

Specifications



Eaton 113736

Eaton Moeller series NZM - Molded Case Circuit Breaker. Switch-disconnector 4p 160A +pull out

General specifications

PRODUCT NAME	Eaton Moeller series NZM switch-disconnector
CATALOG NUMBER	113736
MODEL CODE	N2-4-160-SVE
EAN	4015081132768
PRODUCT LENGTH/DEPTH	180 mm
PRODUCT HEIGHT	245 mm
PRODUCT WIDTH	140 mm
PRODUCT WEIGHT	3.012 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 60947 IEC

Additional information

FUNCTIONS

Interlockable
Disconnectors/main
switches
Voltage release optional

Delivery programme

ACCESSORIES REQUIRED NZM2-4-XSVS socket base

AMPERAGE RATING 160 A

APPLICATION Use in unearthed supply systems at 690 V

CIRCUIT BREAKER FRAME TYPE N2

FEATURES
Version as maintenance-
/service switch
Version as main switch
Version as emergency stop
installation
Motor drive optional

NUMBER OF POLES Four-pole

SPECIAL FEATURES

- Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113.
- Isolating characteristics to IEC/EN 60947-3 and VDE 0660.
- Busbar tag shroud to VDE 0160 Part 100.
- Rated current = rated uninterrupted current: 160 A
- The rated short-time withstand current for PN2/N2 in conjunction with earth-fault release NZM2-4-XFI...Icw = 1.5 kA

TYPE Switch-disconnector

Design verification to IEC/EN 61439

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.
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	Does not apply, since the

Design verification to IEC/EN 61439 - technical data

AMBIENT OPERATING TEMPERATURE - MAX	70 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MIN	40 °C
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT	19.66 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	160 A

AGAINST ELECTRIC SHOCK	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.

Technical data - electrical

AMPERAGE RATING	160 A
DIRECTION OF INCOMING SUPPLY	As required
ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT	Screw connection
HANDLE TYPE	Rocker lever
ISOLATION	300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main contacts)
LIFESPAN, ELECTRICAL	4000 operations at 690 V AC-3 6000 operations at 400 V AC-3 7500 operations at 400 V AC-1 6000 operations at 415 V AC-3 5000 operations at 690 V AC-1 7500 operations at 415 V AC-1
NUMBER OF OPERATIONS PER HOUR - MAX	120
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	3
RATED CONDITIONAL SHORT-CIRCUIT CURRENT WITH BACK-UP FUSE	PN2(N2)-160...250: 250 AgGgL 100 kA at 400/415 V 80 kA at 690 V
RATED CONDITIONAL SHORT-CIRCUIT CURRENT WITH DOWNSTREAM FUSE	PN2(N2)-160...250: 250 AgGgL 80 kA at 690 V 100 kA at 400/415 V
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS	6000 V
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN CONTACTS	8000 V
RATED INSULATION VOLTAGE (UI)	690 V
RATED OPERATING FREQUENCY	50 Hz
RATED OPERATING POWER AT AC-23, 400 V	90 kW

Technical data - mechanical

CLIMATIC PROOFING	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
DEGREE OF PROTECTION	IP20 (basic protection type, in the area of the HMI devices) Other
DEGREE OF PROTECTION (IP), FRONT SIDE	IP66 (with door coupling rotary handle) IP40 (with insulating surround) IP20
DEGREE OF PROTECTION (TERMINATIONS)	IP10 (tunnel terminal) IP00 (terminations, phase isolator and band terminal)
HANDLE COLOR	Black
LIFESPAN, MECHANICAL	20000 operations
MOUNTING METHOD	Built-in device plug-in technique Distribution board installation Ground mounting Plug-in unit Intermediate mounting
NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)	0
NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)	0
NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)	0
NUMBER OF SWITCHES	1
PROTECTION AGAINST DIRECT CONTACT	Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
SHOCK RESISTANCE	20 g (half-sinusoidal shock 20 ms)
SPECIAL FEATURES	- Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. - Isolating characteristics to IEC/EN 60947-3 and VDE 0660.

