### DATASHEET - NZMC2-4-A160/100-SVE

Part no. Catalog No.



Circuit-breaker, 4p, 160A, 100A in 4th pole, plug-in module

NZMC2-4-A160/100-SVE 113234



Similar to illustration

#### **Delivery program**

Product range     Interview     Circuit-breaker       Product vange     System and cable protection       Standard Approval     System and cable protection       Standard Approval     System and cable protection       Release system     System and cable protection       Rotes option     System and cable protection       Number of poles     System and cable protection synchronous with set value Ir of main pole.       Number of poles     System and cable protection synchronous with set value Ir of main pole.       Number of poles     System and set of main protection synchronous with set value Ir of main pole.       Synchring capacity     System and set of main pole.       Number of poles     Interview       And data quipment     Interview       Synchring capacity     Interview       Quirt Is Yob Ir.     Interview       And data conductor protection     Interview       Neutral conductor protection     Interview       Neutral conductor protection     Interview       Setting range     Interview       Onerload in     Interview       Interview     Interview       Interview     Interview       Interview     Interview       Interview     Interview       Interview     Interview       Interview     Interview       Interview <t< th=""><th></th><th></th><th></th><th></th></t<>				
Shadard/Approval     Ic     Ic     Ic       Installation type     Plug-in units       Release system     Termomagnetic release       Construction size     NZM2       Description     Set value in neural conductor is synchronous with set value Ir of main pole       Number of poles     Set value in neural conductor is synchronous with set value Ir of main pole       Standard squipment     Fee     Ser sev connection       Switching capacity     Ice     Ser sev connection       Ad0/15 V50 Hz     Ice     Ser sev connection       Reted current = rated uninterrupted current     Ice     Ser sev connection       Neutral conductor protection     Ice     Set sev connection       Neutral conductor protection     Ice     Set sev connection       Neutral conductor protection     Ice     Set sev connection       Setting range     Ice     Ice     Reluced neutral conductor protection       Verload trip     Ice     Ice     Reluced neutral conductor protection       Main pole     Ir     Ice     Set sev connection       Name of the set set set set set set set set set se	Product range			Circuit-breaker
Installation type     Image in the second seco	Protective function			System and cable protection
Release systm     Immoniagetic release       Construction size     NZM2       Description     V2M2       Number of poles     St value in neutral conductor is synchronous with set value Ir of main pole.       Standard equipment     Serve connection       Storde drug the related uninterrupted current     Immoniagetic release       Rated current = rated uninterrupted current     Immoniagetic release       Reduced neutral conductor protection     Immoniagetic release       Neutral conductor protection     Immoniagetic release       Setting range     Immoniagetic release       Overload trip     Immoniagetic release       Main pole     Immoniagetic release       Short-circuit releases     Immoniagetic release       Short-circuit releases     Immoniagetic release	Standard/Approval			IEC
Construction size     Image: Size     Size     Size value in neutral conductor is synchronous with set value Ir of main pole.       Number of poles     Verter Size     4 pole       Standard equipment     Screw connection       Switching capacity     Image: Size     Screw connection       400/415 V 50 Hz     Image: Size     Screw connection       Rated current = rated uninterrupted current     Image: Size     Screw connection       Rated current = rated uninterrupted current     Image: Size     Screw connection       Neutral conductor protection     Image: Size     Screw connection       Neutral conductor protection     Image: Size     Screw connection       Overload trip     Image: Size     Screw connection       Stating range: Overload trip     Image: Size     Screw connection       Signed Size     Image: Size     Image: Size     Screw connection       Main pole     Image: Size     Image: Size     Screw connection       Size     Image: Size     Image: Size     Screw connection	Installation type			Plug-in units
Description     Figure 2     Set value in neutral conductor is synchronous with set value ir of main pole.       Number of poles     4 pole       Standard equipment     Screw connection       400/415 V50 Hz     Leu     KA       Added current = rated uninterrupted current     Image: Conductor is synchronous with set value ir of main pole.       Rated current = rated uninterrupted current     Image: Conductor is synchronous with set value ir of main pole.       Rated current = rated uninterrupted current     Image: Conductor is synchronous with set value ir of main pole.       Rated current = rated uninterrupted current     Image: Conductor is synchronous with set value ir of main pole.       Neutral conductor protection     Sof spase conductor     Reduced neutral conductor protection       Neutral conductor protection     A main pole     Reduced neutral conductor protection       Main pole     Image: Conductor     Image: Conductor protection       Short-circuit releases     Image: Conductor     Image: Conductor       Short-circuit releases     Image: Conductor ir conductor protection     Image: Conductor	Release system			Thermomagnetic release
