### **DATASHEET - NZMH2-4-A25-SVE**



Circuit-breaker, 4p, 25A, plug-in module

NZMH2-4-A25-SVE Part no. Catalog No. 113398

**EL-Nummer** (Norway)

0004357071

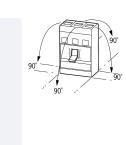


Similar to illustration

Delivery program			
Product range			Circuit-breaker
Protective function			System and cable protection
Standard/Approval			IEC
Installation type			Plug-in units
Release system			Thermomagnetic release
Construction size			NZM2
Description			Set value in neutral conductor is synchronous with set value Ir of main pole.
Number of poles			4 pole
Standard equipment			Screw connection
Switching capacity			
400/415 V 50 Hz	I <sub>cu</sub>	kA	150
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	Α	25
Neutral conductor	% of phase conductor	%	100
Setting range			
Overload trip			
中	I <sub>r</sub>	A	20 - 25
Main pole	I <sub>r</sub>	A	20 - 25
Short-circuit releases			
Non-delayed	$I_i = I_n x \dots$		350 A fixed

#### **Technical data**

General			
Standards			IEC/EN 60947
Protection against direct contact			Finger and back of hand proof to VDE 0106 Part 100
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Ambient temperature, storage	c	°C	- 40 - + 70
Operation	c	°C	-25 - +70
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27	(	9	20 (half-sinusoidal shock 20 ms)
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts	\	V AC	500
between the auxiliary contacts	\	V AC	300
Weight	ŀ	kg	3.5
Mounting position			Vertical and 90° in all directions



With XFI earth-fault release: - NZM1, N1, NZM2, N2: vertical and 90° in all directions

90° in all directions
with plug-in unit
- NZM1, N1, NZM2, N2: vertical, 90°
right/left
with withdrawable unit:
- NZM3, N3: vertical, 90° right/left
- NZM4, N4: vertical

directions

with remote operator:
- NZM2, N(S)2, NZM3, N(S)3,
NZM4, N(S)4: vertical and 90° in all

Direction of incoming supply	as required
Degree of protection	
Device	In the operating controls area: IP20 (basic degree of protection)
Enclosures	With insulating surround: IP40 With door coupling rotary handle: IP66
Terminations	Tunnel terminal: IP10 Phase isolator and strip terminal: IP00
Other technical data (sheet catalogue)	Temperature dependency, Derating
Circuit-breakers	

Rated current = rated uninterrupted current	$I_n = I_u$	Α	25
Rated surge voltage invariability	U <sub>imp</sub>		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	U <sub>e</sub>	V AC	690
Overvoltage category/pollution degree			III/3
Rated insulation voltage	Ui	V	1000
Use in unearthed supply systems		V	≦ 690

Lifespan, electrical AC-1

400 V 50/60 Hz

Switching capacity			
Rated short-circuit making capacity	I <sub>cm</sub>		
240 V	I <sub>cm</sub>	kA	330
400/415 V	I <sub>cm</sub>	kA	330
440 V 50/60 Hz	I <sub>cm</sub>	kA	286
525 V 50/60 Hz	I <sub>cm</sub>	kA	105
690 V 50/60 H	Ic	kA	40
Rated short-circuit breaking capacity I <sub>cn</sub>	I <sub>cn</sub>		
Icu to IEC/EN 60947 test cycle 0-t-C0	lcu	kA	
240 V 50/60 Hz	I <sub>cu</sub>	kA	150
400/415 V 50/60 Hz	I <sub>cu</sub>	kA	150
440 V 50/60 Hz	I <sub>cu</sub>	kA	130
525 V 50/60 Hz	I <sub>cu</sub>	kA	50
690 V 50/60 Hz	I <sub>cu</sub>	kA	20
lcs to IEC/EN 60947 test cycle 0-t-C0-t-C0	lcs	kA	
240 V 50/60 Hz	I <sub>cs</sub>	kA	150
400/415 V 50/60 Hz	I <sub>cs</sub>	kA	150
440 V 50/60 Hz	I <sub>cs</sub>	kA	130
525 V 50/60 Hz	I <sub>cs</sub>	kA	37.5
690 V 50/60 Hz	I <sub>cs</sub>	kA	5
			Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.
Rated short-time withstand current			
t = 0.3 s	I <sub>cw</sub>	kA	1.9
t = 1 s	I <sub>cw</sub>	kA	1.9
Utilization category to IEC/EN 60947-2			A
Lifespan, mechanical(of which max. 50 $\%$ trip by shunt/undervoltage release)	Operations		20000

