DATASHEET - NZMN2-A250-SVE



Circuit-breaker, 3p, 250A, plug-in module

Part no. NZMN2-A250-SVE Catalog No. 113246

EL-Nummer (Norway)

0004357015



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
Number of poles			3 pole
Standard equipment			Screw connection
Switching capacity			
400/415 V 50 Hz	I _{cu}	kA	50
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	Α	250
Setting range			
Overload trip			
4	I _r	A	200 - 250
Short-circuit releases			
Non-delayed	$I_i = I_n x \dots$		6 - 10

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	- 40 - + 70
Operation	°C	-25 - +70
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27	g	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	kg	2.345
Mounting position		Vertical and 90° in all directions



With XFI earth-fault release:
- NZM1, N1, NZM2, N2: vertical and 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 with remote operator:
- NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions

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
01 1/4 1 1	

Circuit-breakers

400 V 50/60 Hz

Rated current = rated uninterrupted current	$I_n = I_u$	Α	250
Rated surge voltage invariability	U_{imp}		
Main contacts		V	8000
Auxiliary contacts		٧	6000
Rated operational voltage	U _e	V AC	690
Overvoltage category/pollution degree			III/3
Rated insulation voltage	Ui	V	1000
Use in unearthed supply systems		V	≦ 690

Switching capacity			
Rated short-circuit making capacity	I _{cm}		
240 V	I _{cm}	kA	187
400/415 V	I _{cm}	kA	105
440 V 50/60 Hz	I _{cm}	kA	74
525 V 50/60 Hz	I _{cm}	kA	53
690 V 50/60 H	Ic	kA	40
Rated short-circuit breaking capacity I_{cn}	I _{cn}		
Icu to IEC/EN 60947 test cycle 0-t-C0	lcu	kA	
240 V 50/60 Hz	I _{cu}	kA	85
400/415 V 50/60 Hz	I _{cu}	kA	50
440 V 50/60 Hz	I _{cu}	kA	35
525 V 50/60 Hz	I _{cu}	kA	25
690 V 50/60 Hz	I _{cu}	kA	20
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0	lcs	kA	
240 V 50/60 Hz	I _{cs}	kA	85
400/415 V 50/60 Hz	I _{cs}	kA	50
440 V 50/60 Hz	I _{cs}	kA	35
525 V 50/60 Hz	I _{cs}	kA	25
690 V 50/60 Hz	I _{cs}	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 _{cw}	kA	1.9
t = 1 s	I _{cw}	kA	85
Utilization category to IEC/EN 60947-2			A
Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release)	Operations		20000
Lifespan, electrical			
AC-1			

