

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM2 PXR20 circuit breaker, 160A, 3p, screw terminal, S, 2

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller series NZM molded case circuit breaker electronic
<b>CATALOG NUMBER</b>	191648
<b>EAN</b>	4015081921607
<b>PRODUCT LENGTH/DEPTH</b>	190 mm
<b>PRODUCT HEIGHT</b>	160 mm
<b>PRODUCT WIDTH</b>	115 mm
<b>PRODUCT WEIGHT</b>	2.3 kg
<b>COMPLIANCES</b>	RoHS conform
<b>CERTIFICATIONS</b>	IEC/EN 60947 IEC
<b>MODEL CODE</b>	NZMS2-VX160

## Product specifications

<b>AMPERAGE RATING</b>	160 A
<b>VOLTAGE RATING</b>	690 V - 690 V
<b>CIRCUIT BREAKER FRAME TYPE</b>	NZM2
<b>FEATURES</b>	Motor drive optional Protection unit
<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to

## Resources

<b>BROCHURES</b>	<a href="#">eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf</a> <a href="#">eaton-digital-nzm-brochure-br013003en-en-us.pdf</a>
<b>CATALOGUES</b>	<a href="#">eaton-digital-nzm-catalog-ca013003en-en-us.pdf</a>
<b>CHARACTERISTIC CURVE</b>	<a href="#">eaton-circuit-breaker-nzm-mccb-characteristic-curve-020.eps</a> <a href="#">eaton-circuit-breaker-nzm-mccb-characteristic-curve-024.eps</a>
<b>DRAWINGS</b>	<a href="#">eaton-circuit-breaker-switch-nzm-mccb-dimensions-017.eps</a> <a href="#">eaton-circuit-breaker-nzm-mccb-dimensions-019.eps</a>
<b>INSTALLATION INSTRUCTIONS</b>	<a href="#">eaton-circuit-breakers-nzmb-nzmn-basic-unit-bg2-instruction-leaflet-il012099zu.pdf</a>
<b>INSTALLATION VIDEOS</b>	<a href="#">Introduction of the new digital circuit breaker NZM</a> <a href="#">The new digital NZM Range</a>
<b>MCAD MODEL</b>	<a href="#">DA-CD-nzm2_3p</a> <a href="#">DA-CS-nzm2_3p</a>
<b>TECHNICAL DATA SHEETS</b>	<a href="#">eaton-nzm-technical-information-sheet</a>

	be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
<b>POLLUTION DEGREE</b>	3
<b>MOUNTING METHOD</b>	Built-in device fixed built-in technique DIN rail (top hat rail) mounting optional Fixed
<b>CLIMATIC PROOFING</b>	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>	21.12 W
<b>UTILIZATION CATEGORY</b>	A (IEC/EN 60947-2)
<b>ISOLATION</b>	500 V AC (between auxiliary contacts and main contacts) 300 V AC (between the auxiliary contacts)
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	70 °C
<b>AMBIENT OPERATING</b>	-25 °C

<b>TEMPERATURE - MIN</b>	
<b>AMBIENT STORAGE TEMPERATURE - MAX</b>	70 °C
<b>AMBIENT STORAGE TEMPERATURE - MIN</b>	40 °C
<b>NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)</b>	0
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	0
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	0
<b>PROTECTION AGAINST DIRECT CONTACT</b>	Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
<b>DEGREE OF PROTECTION</b>	IP20 IP20 (basic degree of protection, in the operating controls area)
<b>DIRECTION OF INCOMING SUPPLY</b>	As required
<b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>	Screw connection
<b>LIFESPAN, MECHANICAL</b>	20000 operations
<b>OVERVOLTAGE CATEGORY</b>	III
<b>DEGREE OF PROTECTION (IP), FRONT SIDE</b>	IP40 (with insulating surround) IP66 (with door coupling rotary handle)
<b>DEGREE OF PROTECTION (TERMINATIONS)</b>	IP00 (terminations, phase isolator and strip terminal) IP10 (tunnel terminal)
<b>NUMBER OF POLES</b>	Three-pole
<b>TERMINAL CAPACITY (COPPER STRIP)</b>	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. 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
<b>LIFESPAN, ELECTRICAL</b>	<p>7500 operations at 690 V AC-1</p> <p>10000 operations at 400 V AC-1</p> <p>10000 operations at 415 V AC-1</p>
<b>FUNCTIONS</b>	Systems, cable, selectivity and generator protection
<b>TYPE</b>	Circuit breaker
<b>SPECIAL FEATURES</b>	<ul style="list-style-type: none"> <li>• LSI overload protection and delayed and non-delayed short-circuit protective device</li> <li>• R.m.s. value measurement and "thermal memory"</li> <li>• USB interface for configuration and test function with Power Xpert Protection Manager software</li> <li>• Optionally communication-capable with interface module and internal Modbus RTU module or CAM</li> <li>• 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 <math>I_{cn}</math>)</li> <li>• Rated current = rated uninterrupted current: 160 A</li> </ul>
<b>APPLICATION</b>	Use in unearthed supply systems at 690 V
<b>SHOCK RESISTANCE</b>	20 g (half-sinusoidal shock 20 ms)

