Specifications



Photo is representative





Eaton 281236

Eaton Moeller series NZM - Molded Case Circuit Breaker. Switch-disconnector 3p 160A

General specifications	
PRODUCT NAME	Eaton Moeller series NZM switch-disconnector
CATALOG NUMBER	281236
MODEL CODE	N1-160
EAN	4015082812362
PRODUCT LENGTH/DEPTH	88 mm
PRODUCT HEIGHT	145 mm
PRODUCT WIDTH	90 mm
PRODUCT WEIGHT	0.887 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 60947 IEC

Additional information

FUNCTIONS	Voltage release optional Interlockable Disconnectors/main switches

Delivery program

AMPERAGE RATING	160 A
APPLICATION	Use in unearthed supply systems at 690 V
CIRCUIT BREAKER FRAME TYPE	N1
FEATURES	Version as emergency stop installation Version as maintenance-/service switch Version as main switch
NUMBER OF POLES	Three-pole
SPECIAL FEATURES	• Isolating characteristics to IEC/EN 60947-3 and VDE 0660. • Busbar tag shroud to VDE 0160 Part 100. • Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. • Rated current = rated uninterrupted current: 160 A
TYPE	Switch-disconnector

Design verification as per 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 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.

Design verification as per 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	29.18 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	160 A

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	Frame clamp
HANDLE TYPE	Rocker lever
ISOLATION	300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main contacts)
LIFESPAN, ELECTRICAL	7500 operations at 400 V AC-1 1000 operations at 690 V AC-23A 7500 operations at 415 V AC-1 1000 operations at 415 V AC-23A 5000 operations at 690 V AC-1 1000 operations at 400 V AC-23A
NUMBER OF OPERATIONS PER HOUR - MAX	120
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	3
RATED CONDITIONAL SHORT-CIRCUIT CURRENT WITH BACK-UP FUSE	160 gR 80 kA at 690 V 100 kA at 400/415 V
RATED CONDITIONAL SHORT-CIRCUIT CURRENT WITH DOWNSTREAM FUSE	100 kA at 400/415 V 10 kA at 690 V 160 gR
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS	6000 V
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN CONTACTS	6000 V
RATED INSULATION VOLTAGE (UI)	690 V
RATED OPERATING FREQUENCY	50 Hz
RATED OPERATING POWER AT AC-23, 400 V	90 kW
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	2.8 kA

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	IP20 IP40 (with insulating surround) IP66 (with door coupling rotary handle)
DEGREE OF PROTECTION (TERMINATIONS)	IP10 (tunnel terminal) IP00 (terminations, phase isolator and band terminal)
HANDLE COLOR	Black
LIFESPAN, MECHANICAL	20000 operations
MOUNTING METHOD	Intermediate mounting Ground mounting Fixed Built-in device fixed built-in technique Distribution board installation
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	• Isolating characteristics to IEC/EN 60947-3 and VDE 0660. • Busbar tag shroud to VDE 0160 Part 100. • Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. • Rated current = rated uninterrupted current: 160 A
SWITCH POSITIONS	I, +, 0

MAKING CAPACITY ICM AT 690 V, 50/60 HZ	
RATED SHORT-TIME WITHSTAND CURRENT (ICW)	2 kA
RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)	2 kA
RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)	2 kA
SHORT-CIRCUIT PROTECTIVE DEVICE FUSES - MAX	160 A gL
VOLTAGE RATING	690 V - 690 V

Technical data - mechanical - terminals

OPTIONAL TERMINALS	Connection on rear. Screw terminal. Tunnel terminal
STANDARD TERMINALS	Box terminal
TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)	10 mm² - 16 mm² (1x) direct at switch rear-side connection 16 mm² (1x) at tunnel terminal 10 mm² - 16 mm² (2x) direct at switch rear-side connection
TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)	25 mm² - 95 mm² (1x) at 1-hole tunnel terminal
TERMINAL CAPACITY (COPPER BUSBAR)	Min. 12 mm x 5 mm direct at switch rear-side connection Max. 16 mm x 5 mm direct at switch rear-side connection M6 at rear-side screw connection
TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)	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 16 mm² (1x) at tunnel terminal 6 mm² - 16 mm² (2x) at box terminal
TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)	25 mm² - 70 mm² (1x) direct at switch rear-side connection Terminal capacity hint: Up to 95 mm² can be connected depending on the cable manufacturer 6 mm² - 25 mm² (2x) at box terminal 10 mm² - 70 mm² (1x) at box terminal 25 mm² (2x) direct at switch rear-side connection 25 mm² - 95 mm² (1x) at 1-hole tunnel terminal
TERMINAL CAPACITY (COPPER STRIP)	Max. 9 segments of 9 mm x 0.8 mm at box terminal Min. 2 segments of 9 mm x 0.8 mm at box terminal

Resources

BROCHURES	eaton-digital-nzm-brochure-br013003en-en-us.pdf eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf
CATALOGUES	eaton-digital-nzm-catalog-ca013003en-en-us.pdf
DECLARATIONS OF CONFORMITY	eaton-switch-disconnector-declaration-of-conformity-eu250125en.pdf
DRAWINGS	eaton-circuit-breaker-nzm-mccb-dimensions-017.eps eaton-circuit-breaker-switch-nzm-mccb-dimensions-014.eps
INSTALLATION INSTRUCTIONS	eaton-cirucit-breaker-switch-disconnector-nzmb-il01203004z.pdf
INSTALLATION VIDEOS	The new digital NZM Range Introduction of the new digital circuit breaker NZM
MCAD MODEL	eaton-molded-case-switches-mcad-3d-models-nzm1-3p.stp eaton-molded-case-switches-mcad-drawings-nzm1-3p.dwg
TECHNICAL DATA SHEETS	eaton-nzm-technical-information-sheet

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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