DATASHEET - NZMN2-A125



Circuit-breaker, 3p, 125A

Part no.

NZMN2-A125 Catalog No. 259091



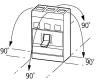
Similar to illustration

Delivery program

Product range			Circuit-breaker
Protective function			System and cable protection
Standard/Approval			IEC
Installation type			Fixed
Release system			Thermomagnetic release
Construction size			NZM2
Number of poles			3 pole
Standard equipment			Screw connection
Switching capacity			
400/415 V 50 Hz	l _{cu}	kA	50
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	А	125
Setting range			
Overload trip			
с‡	l _r	A	100 - 125
Short-circuit releases			
Non-delayed	I _i = I _n x		6 - 10
Short-circuit releases	I _{rm}	A	750 - 1250

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	Į	g	20 (half-sinusoidal shock 20 ms)
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts	١	V AC	500
between the auxiliary contacts	١	V AC	300
Weight	ł	kg	2.345
Mounting position			Vertical and 90° in all directions



90° 90°	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: - NZM4, N(S)4: vertical and 90° in all directions
as required	
In the operating controls area: IP2	0 (basic degree of protection)
With insulating surround: IP40 With door coupling rotary handle:	IP66
Tunnel terminal: IP10 Phase isolator and strip terminal: I	P00
Temperature dependency, Deratin	g

А	125
V	8000
V	6000
V AC	690
V DC	750

The following settings are required in order to ensure correct tripping:

The fast-response release will take longer to respond when used for DC applications. Because of this, the setting on the trip block inscription, which is specified for AC currents, must be set to a lower value for DC currents.

DC correction factor for instantaneous release response value:

o NZM1: 1.25

 $I_n = I_u$

U_{imp}

Ue

Ue

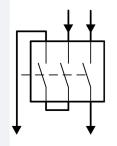
- o NZM2: 1.35
- o NZM3: 1.45
- Example: NZM3 le = 500A. Desired DC tripping current: 10 * le = 5000A.

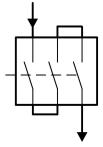
Calculation:

• Desired DC value / correction factor = AC setting on trip block

• 5000A / 1.45 = 3448 A ~ 7 * Ie = Value that needs to be set on the trip block

Permitted circuit configurations:





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 \mathbf{I}_{cn}	I _{cn}		

Direction of incoming supply Degree of protection Device Enclosures

Terminations

Circuit-breakers

Main contacts Auxiliary contacts Rated operational voltage

Rated operational voltage

Other technical data (sheet catalogue)

Rated surge voltage invariability

Rated current = rated uninterrupted current

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
500 V DC	I _{cu}	kA	30
750 V DC	I _{cu}	kA	30
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
500 V DC	I _{cs}	kA	7.5
750 V DC	I _{cs}	kA	7.5
	.08		Maximum back-up fuse, if the expected short-circuit currents at the installation
			location exceed the switching capacity of the circuit currents at the installation
Rated short-time withstand current			
t = 0.3 s	I _{cw}	kA	1.9
t = 1 s	I _{cw}	kA	1.9
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		10000
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		5000
DC-1	0		
500 V DC	Operations		7500
750 V DC	Operations		7500
DC - 3 500 V DC	Operations		2000
500 V DC 750 V DC	Operations Operations		3000
Max. operating frequency	operations	Ops/h	120
Total break time at short-circuit		ms	< 10
Terminal capacity			
Standard equipment			Screw connection
Optional accessories			Box terminal Tunnel terminal connection on rear
Round copper conductor			
Box terminal			
Solid		mm ²	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm ²	1 x (25 - 185) 2 x (25 - 70)
Tunnel terminal			
Solid		mm ²	1 x 16
Stranded			
1-hole		mm ²	1 x (25 - 185)
Bolt terminal and rear-side connection			