Operations

10000

415 V 50/60 Hz  690 V 50/60 Hz  Operations  7500  AC3  400 V 50/60 Hz  Operations  6500  415 V 50/60 Hz  Operations  6500  690 V 50/60 Hz  Operations  6500  Operations  6500  Operations  6500  Operations  5000  Max. operating frequency  Ops/h  120  Total break time at short-circuit  ms  < 10  Terminal capacity  Standard equipment  Accessories required  Optional accessories  Box terminal Tunnel terminal connection on rear  Round copper conductor	
AC3  400 V 50/60 Hz  Operations 6500  415 V 50/60 Hz Operations 6500  Max. operating frequency Ops/h 120  Total break time at short-circuit ms <10  Terminal capacity Standard equipment Accessories required Optional accessories  Box terminal Tunnel terminal connection on rear	
400 V 50/60 Hz  415 V 50/60 Hz  Operations 6500  690 V 50/60 Hz  Operations 5000  Max. operating frequency Ops/h 120  Total break time at short-circuit ms < 10  Terminal capacity  Standard equipment Accessories required Optional accessories  Box terminal Tunnel terminal connection on rear	
415 V 50/60 Hz  690 V 50/60 Hz  Operations  Operations  5000  Max. operating frequency  Total break time at short-circuit  Terminal capacity  Standard equipment  Accessories required  Optional accessories  Operations  Source  NZM2-4-XSVS  Box terminal Tunnel terminal connection on rear	
690 V 50/60 Hz  Max. operating frequency  Total break time at short-circuit  Terminal capacity  Standard equipment  Accessories required  Operations  5000  ms < 10  Terminal capacity  Standard equipment  Accessories required  Optional accessories  Box terminal Tunnel terminal connection on rear	
Max. operating frequency  Total break time at short-circuit  Terminal capacity  Standard equipment  Accessories required  Optional accessories  Box terminal Tunnel terminal connection on rear	
Total break time at short-circuit ms < 10  Terminal capacity  Standard equipment Screw connection  Accessories required NZM2-4-XSVS  Optional accessories Box terminal Tunnel terminal connection on rear	
Terminal capacity Standard equipment Screw connection Accessories required Optional accessories Box terminal Tunnel terminal connection on rear	
Standard equipment  Accessories required  Optional accessories  Box terminal Tunnel terminal connection on rear	
Accessories required  Optional accessories  Box terminal Tunnel terminal connection on rear	
Optional accessories  Box terminal Tunnel terminal connection on rear	
Tunnel terminal connection on rear	
Round copper conductor	
Box terminal	
Solid mm <sup>2</sup> 1 x (10 - 16)	
2 x (6 - 16)	
Stranded mm <sup>2</sup> 1 x (25 - 185) 2 x (25 - 70)	
Tunnel terminal	
Solid nm <sup>2</sup> 1 x 16	
Stranded	
1-hole mm <sup>2</sup> 1 x (25 - 185)	
Bolt terminal and rear-side connection	
Direct on the switch	
Solid mm <sup>2</sup> 1 x (10 - 16) 2 x (6 - 16)	
Stranded mm <sup>2</sup> 1 x (25 - 185) 2 x (25 - 70)	
Al circular conductor	
Tunnel terminal	
Solid nm <sup>2</sup> 1 x 16	
Stranded	
Stranded 1 x (25 - 185)	
Cu strip (number of segments x width x segment thickness)	
Box terminal	
min. mm 2 x 9 x 0.8	
max. mm 10 x 16 x 0.8 (2x) 8 x 15.5 x 0,8	
Bolt terminal and rear-side connection	
Flat copper strip, with holes min. mm 2 x 16 x 0.8	
Flat copper strip, with holes max. mm 10 x 24 x 0.8	
Copper busbar (width x thickness) mm	
Bolt terminal and rear-side connection	
Screw connection M8	
Direct on the switch	
min. mm 16 x 5	
max. mm 24 x 8	
Control cables	
mm <sup>2</sup> 1 x (0.75 - 2.5)	
2 x (0.75 - 1.5)	

# Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	25
Equipment heat dissipation, current-dependent	$P_{\text{vid}}$	W	7.97
Operating ambient temperature min.		°C	-25

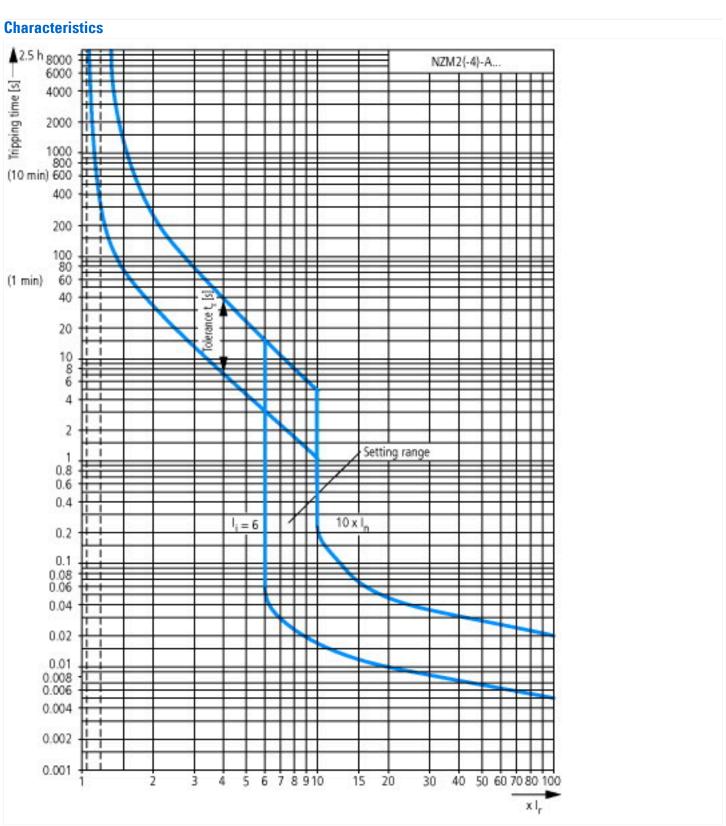
Operating ambient temperature max.	°C	70
IEC/EN 61439 design verification		
10.2 Strength of materials and parts		
10.2.2 Corrosion resistance		Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures		Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat		Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties		
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.

