

# Specifications



## Eaton 189610

NZMH4-PX1600. NZM4 PXR25 circuit breaker - integrated energy measurement class 1, 1600A, 3p, Screw terminal

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller series NZM molded case circuit breaker electronic
<b>CATALOG NUMBER</b>	189610
<b>MODEL CODE</b>	NZMH4-PX1600
<b>EAN</b>	4015081875573
<b>PRODUCT LENGTH/DEPTH</b>	375 mm
<b>PRODUCT HEIGHT</b>	170 mm
<b>PRODUCT WIDTH</b>	210 mm
<b>PRODUCT WEIGHT</b>	19 kg
<b>COMPLIANCES</b>	RoHS conform
<b>CERTIFICATIONS</b>	IEC IEC/EN 60947
<b>GLOBAL CATALOG</b>	189610

## Product specifications

<b>AMPERAGE RATING</b>	1600 A
<b>VOLTAGE RATING</b>	690 V - 690 V
<b>CIRCUIT BREAKER FRAME TYPE</b>	NZM4
<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 be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.

## Resources

<b>BROCHURES</b>	<a href="#">eaton-digital-nzm-brochure-br013003en-en-us.pdf</a>  <a href="#">eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf</a>
<b>CATALOGS</b>	<a href="#">eaton-digital-nzm-catalog-ca013003en-en-us.pdf</a>
<b>DECLARATIONS OF CONFORMITY</b>	<a href="#">eaton-molded-case-circuit-breaker-declaration-of-conformity-eu250294en.pdf</a>
<b>DRAWINGS</b>	<a href="#">eaton-circuit-breaker-nzm-mccb-dimensions-022.eps</a>
<b>INSTALLATION INSTRUCTIONS</b>	<a href="#">eaton-circuit-breaker-basic-unit-bg4-il012101zu.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-nzm4_3p</a>  <a href="#">DA-CS-nzm4_3p</a>
<b>PEP ECO-PASSPORT</b>	<a href="#">eaton-molded-case-switches-pep-eato-00230-v0101-en.pdf</a>
<b>TECHNICAL DATA SHEETS</b>	<a href="#">eaton-nzm-technical-information-sheet</a>

<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>	Fixed Built-in device fixed built-in technique
<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>	284 W
<b>UTILIZATION CATEGORY</b>	B (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 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 (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>	Screw connection
<b>LIFESPAN, MECHANICAL</b>	10000 operations
<b>OVERVOLTAGE CATEGORY</b>	III
<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>	Min. 6 segments of 16 mm x 0.8 mm at flat conductor terminal Max. 10 segments of 32 mm x 1 mm (2x) at flat conductor terminal 10 segments of 80 mm x 1 mm (2x) at rear-side width extension Min. 5 segments of 25 mm x 1 mm at rear-side connection (punched) Max. 10 segments of 50 mm x 1 mm (2x) at rear-side connection (punched)  10 segments of 50 mm x 1 mm (2x) at 1-hole module plate
<b>LIFESPAN, ELECTRICAL</b>	3000 operations at 415 V AC-1 3000 operations at 400 V AC-1 2000 operations at 690 V AC-1

<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>• Class 1 energy measurement, 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>• Interface module in equipment supplied.</li> <li>• Optionally communication-capable with 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: 1600 A</li> </ul>
<b>APPLICATION</b>	Use in unearthed supply systems at 525 V
<b>SHOCK RESISTANCE</b>	15 g (half-sinusoidal shock 11 ms)
<b>POSITION OF CONNECTION FOR MAIN CURRENT CIRCUIT</b>	Front side
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	1600 A

<b>RELEASE SYSTEM</b>	Electronic release
<b>SHORT-CIRCUIT TOTAL BREAKTIME</b>	< 25 ms ( $\leq$ 415 V); < 35 ms (> 415 V)
<b>RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)</b>	19.2 kA
<b>RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)</b>	19.2 kA
<b>SHORT-CIRCUIT RELEASE DELAYED SETTING - MAX</b>	16000 A
<b>SHORT-CIRCUIT RELEASE DELAYED SETTING - MIN</b>	1600 A
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MAX</b>	19200 A
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MIN</b>	3200 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>	50 mm x 10 mm (2x) at rear-side 2-hole module plate Max. 50 mm x 10 mm (2x) direct at switch rear-side connection Min. 25 mm x 5 mm at rear-side 1-hole module plate Max. 50 mm x 10 mm (2x) at rear-side 1-hole module plate Min. 60 mm x 10 mm at rear-side width extension Max. 80 mm x 10 mm (2x) at rear-side width extension Min. 25 mm x 5 mm direct at switch rear-side connection M10 at rear-side screw connection
<b>TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)</b>	300 mm <sup>2</sup> (4x) at rear-side width extension 50 mm <sup>2</sup> - 240 mm <sup>2</sup> (4x) at 4-hole tunnel terminal 120 mm <sup>2</sup> - 300 mm <sup>2</sup> (1x) at rear-side 1-hole module plate 95 mm <sup>2</sup> - 240 mm <sup>2</sup> (6x) at rear-side width extension 95 mm <sup>2</sup> - 185 mm <sup>2</sup> (2x) at rear-side 2-hole module plate 35 mm <sup>2</sup> - 185 mm <sup>2</sup> (4x) at

	rear-side 2-hole module plate 95 mm <sup>2</sup> - 300 mm <sup>2</sup> (2x) at rear-side 1-hole module plate
<b>TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)</b>	120 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) direct at switch rear-side connection 50 mm <sup>2</sup> - 185 mm <sup>2</sup> (4x) direct at switch rear-side connection
<b>TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)</b>	50 mm <sup>2</sup> - 240 mm <sup>2</sup> (4x) at 4-hole 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>	38400 A
<b>INSTANTANEOUS CURRENT SETTING (II) - MIN</b>	3200 A
<b>NUMBER OF OPERATIONS PER HOUR - MAX</b>	60
<b>OVERLOAD CURRENT SETTING (IR) - MAX</b>	1600 A
<b>OVERLOAD CURRENT SETTING (IR) - MIN</b>	800 A
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 230 V, 50/60 HZ</b>	63 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 400/415 V, 50/60 HZ</b>	50 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 440 V, 50/60 HZ</b>	50 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 525 V, 50/60 HZ</b>	37 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 690 V, 50/60 HZ</b>	37 kA
<b>RATED SHORT-CIRCUIT</b>	187 kA

<b>MAKING CAPACITY ICM AT 400/415 V, 50/60 HZ</b>	
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 440 V, 50/60 HZ</b>	187 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 525 V, 50/60 HZ</b>	143 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ</b>	100 kA
<b>STANDARD TERMINALS</b>	Screw terminal
<b>OPTIONAL TERMINALS</b>	Connection on rear. Strip terminal. Tunnel terminal
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ</b>	275 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>	1000 V AC

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



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