Direct on the quiteb			
Direct on the switch			
Solid		mm ²	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm ²	1 x (25 - 185) 2 x (25 - 70)
Al circular conductor			
Tunnel terminal			
Solid		mm ²	1 x 16
Stranded			
Stranded		mm ²	1 x (25 - 185)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm ²	1 x (10 - 16) 2 x (10 - 16)
Stranded		mm ²	1 x (25 - 50) 2 x (25 - 50)
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 ²	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	I _n	А	125
Equipment heat dissipation, current-dependent	P _{vid}	W	27.61
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			

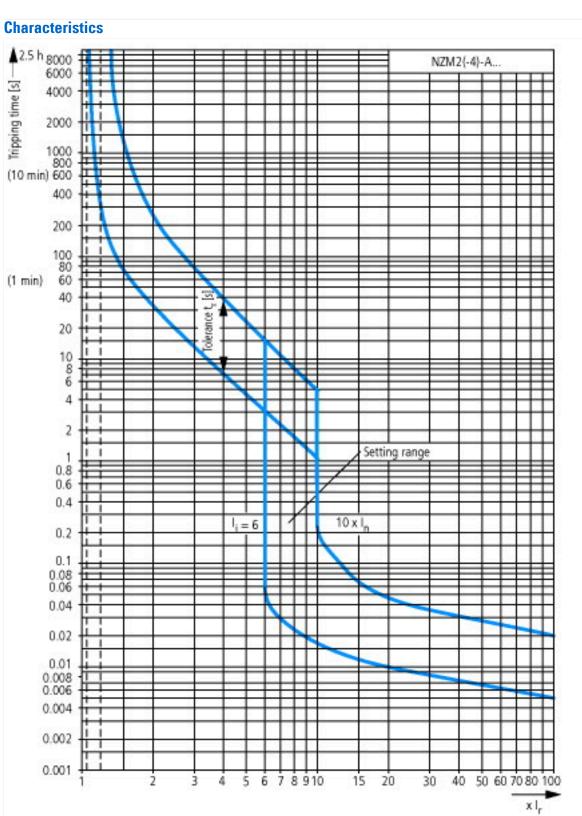
10.9.2 Power-frequency electric strength	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material	Is the panel builder's responsibility.
10.10 Temperature rise	The panel builder is responsible 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.

