DATASHEET - NZMC2-4-A160-SVE



Circuit-breaker, 4p, 160A, plug-in module

NZMC2-4-A160-SVE Part no. Catalog No. 113233



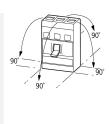
Similar to illustration

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 _{cu}	kA	36
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	Α	160
Neutral conductor	% of phase conductor	CSA	100
Setting range			
Overload trip			
中	I _r	A	125 - 160
Main pole	I _r	A	125 - 160
Short-circuit releases			
Non-delayed	$I_i = I_n x \dots$		6 - 10

Technical data

General

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	9	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
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

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
Circuit breakers	

Circuit-breakers

Rated current = rated uninterrupted current	$I_n = I_u$	Α	160
Rated surge voltage invariability	U_{imp}		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	U _e	V AC	690
Overvoltage category/pollution degree			III/3
Rated insulation voltage	Ui	V	690
Use in unearthed supply systems		V	≦ 690

Switching capacity

Max. operating frequency

Switching capacity			
Rated short-circuit making capacity	I _{cm}		
240 V	I _{cm}	kA	121
400/415 V	I _{cm}	kA	76
440 V 50/60 Hz	I _{cm}	kA	63
525 V 50/60 Hz	I _{cm}	kA	24
690 V 50/60 H	Ic	kA	14
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	55
400/415 V 50/60 Hz	I _{cu}	kA	36
440 V 50/60 Hz	I _{cu}	kA	30
525 V 50/60 Hz	I _{cu}	kA	12
690 V 50/60 Hz	I _{cu}	kA	8
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0	Ics	kA	
240 V 50/60 Hz	I _{cs}	kA	55
400/415 V 50/60 Hz	I _{cs}	kA	36
440 V 50/60 Hz	I _{cs}	kA	22.5
525 V 50/60 Hz	I _{cs}	kA	6
690 V 50/60 Hz	I _{cs}	kA	4
			Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.
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			
400 V 50/60 Hz	Operations		10000
415 V 50/60 Hz	Operations		7500
690 V 50/60 Hz	Operations		5000

Ops/h 120

	ms	< 10
		Screw connection
		NZM2-4-XSVS
		Box terminal Tunnel terminal connection on rear
	mm ²	1 x (10 - 16) 2 x (6 - 16)
	mm ²	1 x (25 - 185) 2 x (25 - 70)
	mm^2	1 x 16
	mm ²	1 x (25 - 185)
	mm ²	1 x (10 - 16) 2 x (6 - 16)
	mm ²	1 x (25 - 185) 2 x (25 - 70)
	mm^2	1 x 16
	mm ²	1 x (25 - 185)
min.	mm	2 x 9 x 0.8
max.	mm	10 x 16 x 0.8 (2x) 8 x 15.5 x 0,8
min.	mm	2 x 16 x 0.8
max.	mm	10 x 24 x 0.8
mm		
		M8
min.	mm	16 x 5
max.	mm	24 x 8
	mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)
	max. min. max. mm	mm²

Design verification as per IEC/EN 61439

•			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	160
Equipment heat dissipation, current-dependent	P_{vid}	W	38.4
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.

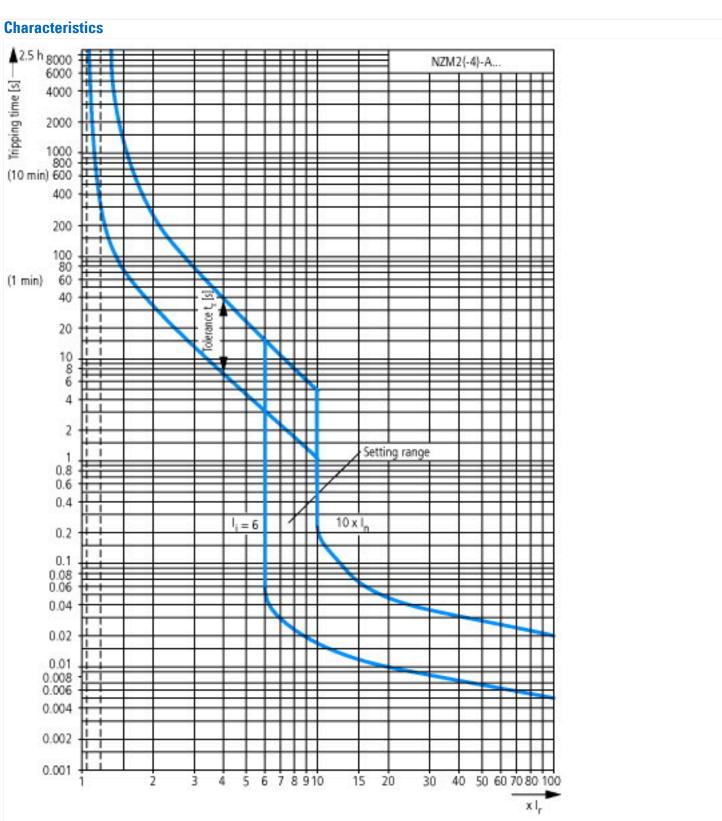
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects	Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.2.5 Lifting	Does not apply, since the entire 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 lobserved.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