Number of poles     Image: standard equipment     Image: stan	Construction size			NZM2
Stadard equipment     Image: Construction       Switching capacity     Icu     Kau       400/415 V 50 Hz     Icu     Kau       Rated current = rated uninterrupted current     Icu     Kau       Rated current = rated uninterrupted current     Icu     Kau       Neutral conductor     Icu     Kau       Reduced neutral conductor protection     Icu     Kau       Neutral conductor protection     Icu     Kau       Overload trip     Icu     Kau       Main pole     Icu     Icu       Short-circuit releases     Icu     Icu       Short-circuit releases     Icu     Icu	Description			Set value in neutral conductor is synchronous with set value Ir of main pole.
Switching capacityIcuIcuKat400/415 V 50 HzIcuKat36Rated current = rated uninterrupted currentIn = IA100Rated current = rated uninterrupted currentA00Neutral conductor protectionA100Neutral conductor protectionAReduced neutral conductor protectionNeutral conductor protectionA100Neutral conductor protectionA <t< td=""><td>Number of poles</td><td></td><td></td><td>4 pole</td></t<>	Number of poles			4 pole
400/415 V 50 HzreuKA66Rated current = rated uninterrupted currentIn = IuInRated current = rated uninterrupted currentIn = IuInNeutral conductorIn = IuInNeutral conductor protectionInInNeutral conductor protectionInInInInInNeutral conductor protectionIn	Standard equipment			Screw connection
Rated current = rated uninterrupted current     Image: Second control     Image: Secon	Switching capacity			
Rated current = rated uninterrupted current       In = Iu       A       60         Neutral conductor       Seconductor       A       60         Reduced neutral conductor protection       A       Model neutral conductor protection         Neutral conductor protection       A       Model neutral conductor protection         Setting range       A       Reduced neutral conductor protection         Overload trip       F       Reduced neutral conductor protection         Image: Setting range       Image: Setting range       F         Setting range       Image: Setting range       F         Image: Setting range       Image: Setting range       F         Image: Setting range       Image: Setting range       F         Image: Setting range       Image: Setting range       Image: Setting range         Image: Setting range       Image: Setting range       Image: Setting range         Image: Setting range       Image: Setting range       Setting range         Image: Setting range       Image: Setting range       Image: Setting range         Image: Setting range       Image: Setting range       Image: Setting range         Image: Setting range       Image: Setting range       Image: Setting range         Image: Setting range       Image: Setting range       Image: Seti	400/415 V 50 Hz	l <sub>cu</sub>	kA	36
Neutral conductor       % of phase conductor <td>Rated current = rated uninterrupted current</td> <td></td> <td></td> <td></td>	Rated current = rated uninterrupted current			
Image: Conductor         Conductor         Conductor protection         A         10           Neutral conductor protection         Feduced neutral conductor protection         Reduced neutral conductor protection           Setting range         Feduced neutral conductor protection         Feduced neutral conductor protection           Overload trip         Feduced neutral conductor protection         Feduced neutral conductor protection           Main pole         Ir         A         125 - 160           Short-circuit releases         Ir         A         80 - 100	Rated current = rated uninterrupted current	$I_n = I_u$	А	160
Neutral conductor protection       Reduced neutral conductor protection         Setting range       Percention       Reduced neutral conductor protection         Overload trip       Image: Percention       Image: Percention         Image: Percention       Image: Percention	Neutral conductor	% of phase conductor	%	60
Setting range     Image: Setting range       Overload trip     Image: Setting range       Image: Short-circuit releases     Image: Short-circuit releases	Reduced neutral conductor protection		А	100
Overload trip     Image: Constraint of the second of the sec	Neutral conductor protection			Reduced neutral conductor protection
Image: ProblemImage: ProblemImage: ProblemImage: ProblemImage: ProblemMain poleImage: ProblemImage: ProblemImage: ProblemImage: ProblemShort-circuit releasesImage: ProblemImage: ProblemImage: ProblemShort-circuit releasesImage: ProblemImage: ProblemImage: Problem	Setting range			
Main pole     Ir     A     80 - 100       Short-circuit releases     Ir     Ir     Ir	Overload trip			
Short-circuit releases	द	l <sub>r</sub>	A	125 - 160
	Main pole	l <sub>r</sub>	A	80 - 100
Non-delayed I <sub>i</sub> = I <sub>n</sub> x 6 - 10				
	Non-delayed	l <sub>i</sub> = l <sub>n</sub> x		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 A	C 500
between the auxiliary contacts	V A	C 300