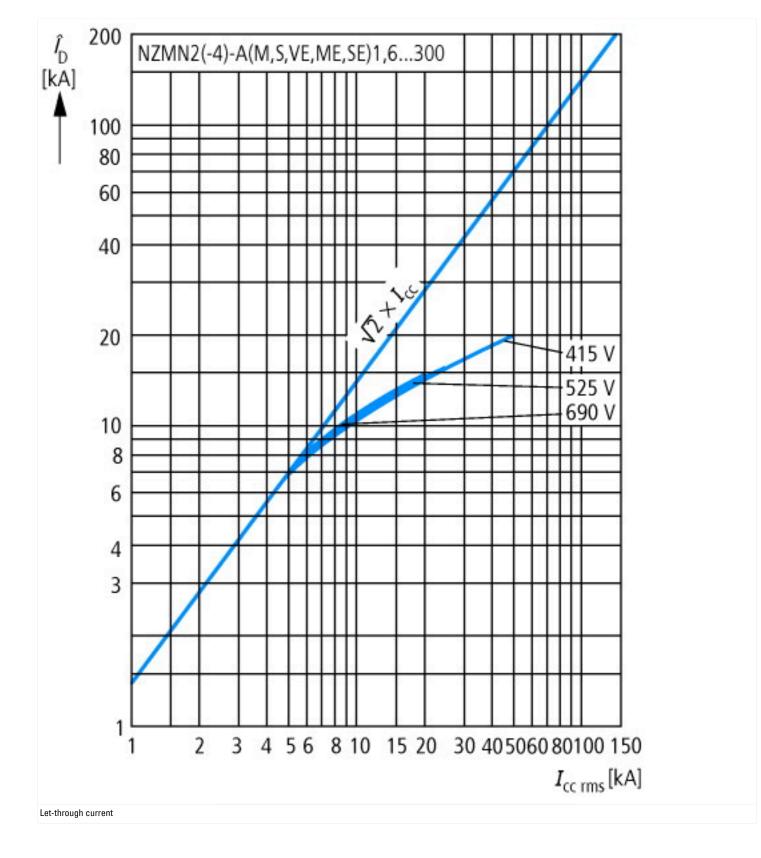
Technical data ETIM 7.0

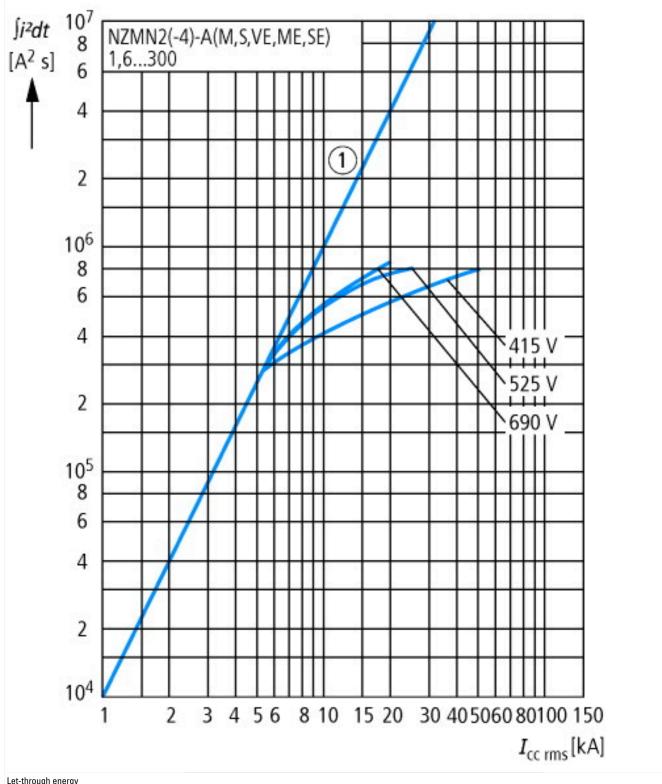
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

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])

