DATASHEET - NZMH2-A200-BT



Circuit-breaker, 3p, 200A, box terminals

NZMH2-A200-BT 110294

4358761

Powering Business Worldwide"

EL-Nummer (Norway)

Part no. Catalog No.

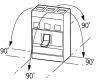
Similar to illustration

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			Box terminal
Switching capacity			
400/415 V 50 Hz	l _{cu}	kA	150
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	А	200
Setting range			
Overload trip			
с¢Г	l _r	A	160 - 200
Short-circuit releases			
Non-delayed	I _i = I _n x		6 - 10
Short-circuit releases	I _{rm}	А	1200 - 2000

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	500
between the auxiliary contacts	V A	300
Weight	kg	2.345
Mounting position		Vertical and 90° in all directions



90° 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: - NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions		
as required			
In the operating controls area: IP20 (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, Derating

 $I_n = I_u$ U_{imp}

Ue

Ue

А	200
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:

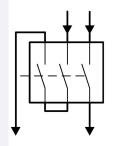
- o NZM1: 1.25
- o NZM2: 1.35
- o NZM3: 1.45
- Example: NZM3 le = 500A. Desired DC tripping current: 10 * le = 5000A.

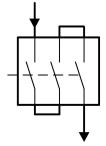
Calculation:

• 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			111/3
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	330
400/415 V	I _{cm}	kA	330
440 V 50/60 Hz	I _{cm}	kA	286
525 V 50/60 Hz	I _{cm}	kA	105
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	150
400/415 V 50/60 Hz	I _{cu}	kA	150
440 V 50/60 Hz	I _{cu}	kA	130
525 V 50/60 Hz	I _{cu}	kA	50
690 V 50/60 Hz	I _{cu}	kA	20
500 V DC		kA	60
750 V DC	I _{cu}		
	l _{cu}	kA kA	60
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0 240 V 50/60 Hz	lcs	kA	150
400/415 V 50/60 Hz	I _{cs}	kA	150
440 V 50/60 Hz	I _{cs}	kA	130
525 V 50/60 Hz	I _{cs}		
	I _{cs}	kA	37.5
690 V 50/60 Hz	I _{cs}	kA	5
500 V DC	I _{cs}	kA	15
750 V DC	I _{cs}	kA	15 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	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 AC3	Operations		7500
400 V 50/60 Hz	Operations		6500
400 V 50/60 Hz 415 V 50/60 Hz	Operations		6500
690 V 50/60 Hz	Operations		5000
DC-1			
500 V DC	Operations		7500
750 V DC	Operations		7500
DC - 3			
500 V DC	Operations		3000
750 V DC	Operations		3000
Max. operating frequency		Ops/h	120
Total break time at short-circuit		ms	< 10
Terminal capacity			
Standard equipment Optional accessories			Box terminal Screw 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)

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)
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	In	А	200
Equipment heat dissipation, current-dependent	P _{vid}	W	48
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.

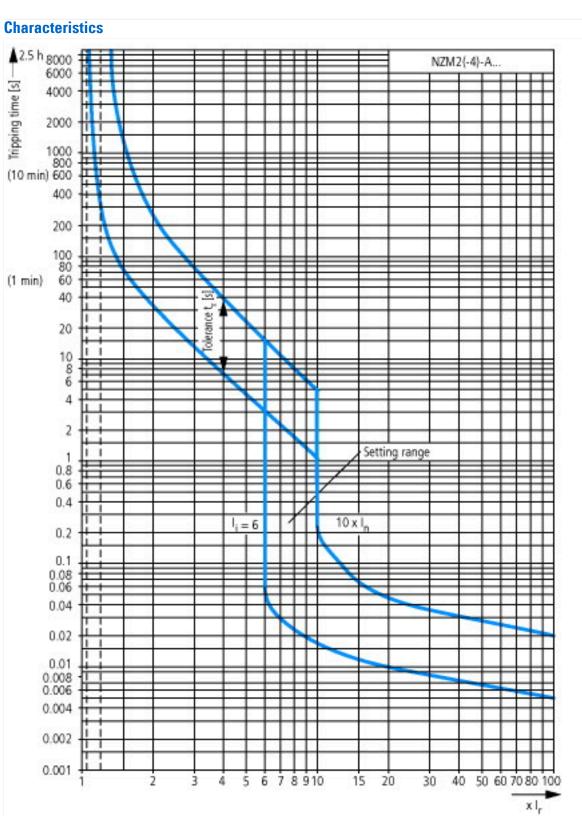
10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