Operations

10000

690 V 50/60 Hz Opera AC3 400 V 50/60 Hz Opera 415 V 50/60 Hz Opera	m	7 6 6 6 5 5 5 5 5 5 5 6 5 6 6 6 6 6 6 6	10000 7500 6500 6500 5000 120 < 10 Screw connection NZM2-XSVS Box terminal Tunnel terminal
AC3 400 V 50/60 Hz Opera 415 V 50/60 Hz Opera 690 V 50/60 Hz Max. operating frequency Total break time at short-circuit Terminal capacity Standard equipment Accessories required Optional accessories Round copper conductor Box terminal Solid Stranded	ations ations or	6 6 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	6500 6500 5000 120 < 10 Screw connection NZM2-XSVS Box terminal Tunnel terminal
400 V 50/60 Hz 415 V 50/60 Hz 690 V 50/60 Hz Max. operating frequency Total break time at short-circuit Terminal capacity Standard equipment Accessories required Optional accessories Round copper conductor Box terminal Solid Stranded	ations ations Op	6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	6500 5000 120 < 10 Screw connection NZM2-XSVS Box terminal Tunnel terminal
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690 V 50/60 Hz Max. operating frequency Total break time at short-circuit Terminal capacity Standard equipment Accessories required Optional accessories Round copper conductor Box terminal Solid Stranded	ations Opm	E S S S S S S S S S S S S S S S S S S S	5000 120 < 10 Screw connection NZM2-XSVS Box terminal Tunnel terminal
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Total break time at short-circuit Terminal capacity Standard equipment Accessories required Optional accessories Round copper conductor Box terminal Solid Stranded	m	ns <	< 10 Screw connection NZM2-XSVS Box terminal Tunnel terminal
Terminal capacity Standard equipment Accessories required Optional accessories Round copper conductor Box terminal Solid Stranded		\$ M E	Screw connection NZM2-XSVS Box terminal Tunnel terminal
Standard equipment Accessories required Optional accessories Round copper conductor Box terminal Solid Stranded	mi	P E 1	NZM2-XSVS Box terminal Tunnel terminal
Accessories required Optional accessories Round copper conductor Box terminal Solid Stranded	mi	P E 1	NZM2-XSVS Box terminal Tunnel terminal
Optional accessories Round copper conductor Box terminal Solid Stranded	mi	E 1	Box terminal Tunnel terminal
Round copper conductor Box terminal Solid Stranded	mı	1	Tunnel terminal
Box terminal Solid Stranded	mı		connection on rear
Solid Stranded	mı		
Stranded	mı		
			1 x (10 - 16) 2 x (6 - 16)
Tunnel terminal	mı		1 x (25 - 185) 2 x (25 - 70)
Tullilet terminal			
Solid	mı	nm ² 1	1 x 16
Stranded			
1-hole	mı	nm ² 1	1 x (25 - 185)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid	mı		1 x (10 - 16) 2 x (6 - 16)
Stranded	mı	nm ² 1	1 x (25 - 185) 2 x (25 - 70)
Al circular conductor			
Tunnel terminal			
Solid	mı	nm ² 1	1 x 16
Stranded			
Stranded	mı	nm ² 1	1 x (25 - 185)
Cu strip (number of segments x width x segment thickness)	""		
Box terminal			
min.	mı	nm 2	2×9×0.8
max.			10 x 16 x 0.8
III.			(2x) 8 x 15.5 x 0,8
Bolt terminal and rear-side connection			
Flat copper strip, with holes min.	mı	nm 2	2 x 16 x 0.8
Flat copper strip, with holes max.	mı	nm 1	10 x 24 x 0.8
Copper busbar (width x thickness) mm			
Bolt terminal and rear-side connection			
Screw connection		N	M8
Direct on the switch			
min.	mı	nm 1	16 x 5
max.	mı	nm 2	24 x 8
Control cables			
		nm ² 1	1 x (0.75 - 2.5)

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	250
Equipment heat dissipation, current-dependent	P _{vid}	W	58.13
Operating ambient temperature min.		°C	-25

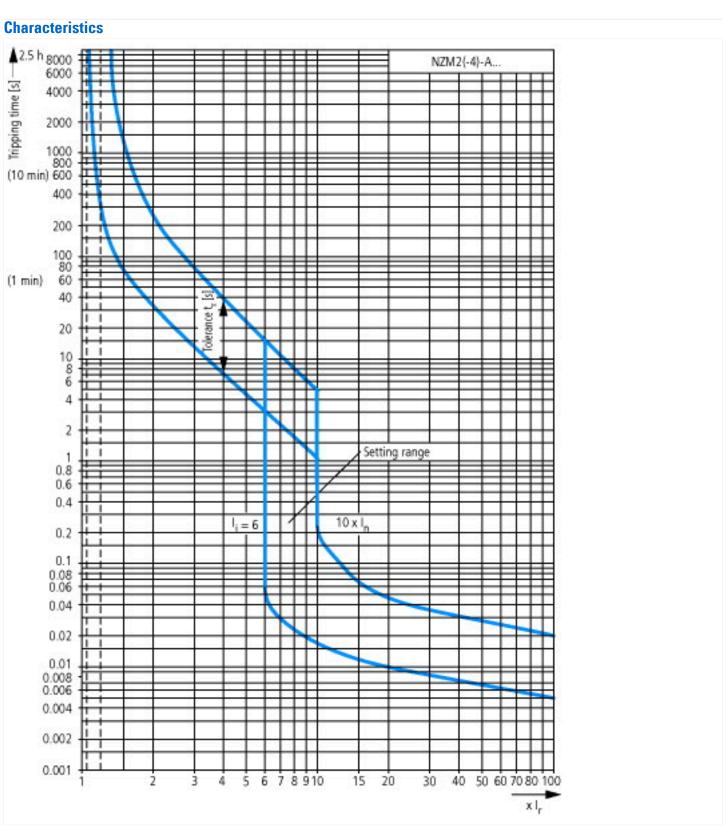
Operating ambient temperature max.	°C	70
IEC/EN 61439 design verification		
10.2 Strength of materials and parts		
10.2.2 Corrosion resistance		Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures		Meets the product standard's requirements.
10.2.3.2 Verification 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.