RATED OPERATING VOLTAGE (UE) AT AC - MAX	690 V
RATED OPERATIONAL CURRENT	160 A (415 V AC-22/23A, making and breaking capacity) 160 A (690 V AC-22/23A, making and breaking capacity)
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ	5.5 kA
RATED SHORT-TIME WITHSTAND CURRENT (ICW)	3.5 kA
RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)	3.5 kA
RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)	3.5 kA
SHORT-CIRCUIT PROTECTIVE DEVICE FUSES - MAX	250 A gL
VOLTAGE RATING	690 V - 690 V

	• Busbar tag shroud to VDE 0160 Part 100. • Rated current = rated uninterrupted current: 160 A • The rated short-time withstand current for PN2/N2 in conjunction with earth-fault release NZM2-4-XFI...Icw = 1.5 kA
SWITCH POSITIONS	I, +, 0

Technical data - mechanical - terminals

TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)

10 mm² - 16 mm² (2x)
direct at switch rear-side
connection
10 mm² - 16 mm² (1x)
direct at switch rear-side
connection
16 mm² (1x) at tunnel
terminal

TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)

25 mm² - 185 mm² (1x) at
1-hole tunnel terminal

TERMINAL CAPACITY (COPPER BUSBAR)

Max. 24 mm x 8 mm direct
at switch rear-side
connection
Min. 16 mm x 5 mm direct
at switch rear-side
connection
M8 at rear-side screw
connection

TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)

16 mm² (1x) at tunnel
terminal
10 mm² - 16 mm² (1x)
direct at switch rear-side
connection
6 mm² - 16 mm² (2x) direct
at switch rear-side
connection
10 mm² - 16 mm² (1x) at
box terminal
6 mm² - 16 mm² (2x) at
box terminal

TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)

25 mm² - 70 mm² (2x) at
box terminal
25 mm² - 185 mm² (1x) at
1-hole tunnel terminal
25 mm² - 185 mm² (1x) at
box terminal
25 mm² - 185 mm² (1x)
direct at switch rear-side
connection
25 mm² - 70 mm² (2x)
direct at switch rear-side
connection

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 24
mm x 0.8 mm at rear-side
connection (punched)
Max. 8 segments of 15.5
mm x 0.8 mm (2x) at box
terminal
Max. 10 segments of 16
mm x 0.8 mm at box

Resources

BROCHURES

[eaton-feerum-the-whole-
grain-solution-success-
story-en-us.pdf](#)

[eaton-digital-nzm-
brochure-br013003en-en-
us.pdf](#)

CATALOGUES

[eaton-digital-nzm-catalog-
ca013003en-en-us.pdf](#)

DECLARATIONS OF CONFORMITY

[eaton-switch-
disconnecter-declaration-
of-conformity-
eu250126en.pdf](#)

DRAWINGS

[eaton-circuit-breaker-nzm-
mccb-dimensions-035.eps](#)

[eaton-circuit-breaker-
switch-nzm-mccb-
dimensions-017.eps](#)

[eaton-circuit-breaker-
cable-nzm-mccb-3d-
drawing-002.eps](#)

ECAD MODEL

[DA-CE-ETN.N2-4-160-SVE](#)

INSTALLATION VIDEOS

[The new digital NZM
Range](#)

[Introduction of the new
digital circuit breaker NZM](#)

MCAD MODEL

[eaton-molded-case-
switches-mcad-drawings-
nzm2-xsve.dwg](#)

[DA-CS-nzm2 xsve](#)

PEP ECO-PASSPORT

[eaton-switch-
disconnectors-pep-eato-
00196-v0101-en.pdf](#)

TECHNICAL DATA SHEETS

[eaton-nzm-technical-
information-sheet](#)

terminal

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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