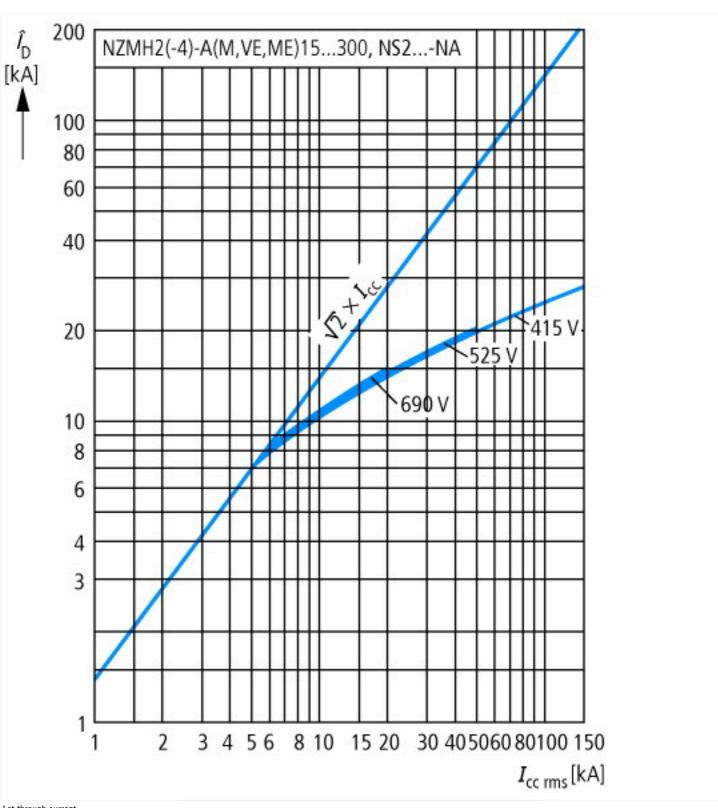
### **Technical data ETIM 7.0**

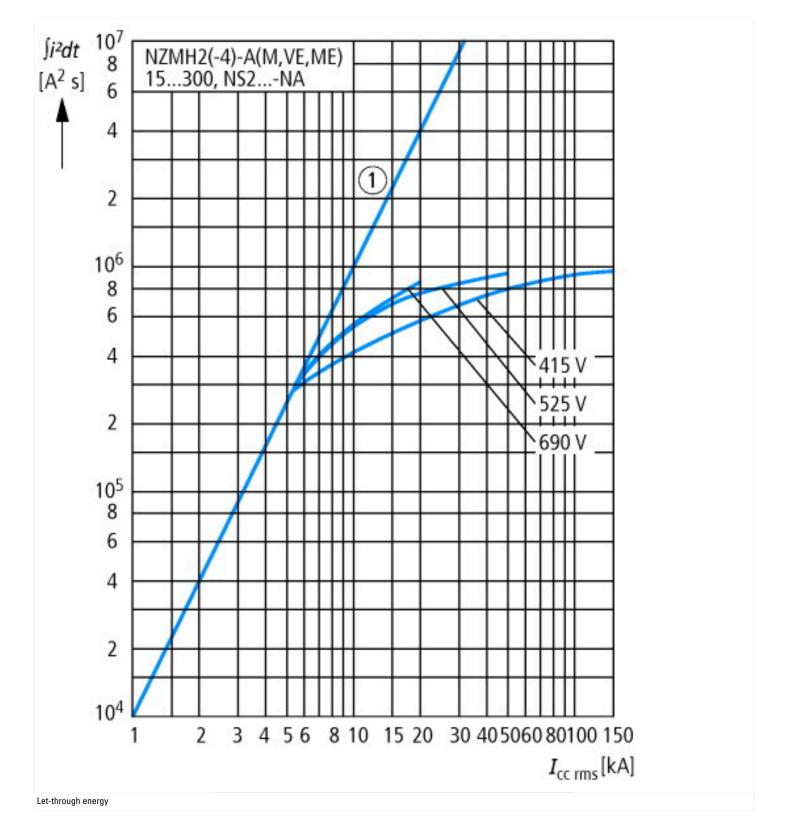
 $Low-voltage\ industrial\ components\ (EG000017)\ /\ Power\ circuit-breaker\ for\ trafo/generator/installation\ protection\ (EC000228)$ 

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013])