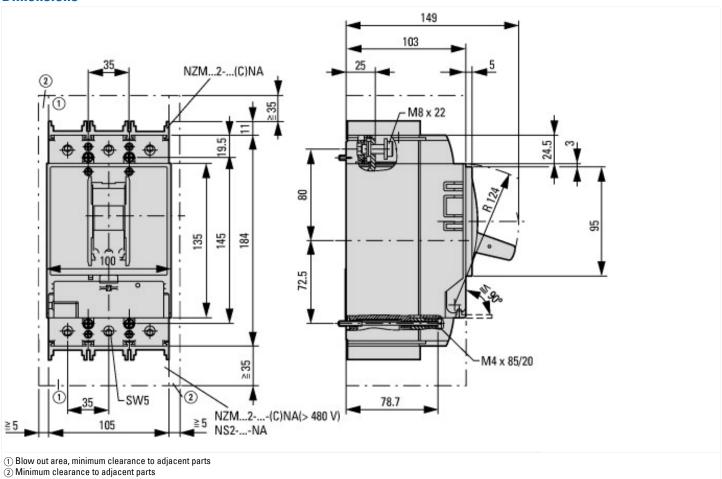
With under voltage releaseNoNumber of poles3Position of connection for main current circuitImage: Connection for main current circuit	Rated permanent current lu	A	125
Overlad release current stringImage and the string short-tircuit releaseImage and short-circuit releaseImage and short-circ	Rated voltage	V	690 - 690
Adjustment range short-circuit release Adjustment range undelayed range undelayed range Adjustment range undelayed range undelayed range Adjustment range Adjustment range undelayed range Adjustment range Adjustment range	Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	50
Adjustment range undelayed short-circuit release A 50-1250 Adjustment range undelayed short-circuit release No Integrated earth fault protection Sire woronection Type of electrical connection of main circuit Sire woronection Device construction Sire woronection Suitable for DN rail (top hat rail) mounting optional Yee Number of auxiliary contacts as normally closed contact Yee Number of auxiliary contacts as change-over contact Yee With under voltage release Yee Number of plosin Yee Position of connection formain current circuit Yee Yee of control element Yee Complete device with protection unit Yee Motor drive integrated Yee Motor drive integrated Yee	Overload release current setting	А	100 - 125
Integrated earth fault protection Mode Type of electrical connection of main circuit For all connection Davice construction Built-in device fixed built-in technique Suitable for DIN rail (top hat rail) mounting For all connection DIN rail (top hat rail) mounting optional For all connection Number of auxiliary contacts as normally closed contact For all connection Number of auxiliary contacts as normally closed contact For all connection Number of auxiliary contacts as normally closed contact For all connection Number of auxiliary contacts as change-over contact For all connection With under voltage release For all connection Number of poles For all connection Position of connection for main current circuit For all connection Type of control element For all connection Connel device with protection unit For all connection Motor drive integrated For all connection Motor drive integrated For all connection	Adjustment range short-term delayed short-circuit release	А	0 - 0
Type of electrical connection of main circuit Figure 3 Serve connection Davice construction Buil-in device fixed built-in technique Suitable for DIN rail (top hat rail) mounting Mo DIN rail (top hat rail) mounting optional Mo Number of auxiliary contacts as normally closed contact Mo Number of auxiliary contacts as normally closed contact Mo Number of auxiliary contacts as change-over contact Mo With under voltage release Mo Number of poles Mo Position of connection for main current circuit Mo Type of control element Mo Complete device with protection unit Mo Motor drive integrated Mo Motor drive optional Mo	Adjustment range undelayed short-circuit release	А	750 - 1250
Device construction Mathematical statistical stati	Integrated earth fault protection		No
Suitable for DIN rail (top hat rail) mounting Model	Type of electrical connection of main circuit		Screw connection
DN 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 normally open contact 0 Number of auxiliary contacts as change-over contact 0 With switched-off indicator 0 With under voltage release No Number of poles 3 Position of connection formain current circuit Fort side Type of control element Yes Complete device with protection unit Yes Motor drive integrated Yes Motor drive optional Yes	Device construction		Built-in device fixed built-in technique
Number of auxiliary contacts as normally closed contact 0 Number of auxiliary contacts as normally open contact 0 Number of auxiliary contacts as normally open contact 0 Number of auxiliary contacts as change-over contact 0 With switched-off indicator 0 With under voltage release No Number of poles 3 Position of connection for main current circuit 6 Type of control element 6 Complete device with protection unit 6 Motor drive integrated 6 Motor drive optional 6 Weith with ender optional 6 Mumber of poles 6 Position of connection for main current circuit 6 Type of control element 6 Complete device with protection unit 6 Motor drive integrated 6 Motor drive optional 6 Motor drive optional 6	Suitable for DIN rail (top hat rail) mounting		No
Number of auxiliary contacts as normally open contactImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactNumber of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactWith switched-off indicatorImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactWith under voltage releaseImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactNumber of polesImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactNotor of control elementImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactNotor drive integratedImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactNotor drive optionalImage: Content of auxiliary contacts as change-over contactImage: Content of auxiliary contacts as change-over contactsNotor drive optionalImage: Content of auxiliary contacts as change-over contactsImage: Content of auxiliary contacts as change-over contactsNotor drive optionalImage: Content of auxiliary contacts as change-over contactsImage: Content of auxiliary contacts as change-over contactsNotor drive optionalImage: Content of auxiliary contacts as change-over contactsImage: Content of auxiliary contactsNotor drive optionalImage: Content of auxiliar	DIN rail (top hat rail) mounting optional		Yes
Number of auxiliary contacts as change-over contactImage: contact as change-over contactNumber of auxiliary contacts as change-over contactImage: contact as change-over contactWith switched-off indicatorNoWith under voltage releaseNoNumber of polesSPosition of connection for main current circuitFont sideType of control elementRocker leverComplete device with protection unitImage: contact as change a	Number of auxiliary contacts as normally closed contact		0
With switched-off indicatorNoWith under voltage releaseNoNumber of polesSPosition of connection for main current circuitGType of control elementFont sideComplete device with protection unitSMotor drive integratedNoMotor drive optionalSWith switch and serviceNoMotor drive optionalSMotor drive optionalNoMotor dri	Number of auxiliary contacts as normally open contact		0
With under voltage releaseNoNumber of poles3Position of connection for main current circuitFont sideType of control elementRocker leverComplete device with protection unitSecterMotor drive integratedNoMotor drive optionalSecterMotor drive optional <td>Number of auxiliary contacts as change-over contact</td> <td></td> <td>0</td>	Number of auxiliary contacts as change-over contact		0
Number of poles 3 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 Section of control element	With switched-off indicator		No
Position of connection for main current circuitFont sideType of control elementRocker leverComplete device with protection unitYesMotor drive integratedNoMotor drive optionalYes	With under voltage release		No
Type of control element Rocker lever Complete device with protection unit Yes Motor drive integrated No Motor drive optional Yes	Number of poles		3
Complete device with protection unit Moder Motor drive integrated Moder Motor drive optional Moder	Position of connection for main current circuit		Front side
Motor drive optional Motor drive optional	Type of control element		Rocker lever
Motor drive optional Yes	Complete device with protection unit		Yes
	Motor drive integrated		No
Degree of protection (IP)	Motor drive optional		Yes
	Degree of protection (IP)		IP20

