DATASHEET - N3-4-500-S1-DC

Switch-disconnector 4p 500A 1000VDC

Part no.	**N3-4-500-S1-DC**
	142268
EL Number (Norway)	**4356075**

General specifications

Product name	Eaton Moeller series NZM switch-disconnector
Part no.	N3-4-500-S1-DC
EAN	4015081389988
Product Length/Depth	166 millimetre
Product height	275 millimetre
Product width	185 millimetre
Product weight	7.3 kilogram
Compliances	RoHS conform
Certifications	IEC
Product Tradename	NZM
Product Type	Switch-disconnector
Product Sub Type	None

Delivery program

Application	Open areas Utility buildings
Type	DC switch-disconnector
Circuit breaker frame type	N3
Number of poles	Four-pole
Amperage Rating	500 A
Features	Version as maintenance-/service switch Motor drive optional Version as emergency stop installation Remote operation with shunt releases / remote operator Version as main switch
Special features	IEC/EN 60947-3 CCC China Compulsory Certificate Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. Isolating characteristics to IEC/EN 60947-3 and VDE 0660. N switch-disconnectors can be combined with NZM...-XU, NZM...-XA shunt releases and auxiliary contacts as well as with NZM...-XR... remote operator. For DC switching, all 4 contacts must be connected in series. Refer to the information on jumper kit accessories. Supplied as standard: Screw connection box terminal optional. When working with ungrounded systems (e.g., IT), the installation must ensure that a double ground fault will be impossible. Switch can not be combined with plug-in/withdrawable units and/or connection on rear. N4-4-...-S15-DC feeder unit and outgoer from the bottom only. Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release Rated current = rated uninterrupted current: 500 A Values for rated uninterrupted current at 65 °C include jumpers.

Technical Data - Electrical

Voltage rating	1000 V - 1000 V
Rated operating voltage (Ue) at AC - max	0 V
Rated insulation voltage (Ui)	1250 V
Current rating (Iu) at 40°C with terminal jumpers	500 A
Current rating (Iu) at 65°C with terminal jumpers	500 A
Rated conditional short-circuit current (Iq)	0 kA
Rated operational current	500 A (DC 22-A)
Rated permanent current at AC-21, 400 V	0 A
Rated permanent current at AC-23, 400 V	0 A
Rated conditional short-circuit current with back-up fuse	15 kA at 1000 V 2 x 250 AgR
Rated short-time withstand current (Icw)	6.6 kA
Rated short-time withstand current (t = 1 s)	6.6 kA

Rated operating power at AC-3, 400 V	0 kW
Rated operating power at AC-23, 400 V	0 kW
Switching power at 400 V	0 kW
Short-circuit protective device fuses - max	2 x 250 A gR
Electrical connection type of main circuit	Screw connection
Number of operations per hour - max	60
Handle type	Rocker lever
Utilization category	DC-22 A
Overvoltage category	III
Pollution degree	3

Technical Data - Mechanical

Mounting Method	Fixed Built-in device fixed built-in technique Distribution board installation Ground mounting Intermediate mounting
Degree of protection	Other
Degree of protection (IP), front side	IP20
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
Handle color	Black
Switch positions	I, +, 0
Special features	IEC/EN 60947-3 CCC China Compulsory Certificate Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. Isolating characteristics to IEC/EN 60947-3 and VDE 0660. N switch-disconnectors can be combined with NZM...-XU, NZM...-XA shunt releases and auxiliary contacts as well as with NZM...-XR... remote operator. For DC switching, all 4 contacts must be connected in series. Refer to the information on jumper kit accessories. Supplied as standard: Screw connection box terminal optional. When working with ungrounded systems (e.g., IT), the installation must ensure that a double ground fault will be impossible. Switch can not be combined with plug-in/withdrawable units and/or connection on rear. N4-4-...-S15-DC feeder unit and outgoer from the bottom only. Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release Rated current = rated uninterrupted current: 500 A Values for rated uninterrupted current at 65 °C include jumpers.
Lifespan, mechanical	15000 operations

Technical Data - Mechanical - Terminals

Standard terminals	Screw terminal
Terminal capacity (aluminum solid conductor/cable)	16 mm^2 (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)	25 mm^2 - 185 mm^2 (1x) at tunnel terminal
Terminal capacity (copper busbar)	Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection M10 at rear-side screw connection Max. 10 mm x 50 mm (2x) at rear-side width extension Min. 20 mm x 5 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)	16 mm^2 (2x) direct at switch rear-side connection 16 mm^2 (2x) at box terminal 16 mm^2 (1x) direct at switch rear-side connection
Terminal capacity (copper stranded conductor/cable)	35 mm^2 - 240 mm^2 (1x) at box terminal 25 mm^2 - 240 mm^2 (1x) direct at switch rear-side connection 50 mm^2 - 240 mm^2 (1x) at 2-hole tunnel terminal 25 mm^2 - 240 mm^2 (2x) direct at switch rear-side connection 50 mm^2 - 240 mm^2 (2x) at 2-hole tunnel terminal 25 mm^2 - 120 mm^2 (2x) at box terminal 25 mm^2 - 185 mm^2 (1x) at tunnel terminal
Terminal capacity (copper strip)	10 segments of 50 mm x 1 mm (2x) at rear-side width extension Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched) Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched) Max. 8 segments of 24 mm x 1 mm (2x) at box terminal Min. 6 segments of 16 mm x 0.8 mm at box terminal

Design verification as per IEC/EN 61439 - technical data

Rated operational current for specified heat dissipation (In)	500 A

Equipment heat dissipation, current-dependent			150 W
Ambient operating temperature - min			-25 °C
Ambient operating temperature - max			70 °C
Ambient storage temperature - min			40 °C
Ambient storage temperature - max			70 °C
Design verification as per IEC/EN 61439			
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.
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.
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.
Additional information			
Functions			Voltage release optional Interlockable Photovoltaic applications Disconnectors/main switches

Technical data ETIM 9.0

Low-voltage industrial components (EG000017) / Switch disconnector (low voltage) (EC000216)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Switch disconnector (ecl@ss13-27-37-14-03 [AKF060018])			
Version as main switch			Yes
Version as maintenance-/service switch			Yes
Version as safety switch			No
Version as emergency stop installation			Yes
Version as reversing switch			No
Number of switches			1
Max. rated operation voltage Ue AC		V	0
Rated operating voltage		V	1000 - 1000
Rated permanent current Iu		A	500
Rated permanent current at AC-23, 400 V		A	0
Rated permanent current at AC-21, 400 V		A	0
Rated operation power at AC-3, 400 V		kW	0
Rated short-time withstand current Icw		kA	6.6
Rated operation power at AC-23, 400 V		kW	0
Switching power at 400 V		kW	0
Conditioned rated short-circuit current Iq		kA	0
Number of poles			4

Number of auxiliary contacts as normally closed contact			0
Number of auxiliary contacts as normally open contact			0
Number of auxiliary contacts as change-over contact			0
Motor drive optional			Yes
Motor drive integrated			No
Voltage release optional			Yes
Device construction			Built-in device fixed built-in technique
Suitable for floor mounting			Yes
Suitable for front mounting 4-hole			No
Suitable for front mounting centre			No
Suitable for distribution board installation			Yes
Suitable for intermediate mounting			Yes
Colour control element			Black
Type of control element			Rocker lever
Interlockable			Yes
Type of electrical connection of main circuit			Screw connection
With pre-assembled cabling			No
Degree of protection (IP), front side			IP20
Degree of protection (NEMA)			Other
Width		mm	185
Height		mm	275
Depth		mm	166
Width in number of modular spacings			

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