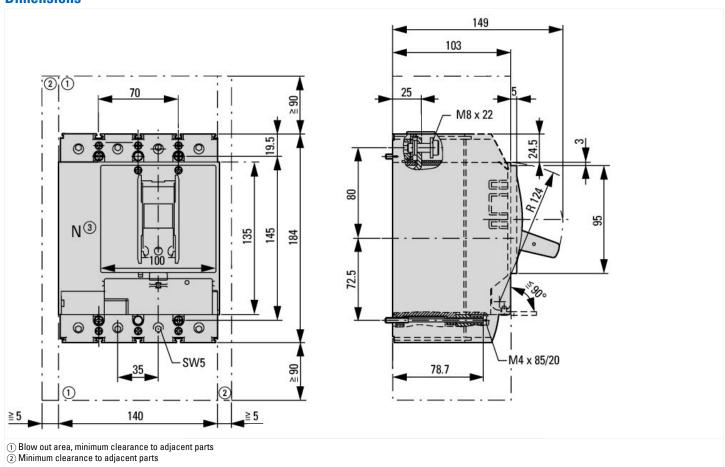
Rated permanent current lu         Au         55           Rated voltage         V         600-600           Rated voltage         VA         100-000           Rated short-circuit breaking capacity lcu at 400 V, 50 Hz         VA         100-000           Overload release current setting         A         20-25           Adjustment range short-term delayed short-circuit release         A         30-00           Adjustment range undelayed short-circuit release         A         30-00           Legarated earth fault protection         No         No           Type of electrical connection of main circuit         Surange of protection (P)         Built-indevice plug-in technique           Divice construction         Versure of suxiliary contacts as normally closed contact         Versure of suxiliary contacts as normally closed contact         Versure of suxiliary contacts as normally closed contact         Versure of suxiliary contacts as change-over	protection (ecl@ss10.0.1-2/-3/-04-09 [AJZ/16013])		
Rated short-circuit breaking capacity lou at 400 V, 50 Hz         KA         150           Overload release current setting         A         20 - 25           Adjustment range short-term delayed short-circuit release         A         0 - 0           Adjustment range undelayed short-circuit release         A         350 - 350           Integrated earth fault protection         No         Screw connection           Type of electrical connection of main circuit         Screw connection         Screw connection           Device construction         Built-in device plug-in technique         Screw connection           Divide for DIN rail (top hat rail) mounting         Yes         No           Number of auxiliary contacts as normally closed contact         Yes         0           Number of auxiliary contacts as change-over contact         Yes         No           With switched-off indicator         No         No           With under voltage release         No         No           Number of poles         Integrated         No           Position of connection for main current circuit         For side         No           Type of control element         Rocker lever         Rocker lever           Complete device with protection unit         Yes         No           Motor drive integrated	Rated permanent current lu	Α	25
Overload release current setting         A         20-25           Adjustment range short-term delayed short-circuit release         A         0-0           Adjustment range undelayed short-circuit release         A         350-350           Integrated earth fault protection         B         No           Type of electrical connection of main circuit         Serew connection         Serew connection           Device construction         Suitable for DIN rail (top hat rail) mounting         Suitable for DIN rail (top hat rail) mounting optional         No         Yes           Number of auxiliary contacts as normally closed contact         Yes         0         O           Number of auxiliary contacts as change-over contact         Yes         0         O           With switched-off indicator         Yes         No         No           With under voltage release         Yes         No         No           Number of poles         Yes         No         No           Position of connection for main current circuit         Yes         No           Type of control element         Yes         Rocker lever           Complete device with protection unit         Yes         No           Motor drive optional         Yes         No	Rated voltage	V	690 - 690
Adjustment range short-term delayed short-circuit release Adjustment range undelayed short-circuit release Adjustment range undelayed short-circuit release Integrated earth fault protection Integrated earth fault protection of main circuit  Device construction Suitable for DIN rail (top hat rail) mounting DIN rail (top hat rail) mounting optional  No DIN rail (top hat rail) mounting optional  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  Number of pausiliary contacts as change-over contact  Number of pausiliary contacts as change-over contact  Number of poles  No	Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	150
Adjustment range undelayed short-circuit release Integrated earth fault protection Type of electrical connection of main circuit Device construction Suitable for DIN rail (top hat rail) mounting Suitable fo	Overload release current setting	А	20 - 25
Integrated earth fault protection Type of electrical connection of main circuit Device construction Suitable for DIN rail (top hat rail) mounting DIN rail (top hat rail) mounting optional Number of auxiliary contacts as normally closed contact Number of auxiliary contacts as normally open contact Number of auxiliary contacts as change-over contact Number of indicator Number of poles Number of poles Number of poles Number of connection for main current circuit Type of control element Complete device with protection unit Motor drive integrated Motor drive optional	Adjustment range short-term delayed short-circuit release	А	0 - 0
Type of electrical connection of main circuit  Device construction  Device construction  Suitable for DIN rail (top hat rail) mounting  DIN rail (top hat rail) mounting optional  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  With switched-off indicator  With under voltage release  Number of poles  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive integrated  Motor drive optional	Adjustment range undelayed short-circuit release	Α	350 - 350
Device construction  Suitable for DIN rail (top hat rail) mounting  DIN rail (top hat rail) mounting optional  No  Yes  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  With switched-off indicator  With under voltage release  No  Number of poles  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive integrated  Motor drive optional	Integrated earth fault protection		No
Suitable for DIN rail (top hat rail) mounting DIN rail (top hat rail) mounting optional Number of auxiliary contacts as normally closed contact Number of auxiliary contacts as normally open contact Number of auxiliary contacts as change-over contact Number of puxiliary contacts as change-over contact Number of puxiliary contacts as change-over contact No No No Number of poles No No No No No No No No Nortrol element Complete device with protection unit Notor drive integrated No	Type of electrical connection of main circuit		Screw connection
DIN rail (top hat rail) mounting optional  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  No  With switched-off indicator  With under voltage release  No  Number of poles  Acceptable  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive integrated  Motor drive optional  Yes  Yes  Yes  No  No  No  No  No  No  No  No  No  N	Device construction		Built-in device plug-in technique
Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  No  With switched-off indicator  With under voltage release  No  No  Number of poles  A  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive integrated  Motor drive optional  O  O  No  No  No  No  No  No  No  No	Suitable for DIN rail (top hat rail) mounting		No
Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  With switched-off indicator  With under voltage release  No  No  Number of poles  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive integrated  Motor drive optional  O  O  O  No  No  No  No  No  No  No  N	DIN rail (top hat rail) mounting optional		Yes
Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  No  With switched-off indicator  With under voltage release  No  Number of poles  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive integrated  No  Motor drive optional  O  O  O  O  O  O  O  O  O  O  O  O  O	Number of auxiliary contacts as normally closed contact		0
With switched-off indicator  With under voltage release  No  Number of poles  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive optional  No  No  No  No  No  No  No  No  No  Yes	Number of auxiliary contacts as normally open contact		0
With under voltage release No Number of poles 4 Position of connection for main current circuit Type of control element Complete device with protection unit Motor drive optional No	Number of auxiliary contacts as change-over contact		0
Number of poles  Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive optional  A 4  Front side  Rocker lever  Rocker lever  Yes  No  Yes	With switched-off indicator		No
Position of connection for main current circuit  Type of control element  Complete device with protection unit  Motor drive optional  Front side  Rocker lever  Yes  No  Yes	With under voltage release		No
Type of control element Complete device with protection unit Motor drive optional Rocker lever Yes No Yes	Number of poles		4
Complete device with protection unit  Yes  Motor drive integrated  No  Motor drive optional  Yes	Position of connection for main current circuit		Front side
Motor drive integrated No Motor drive optional Yes	Type of control element		Rocker lever
Motor drive optional Yes	Complete device with protection unit		Yes
·	Motor drive integrated		No
Degree of protection (IP) IP20	Motor drive optional		Yes
	Degree of protection (IP)		IP20

