

Specifications



Photo is representative



Eaton 147393

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 4p, 160A, box terminals

General specifications

PRODUCT NAME	Eaton Moeller series NZM molded case circuit breaker thermo-magnetic
CATALOG NUMBER	147393
MODEL CODE	NZMN2-4-A160-BT
EAN	4015081438938
PRODUCT LENGTH/DEPTH	149 mm
PRODUCT HEIGHT	184 mm
PRODUCT WIDTH	140 mm
PRODUCT WEIGHT	3.523 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 60947 IEC
GLOBAL CATALOG	147393

Product specifications

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.

Resources

BROCHURES	eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf eaton-digital-nzm-brochure-br013003en-en-us.pdf
CATALOGS	eaton-digital-nzm-catalog-ca013003en-en-us.pdf eaton-circuit-breaker-let-through-current-nzm-mccb-characteristic-curve-004.eps eaton-circuit-breaker-nzm-mccb-characteristic-curve-050.eps eaton-circuit-breaker-characteristic-power-defense-mccb-characteristic-curve-036.eps
CHARACTERISTIC CURVE	eaton-molded-case-circuit-breaker-declaration-of-conformity-eu250290en.pdf
DECLARATIONS OF CONFORMITY	eaton-circuit-breaker-switch-nzm-mccb-dimensions-017.eps
DRAWINGS	eaton-circuit-breaker-nzm-mccb-dimensions-035.eps
INSTALLATION VIDEOS	Introduction of the new digital circuit breaker NZM The new digital NZM Range
MCAD MODEL	DA-CD-nzm2_4p DA-CS-nzm2_4p
TECHNICAL DATA SHEETS	eaton-nzm-technical-information-sheet

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	38.4 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	Frame clamp
CURRENT RATING OF NEUTRAL CONDUCTOR	200% of phase conductor
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)	IP00 (terminations, phase isolator and strip terminal)
	IP10 (tunnel terminal)
NUMBER OF POLES	Four-pole
TERMINAL CAPACITY (COPPER STRIP)	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. 10 segments of 16 mm x 0.8 mm at box terminal 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
LIFESPAN, ELECTRICAL	10000 operations at 400 V AC-1 6500 operations at 400 V AC-3 5000 operations at 690 V AC-3

	10000 operations at 415 V AC-1 6500 operations at 415 V AC-3 7500 operations at 690 V AC-1
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FUNCTIONS	System and cable protection
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TYPE	Circuit breaker
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SPECIAL FEATURES	• 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 • Set value in neutral conductor is synchronous with set value I_r of main pole.
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APPLICATION	Use in unearthed supply systems at 690 V
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SHOCK RESISTANCE	20 g (half-sinusoidal shock 20 ms)
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POSITION OF CONNECTION FOR MAIN CURRENT CIRCUIT	Front side
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RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	160 A
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POWER LOSS	38.4 W
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RELEASE SYSTEM	Thermomagnetic release
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SHORT-CIRCUIT TOTAL BREAKTIME	< 10 ms
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RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)	1.9 kA
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RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)	1.9 kA
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SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MAX	1600 A
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SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MIN	960 A
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)	10 mm ² - 16 mm ² (1x) at box terminal 10 mm ² - 16 mm ² (1x) direct at switch rear-side connection 6 mm ² - 16 mm ² (2x) at box terminal 6 mm ² - 16 mm ² (2x) direct at switch rear-side connection 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) at box terminal 25 mm ² - 70 mm ² (2x) direct at switch rear-side connection 25 mm ² - 185 mm ² (1x) 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
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	0 A
SHORT DELAY CURRENT SETTING (ISD) - MIN	0 A
INSTANTANEOUS CURRENT SETTING (II) - MAX	10 A
INSTANTANEOUS CURRENT SETTING (II) - MIN	6 A
NUMBER OF	120

OPERATIONS PER HOUR - MAX	
OVERLOAD CURRENT SETTING (IR) - MAX	160 A
OVERLOAD CURRENT SETTING (IR) - MIN	125 A
OVERLOAD CURRENT SETTING (IR)	125 A - 160 A
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 230 V, 50/60 HZ	85 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 400/415 V, 50/60 HZ	50 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 440 V, 50/60 HZ	35 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 525 V, 50/60 HZ	25 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 400/415 V, 50/60 HZ	105 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 440 V, 50/60 HZ	74 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 525 V, 50/60 HZ	53 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ	40 kA
STANDARD TERMINALS	Box terminal
OPTIONAL TERMINALS	Connection on rear. Screw terminal. Tunnel terminal
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ	187 kA
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS	6000 V
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN	8000 V

CONTACTS**RATED INSULATION
VOLTAGE (UI)**

1000 V AC

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:

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