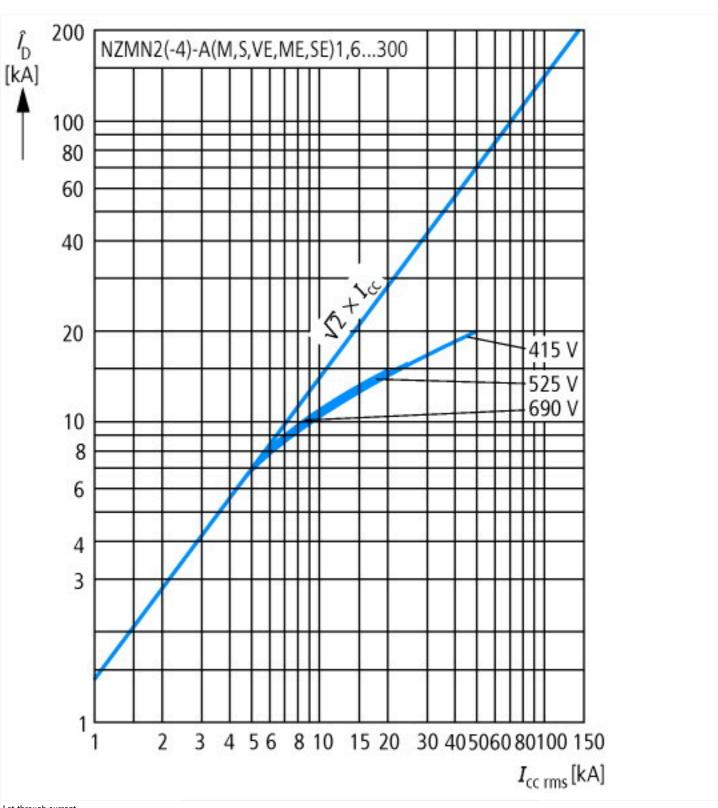
Technical data ETIM 7.0

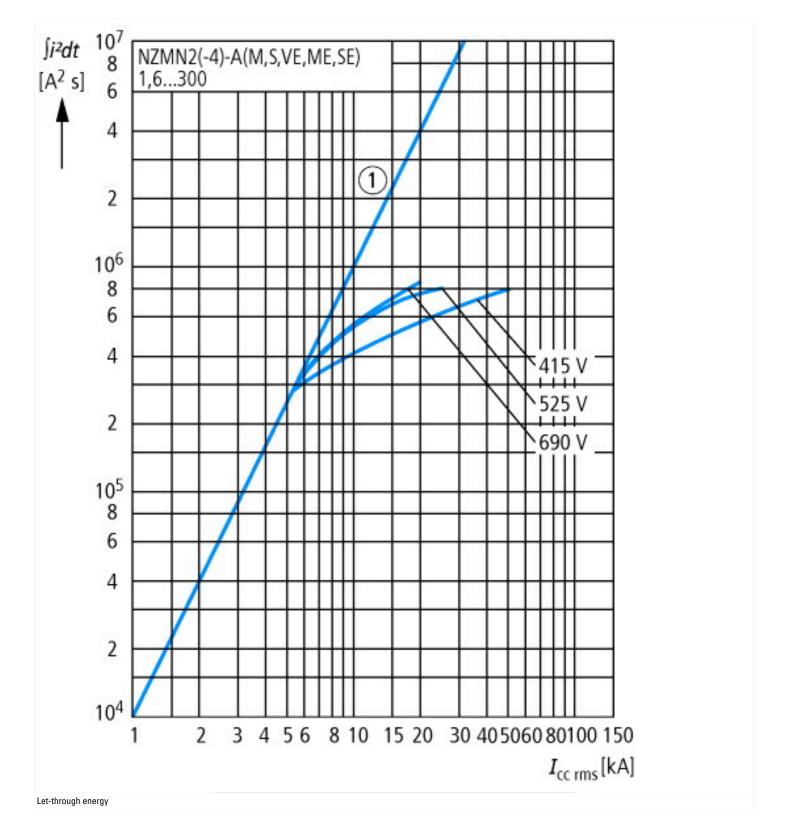
 $Low-voltage\ industrial\ components\ (EG000017)\ /\ Power\ circuit-breaker\ for\ trafo/generator/installation\ protection\ (EC000228)$