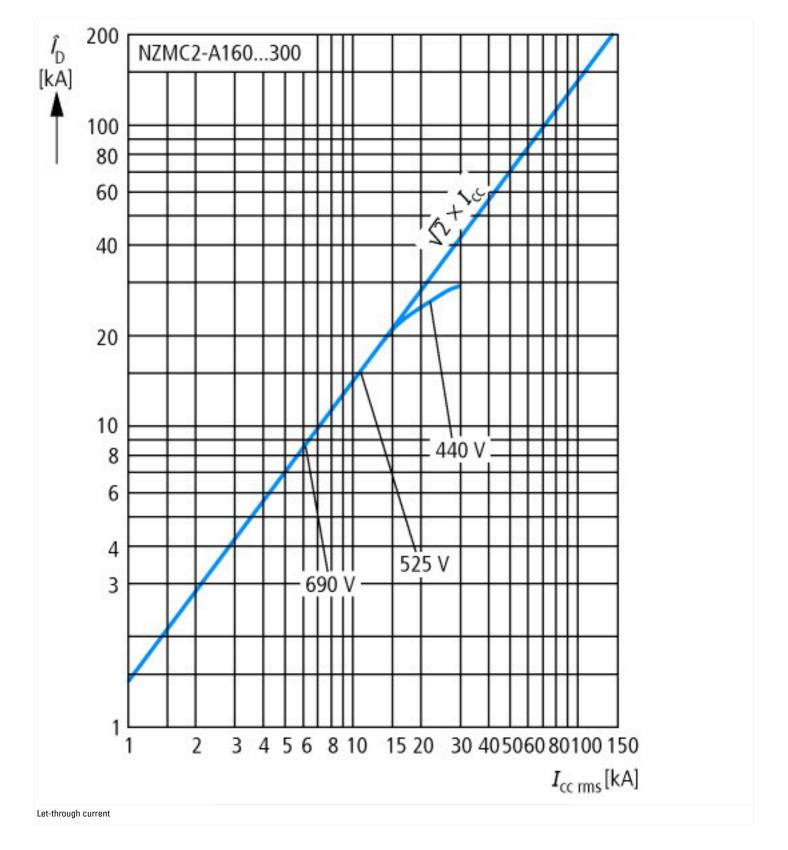
Technical data ETIM 7.0

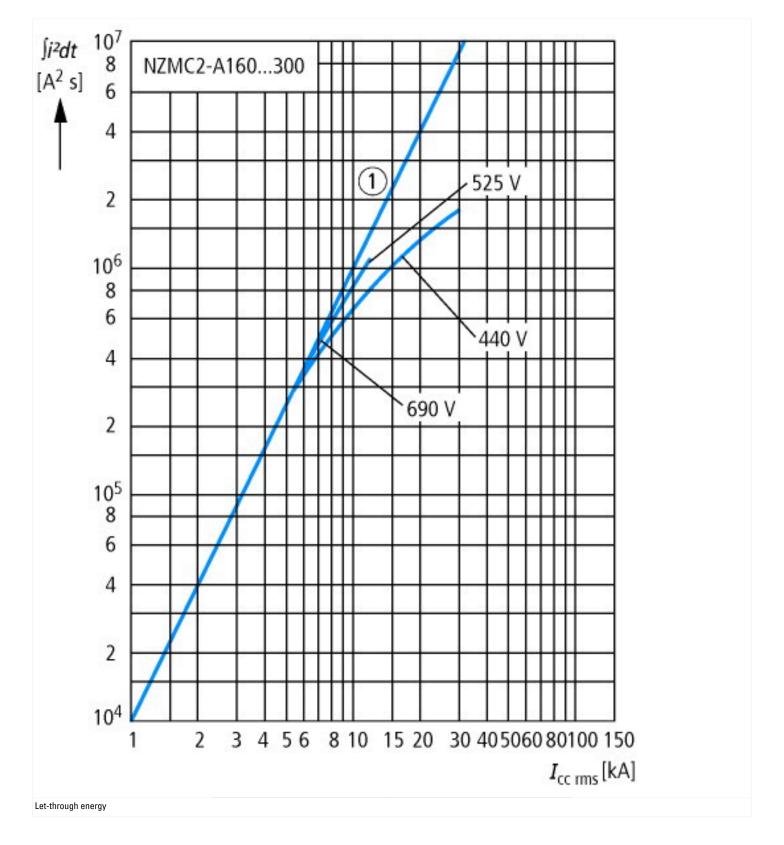
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (aci@ss10.01.27.27.04.09 [A 17716013])

protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013])		
Rated permanent current lu	А	160
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	36
Overload release current setting	А	125 - 160
Adjustment range short-term delayed short-circuit release	Α	0 - 0
Adjustment range undelayed short-circuit release	Α	6 - 10
Integrated earth fault protection		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
DIN rail (top hat rail) mounting optional		Yes
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
With switched-off indicator		No
With under voltage release		No
Number of poles		4
Position of connection for main current circuit		Front side
Type of control element		Rocker lever
Complete device with protection unit		Yes
Motor drive integrated		No
Motor drive optional		Yes
Degree of protection (IP)		IP20

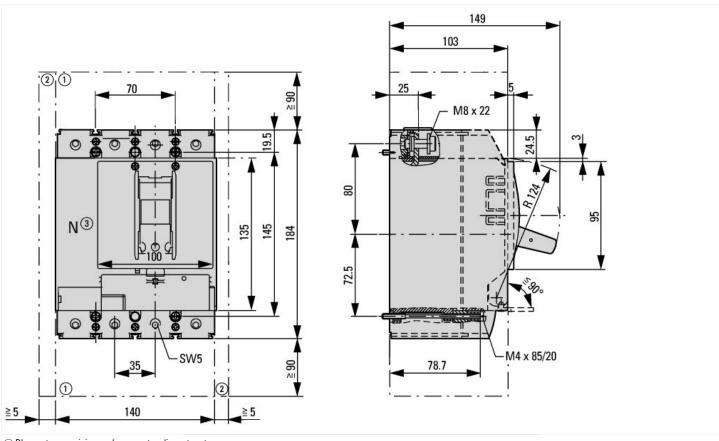


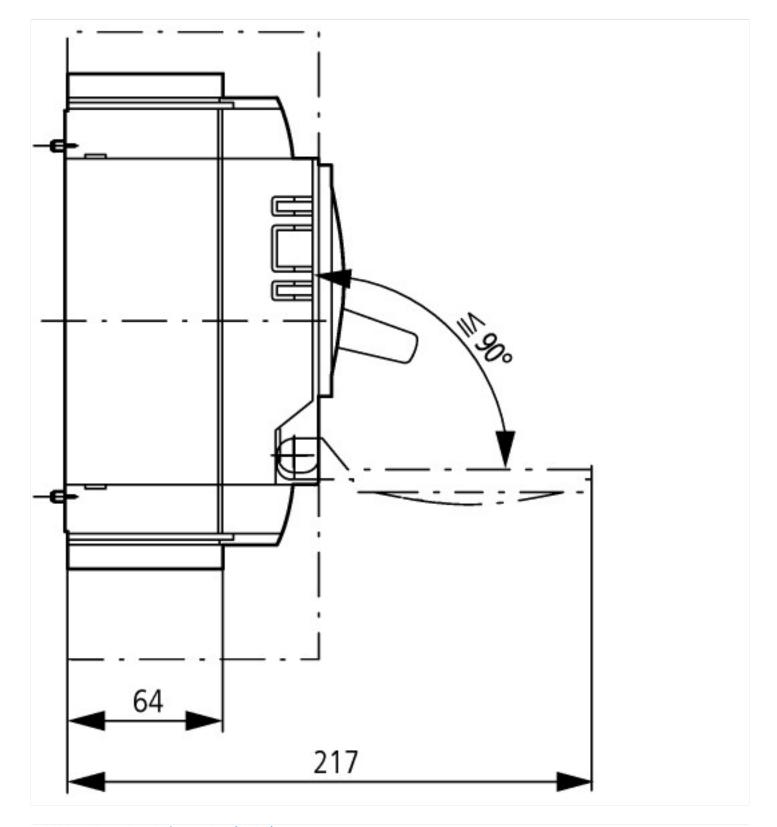




7/9

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