<b>POSITION OF CONNECTION FOR MAIN CURRENT CIRCUIT</b>	Front side
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	160 A
<b>POWER LOSS</b>	21.12 W
<b>RELEASE SYSTEM</b>	Electronic release
<b>SHORT-CIRCUIT TOTAL BREAKTIME</b>	< 10 ms
<b>RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)</b>	1.9 kA
<b>RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)</b>	1.9 kA
<b>SHORT-CIRCUIT RELEASE DELAYED SETTING - MAX</b>	1600 A
<b>SHORT-CIRCUIT RELEASE DELAYED SETTING - MIN</b>	320 A
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MAX</b>	2880 A
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MIN</b>	320 A
<b>TERMINAL CAPACITY (CONTROL CABLE)</b>	0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x) 0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x)
<b>TERMINAL CAPACITY (COPPER BUSBAR)</b>	M8 at rear-side screw 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
<b>TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)</b>	6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) at box terminal 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection 6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) at box terminal 16 mm <sup>2</sup> (1x) at tunnel terminal
<b>TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)</b>	16 mm <sup>2</sup> (1x) at tunnel terminal

<b>TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)</b>	25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) direct at switch rear-side connection 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 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at box terminal 25 mm <sup>2</sup> - 70 mm <sup>2</sup> (2x) at box terminal
<b>TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)</b>	25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at tunnel terminal
<b>HANDLE TYPE</b>	Rocker lever
<b>SHORT DELAY CURRENT SETTING (ISD) - MAX</b>	10 A
<b>SHORT DELAY CURRENT SETTING (ISD) - MIN</b>	2 A
<b>INSTANTANEOUS CURRENT SETTING (II) - MAX</b>	18 A
<b>INSTANTANEOUS CURRENT SETTING (II) - MIN</b>	2 A
<b>NUMBER OF OPERATIONS PER HOUR - MAX</b>	120
<b>OVERLOAD CURRENT SETTING (IR) - MAX</b>	160 A
<b>OVERLOAD CURRENT SETTING (IR) - MIN</b>	64 A
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 230 V, 50/60 HZ</b>	100 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 400/415 V, 50/60 HZ</b>	70 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 440 V, 50/60 HZ</b>	65 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 525 V, 50/60 HZ</b>	36 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS</b>	6 kA

<b>(IEC/EN 60947) AT 690 V, 50/60 HZ</b>	
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 400/415 V, 50/60 HZ</b>	154 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 440 V, 50/60 HZ</b>	143 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 525 V, 50/60 HZ</b>	80 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ</b>	40 kA
<b>STANDARD TERMINALS</b>	Screw terminal
<b>OPTIONAL TERMINALS</b>	Box terminal. Connection on rear. Tunnel terminal
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ</b>	220 kA
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS</b>	6000 V
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN CONTACTS</b>	8000 V
<b>RATED INSULATION VOLTAGE (UI)</b>	690 V AC

<b>PROJECT NAME:</b>
<b>PROJECT NUMBER:</b>
<b>PREPARED BY:</b>
<b>DATE:</b>



**Eaton Corporation plc**  
Eaton House  
30 Pembroke Road  
Dublin 4, Ireland  
Eaton.com

© 2025 Eaton. All Rights Reserved.

Follow us on social media to get the latest product and support information.