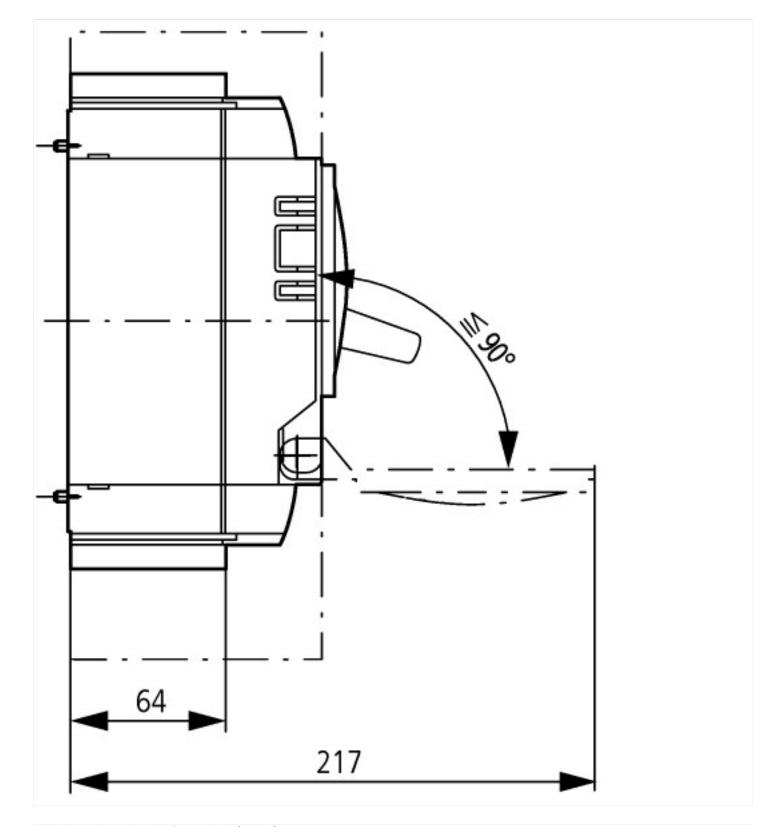






# **Dimensions**





# Additional product information (links)

Temperature dependency, Derating	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172
CurveSelect characteristics program	http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm
additional technical information for NZM power switch	https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf