

## Eaton 191582

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM3 PXR20 circuit breaker, 450A, 3p, withdrawable unit, N, 3

<b>PRODUCT NAME</b>	Eaton Moeller series NZM molded case circuit breaker electronic
<b>CATALOG NUMBER</b>	191582
<b>PRODUCT LENGTH/DEPTH</b>	260 mm
<b>PRODUCT HEIGHT</b>	346 mm
<b>PRODUCT WIDTH</b>	185 mm
<b>PRODUCT WEIGHT</b>	18.07 kg
<b>COMPLIANCES</b>	RoHS conform
<b>CERTIFICATIONS</b>	IEC/EN 60947 IEC

<b>AMPERAGE RATING</b>	450 A
<b>VOLTAGE RATING</b>	690 V - 690 V
<b>CIRCUIT BREAKER FRAME TYPE</b>	NZM3
<b>ACCESSORIES REQUIRED</b>	NZM3-XAVS
<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 be evaluated.

<b>CHARACTERISTIC CURVE</b>	<a href="#">eaton-circuit-breaker-nzm-mccb-characteristic-curve-011.eps</a>  <a href="#">eaton-circuit-breaker-nzm-mccb-characteristic-curve-029.eps</a>  <a href="#">eaton-circuit-breaker-nzm-mccb-characteristic-curve-015.eps</a>
<b>DECLARATIONS OF CONFORMITY</b>	<a href="#">DA-DC-03_N3</a>  <a href="#">eaton-circuit-breaker-basic-unit-bg3-il012100zu.pdf</a>  <a href="#">eaton-circuit-breaker-nzm-mccb-dimensions-020.eps</a>  <a href="#">eaton-circuit-breaker-switch-nzm-mccb-dimensions-016.eps</a>

<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>FITTED WITH:</b>	Thermal protection
<b>POLLUTION DEGREE</b>	3
<b>MOUNTING METHOD</b>	Withdrawable Built-in device slide-in technique (withdrawable)
<b>CLIMATIC PROOFING</b>	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>	60.75 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 TEMPERATURE - MIN</b>	-25 °C
<b>AMBIENT STORAGE</b>	70 °C

<b>TEMPERATURE - MAX</b>	
<b>AMBIENT STORAGE TEMPERATURE - MIN</b>	40 °C
<b>PROTECTION AGAINST DIRECT CONTACT</b>	Finger and back-of-hand proof to VDE 0106 part 100
<b>RATED INSULATION VOLTAGE (UI)</b>	690 V
<b>RATED OPERATING POWER AT AC-3, 230 V</b>	132 kW
<b>RATED OPERATING POWER AT AC-3, 400 V</b>	250 kW
<b>SWITCH OFF TECHNIQUE</b>	Electronic
<b>DEGREE OF PROTECTION</b>	IP20 (basic degree of protection, in the operating controls area) IP20
<b>DIRECTION OF INCOMING SUPPLY</b>	As required
<b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>	Other
<b>LIFESPAN, MECHANICAL</b>	15000 operations
<b>OVERVOLTAGE CATEGORY</b>	III
<b>RATED OPERATIONAL CURRENT</b>	437 A (400 V AC-3)
<b>DEGREE OF PROTECTION (IP), FRONT SIDE</b>	IP66 (with door coupling rotary handle) IP40 (with insulating surround)
<b>DEGREE OF PROTECTION (TERMINATIONS)</b>	IP10 (tunnel terminal) IP00 (terminations, phase isolator and strip terminal)
<b>NUMBER OF POLES</b>	Three-pole
<b>TERMINAL CAPACITY (COPPER STRIP)</b>	<p>Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm at box terminal</p> <p>Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched)</p> <p>Max. 8 segments of 24 mm x 1 mm (2x) at box terminal</p> <p>Min. 6 segments of 16 mm x 0.8 mm at box terminal</p> <p>10 segments of 50 mm x 1 mm (2x) at rear-side width extension</p>

	Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched)
<b>LIFESPAN, ELECTRICAL</b>	3000 operations at 690 V AC-1 2000 operations at 400 V AC-3 5000 operations at 400 V AC-1 2000 operations at 415 V AC-3 2000 operations at 690 V AC-3 5000 operations at 415 V AC-1
<b>FUNCTIONS</b>	Phase failure sensitive Motor protection
<b>TYPE</b>	Circuit breaker

## SPECIAL FEATURES

- IEC/EN 60947-2 with characteristic conforming to IEC/EN 60947-4-1 with phase failure sensitivity
- The circuit-breaker fulfills all requirements for AC-3 switching category.
- R.m.s. value measurement and "thermal memory"
- Adjustable time delay setting to overcome current peaks  $I_r$  at  $6 \times I_r$  also infinity (without overload releases)
- All AC-3 rating data applies to direct switching by the circuit-breaker under normal operating conditions. If, for example, a contactor takes over AC-3 switching under normal operating conditions, the full rated

uninterrupted  
current applies to  
the circuit-breaker,  
 $I_n = I_u$ .

- 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  $I_{cn}$ )
- Rated current = rated uninterrupted current: 450 A
- Terminal capacity hint: Up to 240 mm<sup>2</sup> can be connected depending on the cable manufacturer.

<b>APPLICATION</b>	Use in unearthed supply systems at 690 V
<b>SHOCK RESISTANCE</b>	20 g (half-sinusoidal shock 20 ms)
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (I<sub>N</sub>)</b>	450 A
<b>RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)</b>	3.3 kA
<b>RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)</b>	3.3 kA
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MAX</b>	5400 A
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MIN</b>	900 A
<b>HANDLE TYPE</b>	Rocker lever
<b>INSTANTANEOUS CURRENT SETTING (II) - MAX</b>	12 A
<b>INSTANTANEOUS</b>	2 A

<b>CURRENT SETTING (II) - MIN</b>	
<b>NUMBER OF OPERATIONS PER HOUR - MAX</b>	60
<b>OVERLOAD CURRENT SETTING (IR) - MAX</b>	450 A
<b>OVERLOAD CURRENT SETTING (IR) - MIN</b>	180 A
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 230 V, 50/60 HZ</b>	85 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 400/415 V, 50/60 HZ</b>	35 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 440 V, 50/60 HZ</b>	35 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 525 V, 50/60 HZ</b>	13 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 690 V, 50/60 HZ</b>	5 kA
<b>STANDARD TERMINALS</b>	Screw terminal
<b>OPTIONAL TERMINALS</b>	Box terminal. Connection on rear. Tunnel terminal
<b>RELEASE SYSTEM</b>	Electronic release
<b>SHORT-CIRCUIT TOTAL BREAKTIME</b>	< 10 ms
<b>TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)</b>	16 mm <sup>2</sup> (1x) at tunnel terminal
<b>TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)</b>	50 mm <sup>2</sup> - 240 mm <sup>2</sup> (2x) at 2-hole tunnel terminal 50 mm <sup>2</sup> - 240 mm <sup>2</sup> (1x) at 2-hole tunnel terminal 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at tunnel terminal
<b>TERMINAL CAPACITY (CONTROL CABLE)</b>	0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x) 0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x)
<b>TERMINAL CAPACITY (COPPER BUSBAR)</b>	Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection

	M10 at rear-side screw connection Min. 20 mm x 5 mm direct at switch rear-side connection Max. 10 mm x 50 mm (2x) at rear-side width extension
<b>TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)</b>	300 mm <sup>2</sup> (2x) at rear-side width extension 16 mm <sup>2</sup> (1x) at tunnel terminal 16 mm <sup>2</sup> (1x) direct at switch rear-side connection 16 mm <sup>2</sup> (2x) at box terminal 16 mm <sup>2</sup> (2x) direct at switch rear-side connection
<b>TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)</b>	16 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at 1-hole tunnel terminal 35 mm <sup>2</sup> - 240 mm <sup>2</sup> (1x) at box terminal 25 mm <sup>2</sup> - 240 mm <sup>2</sup> (1x) direct at switch rear-side connection 25 mm <sup>2</sup> - 120 mm <sup>2</sup> (2x) at box terminal 25 mm <sup>2</sup> - 240 mm <sup>2</sup> (2x) direct at switch rear-side connection
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICU (IEC/EN 60947) AT 400/415 V, 50/60 HZ</b>	35 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 400/415 V, 50/60 HZ</b>	105 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 440 V, 50/60 HZ</b>	74 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 525 V, 50/60 HZ</b>	53 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ</b>	40 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ</b>	187 kA
<b>RATED IMPULSE WITHSTAND VOLTAGE</b>	6000 V



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**(UIMP) AT AUXILIARY  
CONTACTS**

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**RATED IMPULSE  
WITHSTAND VOLTAGE  
(UIMP) AT MAIN  
CONTACTS**

8000 V

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**PROJECT NAME:**

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**PROJECT NUMBER:**

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**PREPARED BY:**

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