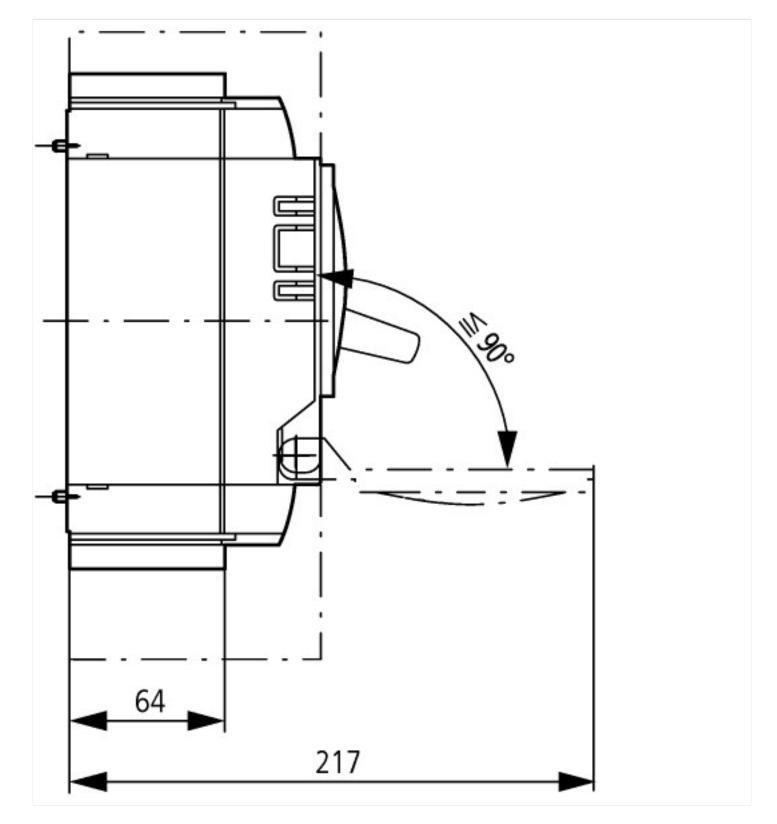






Dimensions





Additional product information (links)

IL01206006Z (AWA1230-1916) Circuit-Breaker, basic unit	https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL01206006Z2015_11.pdf
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 the standard stand
additional technical information for NZM power switch	https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf