



Eaton 109983

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3 p, 160A, screw connection

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PRODUCT NAME	Eaton Moeller series NZM molded case circuit breaker electronic
CATALOG NUMBER	109983
PRODUCT LENGTH/DEPTH	149 mm
PRODUCT HEIGHT	184 mm
PRODUCT WIDTH	105 mm
PRODUCT WEIGHT	2.467 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC IEC/EN 60947

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AMPERAGE RATING 160 A

VOLTAGE RATING 690 V - 690 V

CIRCUIT BREAKER FRAME TYPE NZM2

FEATURES Motor drive optional
Protection unit

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.

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.

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CHARACTERISTIC CURVE [eaton-circuit-breaker-nzm-mccb-characteristic-curve-024.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-020.eps](#)

□□□□□ [eaton-circuit-breakers-nzmb-nzmn-basic-unit-bg2-instruction-leaflet-il012099zu.pdf](#)

□□ [eaton-circuit-breaker-nzm-mccb-dimensions-019.eps](#)

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.
POLLUTION DEGREE	3
MOUNTING METHOD	Fixed DIN rail (top hat rail) mounting optional Built-in device fixed built-in technique
CLIMATIC PROOFING	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT	21.12 W
UTILIZATION CATEGORY	A (IEC/EN 60947-2)
ISOLATION	300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main contacts)
AMBIENT OPERATING TEMPERATURE - MAX	70 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT STORAGE TEMPERATURE - MIN	40 °C
NUMBER OF AUXILIARY	0

CONTACTS (CHANGE-OVER CONTACTS)	
NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)	0
NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)	0
PROTECTION AGAINST DIRECT CONTACT	Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
DEGREE OF PROTECTION	IP20 IP20 (basic degree of protection, in the operating controls area)
DIRECTION OF INCOMING SUPPLY	As required
ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT	Screw connection
LIFESPAN, MECHANICAL	20000 operations
OVERVOLTAGE CATEGORY	III
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)
NUMBER OF POLES	Three-pole
TERMINAL CAPACITY (COPPER STRIP)	Max. 10 segments of 16 mm x 0.8 mm at box terminal 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 24 mm x 0.8 mm at rear-side connection (punched) Min. 2 segments of 16 mm x 0.8 mm at rear-side connection (punched)
LIFESPAN, ELECTRICAL	10000 operations at 400 V AC-1 10000 operations at 415 V AC-1 7500 operations at 690 V AC-1
FUNCTIONS	Systems, cable, selectivity and generator protection
TYPE	Circuit breaker

SPECIAL FEATURES

- LSI overload protection and delayed and non-delayed short-circuit protective device
- R.m.s. value measurement and “thermal memory”
- USB interface for configuration and test function with Power Xpert Protection Manager software
- Optionally communication-capable with interface module and internal Modbus RTU module or CAM
- 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: 160 A

APPLICATION

Use in unearthed supply systems at 690 V

SHOCK RESISTANCE

20 g (half-sinusoidal shock 20 ms)

POSITION OF CONNECTION FOR MAIN CURRENT CIRCUIT

Front side

RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)

160 A

RELEASE SYSTEM

Electronic release

SHORT-CIRCUIT TOTAL BREAKTIME

< 10 ms

RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)

1.9 kA

RATED SHORT-TIME

1.9 kA

WITHSTAND CURRENT (T = 1 S)	
TERMINAL CAPACITY (CONTROL CABLE)	0.75 mm ² - 2.5 mm ² (1x) 0.75 mm ² - 1.5 mm ² (2x)
TERMINAL CAPACITY (COPPER BUSBAR)	Min. 16 mm x 5 mm direct at switch rear-side connection M8 at rear-side screw connection Max. 24 mm x 8 mm direct at switch rear-side connection
TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)	6 mm ² - 16 mm ² (2x) direct at switch rear-side connection 6 mm ² - 16 mm ² (2x) at box terminal 10 mm ² - 16 mm ² (1x) direct at switch rear-side connection 10 mm ² - 16 mm ² (1x) at box terminal 16 mm ² (1x) at tunnel terminal
TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)	16 mm ² (1x) at tunnel terminal
TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)	25 mm ² - 70 mm ² (2x) direct at switch rear-side connection 25 mm ² - 185 mm ² (1x) at 1-hole tunnel terminal 25 mm ² - 185 mm ² (1x) at box terminal 25 mm ² - 70 mm ² (2x) at box terminal 25 mm ² - 185 mm ² (1x) direct at switch rear-side connection
TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)	25 mm ² - 185 mm ² (1x) at tunnel terminal
HANDLE TYPE	Rocker lever
SHORT DELAY CURRENT SETTING (ISD) - MAX	1600 A
SHORT DELAY CURRENT SETTING (ISD) - MIN	320 A
INSTANTANEOUS CURRENT SETTING (II) - MAX	2880 A
INSTANTANEOUS CURRENT SETTING (II) - MIN	320 A
NUMBER OF OPERATIONS PER HOUR -	120

MAX	
OVERLOAD CURRENT SETTING (IR) - MAX	160 A
OVERLOAD CURRENT SETTING (IR) - MIN	80 A
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 230 V, 50/60 HZ	100 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 400/415 V, 50/60 HZ	70 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 440 V, 50/60 HZ	65 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 525 V, 50/60 HZ	36 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 690 V, 50/60 HZ	6 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 400/415 V, 50/60 HZ	154 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 440 V, 50/60 HZ	143 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 525 V, 50/60 HZ	80 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ	40 kA
STANDARD TERMINALS	Screw terminal
OPTIONAL TERMINALS	Box terminal. Connection on rear. Tunnel terminal
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ	220 kA
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS	6000 V
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN CONTACTS	8000 V
RATED INSULATION VOLTAGE (UI)	1000 V AC

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:



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