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 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) Circuit-breakers			Temperature dependency, Derating
CITCUIT-DREAKERS Rated current = rated uninterrupted current	I <sub>n</sub> = I <sub>u</sub>	А	160
Rated surge voltage invariability	U <sub>imp</sub>		
	O <sub>IMp</sub>	V	2000
Main contacts		v	8000 6000
Auxiliary contacts Rated operational voltage	U <sub>e</sub>	V AC	690
	0 <sub>e</sub>	V AU	111/3
Overvoltage category/pollution degree Rated insulation voltage	Ui	V	690
Use in unearthed supply systems	01	v	≦ 690
Switching capacity		v	= 050
Rated short-circuit making capacity	I <sub>cm</sub>		
240 V	I <sub>cm</sub>	kA	121
400/415 V	I <sub>cm</sub>	kA	76
440 V 50/60 Hz	I <sub>cm</sub>	kA	63
525 V 50/60 Hz	I <sub>cm</sub>	kA	24
690 V 50/60 H	lc	kA	14
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	55
400/415 V 50/60 Hz	I <sub>cu</sub>	kA	36
440 V 50/60 Hz	I <sub>cu</sub>	kA	30
525 V 50/60 Hz		kA	12
690 V 50/60 Hz	I <sub>cu</sub> I <sub>cu</sub>	kA kA	8
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0		kA	
240 V 50/60 Hz	lcs	кА kA	55
	I <sub>cs</sub>		
400/415 V 50/60 Hz	I <sub>cs</sub>	kA kA	36
440 V 50/60 Hz	I <sub>cs</sub>	kA	22.5
525 V 50/60 Hz	I <sub>cs</sub>	kA	6
690 V 50/60 Hz Utilization category to IEC/EN 60947-2	I <sub>cs</sub>	kA	4 Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker. 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

Max. operating frequency		Ops/h	120
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
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		mm <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		mm <sup>2</sup>	1 x 16
Stranded			
Stranded		mm <sup>2</sup>	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	l <sub>n</sub>	А	160
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	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.

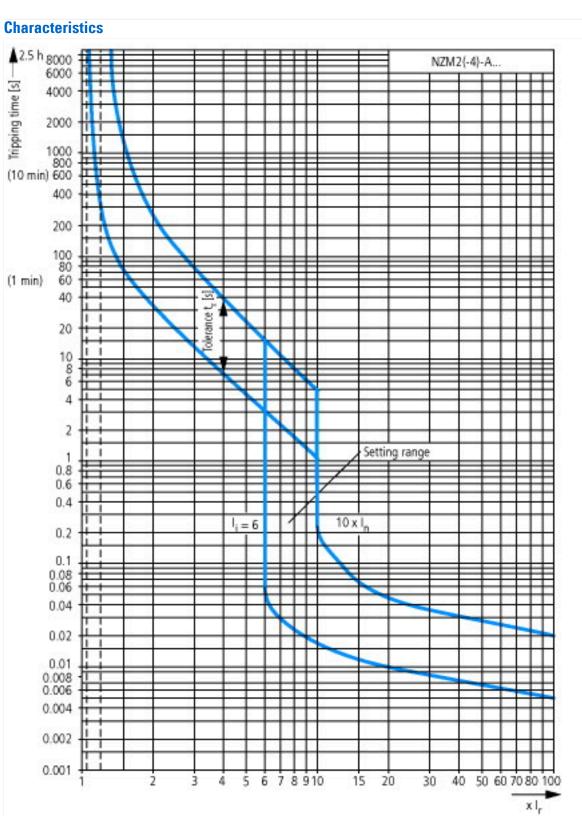
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects	Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.2.5 Lifting	Does not apply, since the entire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

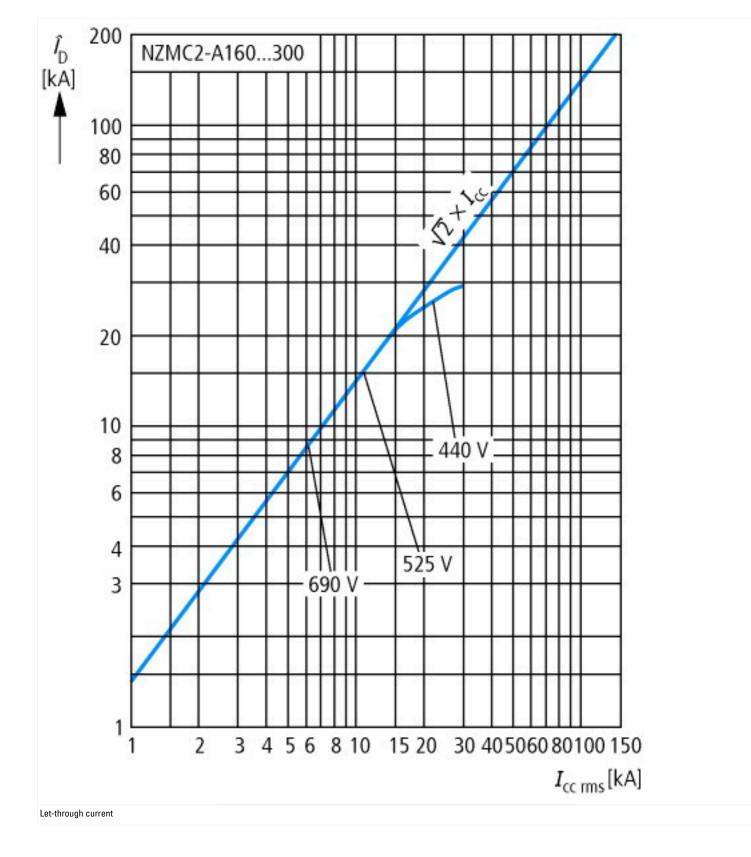
#### **Technical data ETIM 7.0**

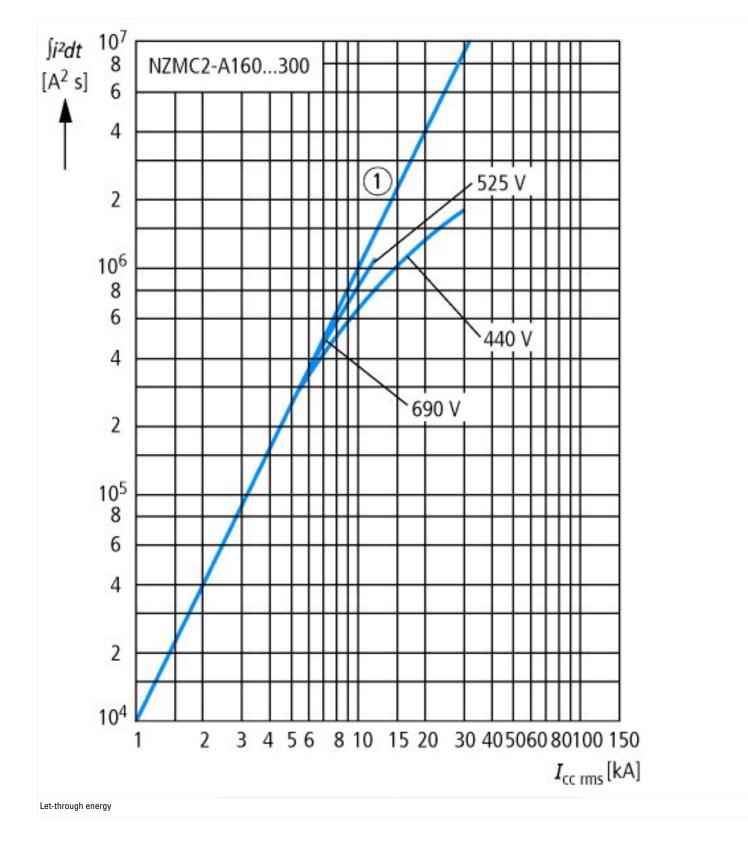
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

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])

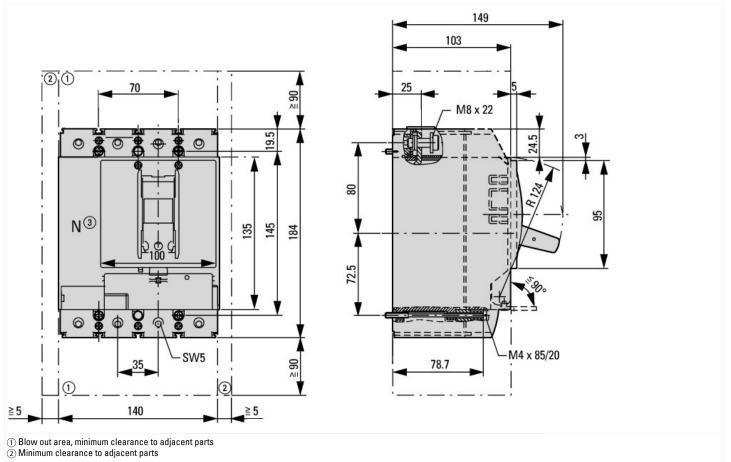
Rated permanent current lu	А	160
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	36
Overload release current setting	А	125 - 160
Adjustment range short-term delayed short-circuit release	А	0 - 0
Adjustment range undelayed short-circuit release	А	6 - 10
Integrated 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

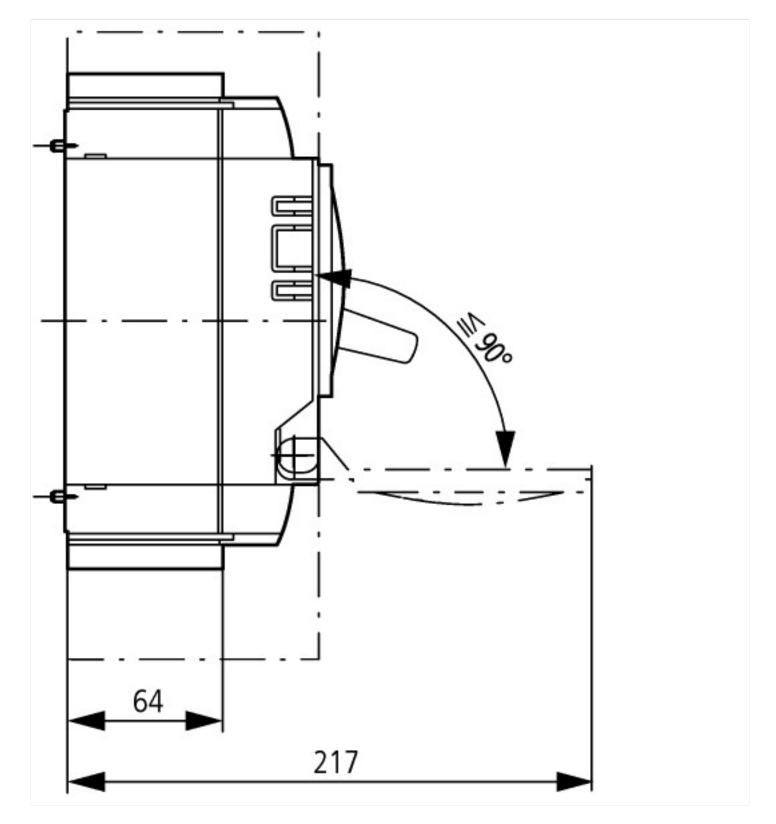












# Additional product information (links)

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