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])

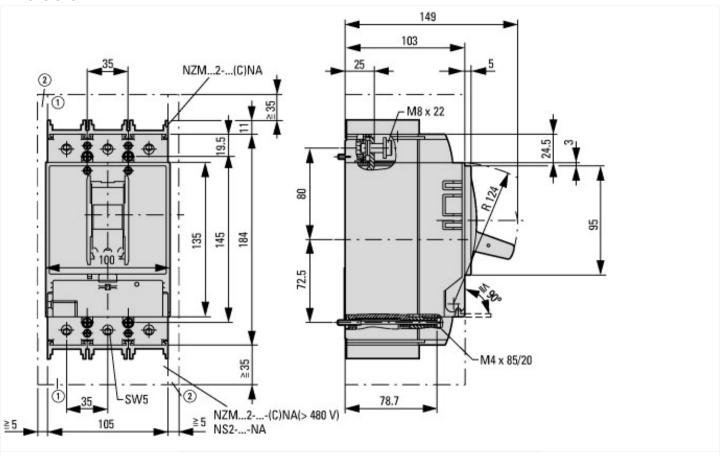
Rated permanent current lu A 250 Rated voltage V 60-690 Rated voltage KA 50-690 Rated voltage KA 50-20 Overload release current setting A 20-250 Adjustment range short-term delayed short-circuit release A 100-20 Adjustment range undelayed short-circuit release B 100-20 Adjustment range undelayed short-circuit release B 100-20 Type of electrical connection of main circuit B 100-20 Device construction Built-in device plug-in technique 100-20 Number of Juxiliary contacts as normally closed contact 90-20 100-20 Number of auxiliary contacts as normally open contact 100-20 100-20 With switched-off indicator 100-20 <th>protection (ecl@ss10.0.1-2/-3/-04-09 [AJZ/16013])</th> <th></th> <th></th>	protection (ecl@ss10.0.1-2/-3/-04-09 [AJZ/16013])		
Rated short-circuit breaking capacity lou at 400 V, 50 Hz KA 50 Overload release current setting A 200 - 250 Adjustment range short-term delayed short-circuit release A 0 - 0 Adjustment range undelayed short-circuit release A 1500 - 2500 Integrated earth fault protection No No Type of electrical connection of main circuit Screw connection Device construction Built-in device plug-in technique Suitable for DIN rail (top hat rail) mounting No Number of auxiliary contacts as normally closed contact No Number of auxiliary contacts as normally open contact 0 Number of auxiliary contacts as change-over contact 0 With switched-off indicator No With under voltage release No Number of poles 3 Position of connection for main current circuit Front side Type of control element Rocker lever Complete device with protection unit No Motor drive integrated No Motor drive optional Yes	Rated permanent current lu	Α	250
Overload release current setting A 200 - 250 Adjustment range short-term delayed short-circuit release A 0 - 0 Adjustment range undelayed short-circuit release A 1500 - 2500 Integrated earth fault protection B 1500 - 2500 Type of electrical connection of main circuit Screw connection Screw 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 0 Number of auxiliary contacts as change-over contact Yes 0 0 With switched-off indicator Yes No 0 With under voltage release Yes No 0 Number of poles Yes No 0 Position of connection for main current circuit Yes Font side 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 Type of electrical connection of main circuit Device construction Suitable for DIN rail (top hat rail) mounting DIN rail (top hat rail) mounting optional DIN rail (top hat rail) mounting optional 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 Number of pales Number of poles Number of poles Position of connection for main current circuit Type of control element Complete device with protection unit Motor drive integrated Motor drive integrated Motor drive optional	Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	50
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 for DIN rail (top hat rail) mounting DIN rail (top hat rail) mounting optional Suitable for DIN rail (top hat rail) mounting OIN rail (top hat rail) mounting optional Suitable for DIN rail (top hat rail) mounting optional Suitable for DIN rail (top hat rail) mounting optional OIN rail (top hat rail) mounting optional Suitable for DIN rail (top hat rail) mounting optional OIN rail (top hat rail) mounting OIN rai	Overload release current setting	А	200 - 250
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 auxiliary contacts as change-over contact Number of poles No	Adjustment range short-term delayed short-circuit release	Α	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	1500 - 2500
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 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	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	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 Position of connection for main current circuit Type of control element Complete device with protection unit Motor drive integrated Motor drive optional	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 With switched-off indicator 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 O O O O O O O O O O	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	DIN rail (top hat rail) mounting optional		Yes
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 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 Number of connection for main current circuit Type of control element Complete device with protection unit Motor drive integrated No	Number of auxiliary contacts as normally open contact		0
With under voltage release Number of poles Solition of connection for main current circuit Type of control element Complete device with protection unit Motor drive optional No Solition of connection for main current circuit Type of control element No Solition of connection for main current circuit Type of control element No Solition of connection for main current circuit Type of control element No Solition of connection for main current circuit No Solition of	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 3 Rocker lever Rocker lever Yes No 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 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		3
Complete device with protection unit Yes Motor drive integrated Motor drive optional Yes Yes	Position of connection for main current circuit		Front side
Motor drive integrated No 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



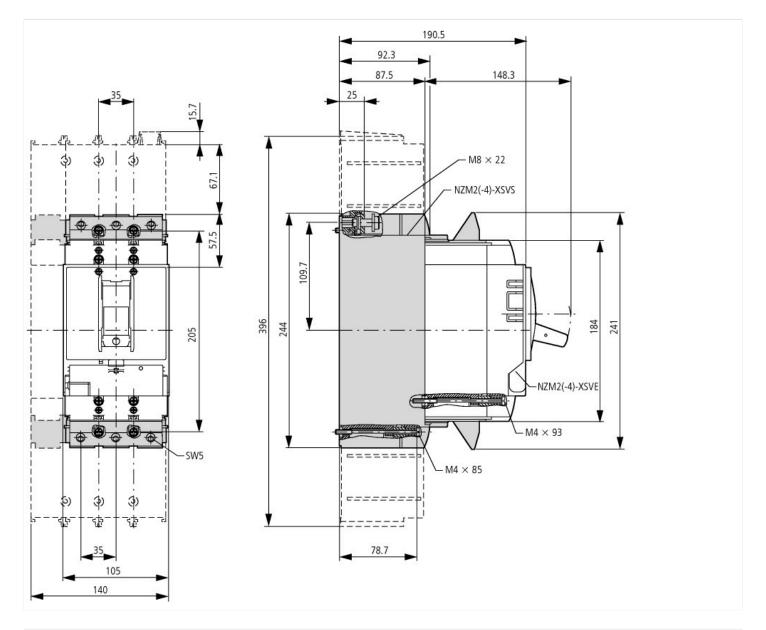




Dimensions



Blow out area, minimum clearance to adjacent parts
 Minimum clearance to adjacent parts



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	ftp://ftp.moeller.net/DOCUMENTATION/PDF/nzm_technic_de_en.pdf