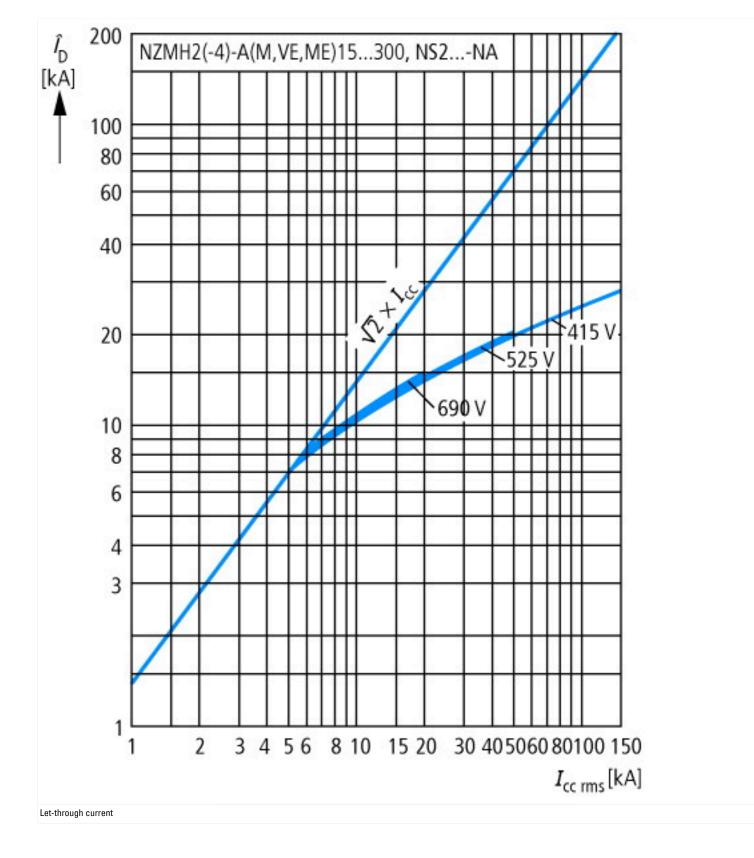
Technical data ETIM 7.0

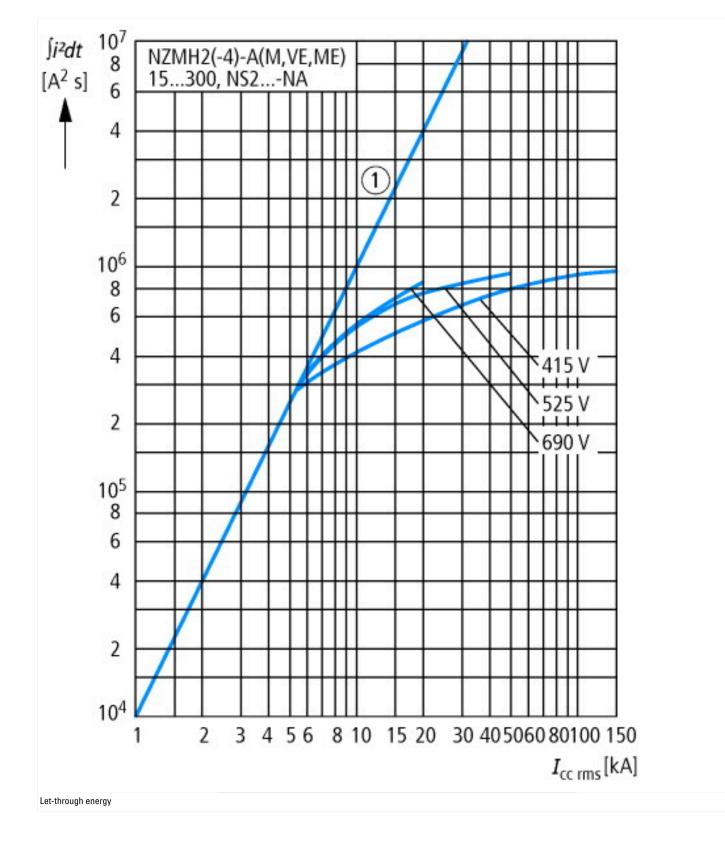
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

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])

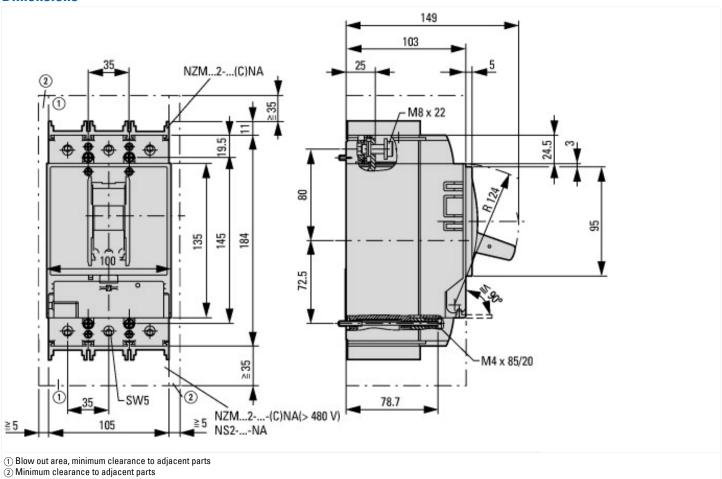
And votage 60 600 Rated short-circuit breaking capacity leu at 400 V, 50 Hz KA 50 Overload release current setting 60 200 Adjustment range short-terr delayed short-circuit release 64 A Adjustment range undelayed short-circuit release 64 70 Adjustment range undelayed short-circuit release 64 70 Type of electrical connection of main circuit. 74 700 Davice construction 74 740 700 Suitable for DIN rail (top hat rail) mounting optional 74 740 740 Number of auxiliary contacts as normally open contact 74 740 740 Number of auxiliary contacts as normally open contact 74 740 740 Number of auxiliary contacts as change-over contact 74 740 740 Number of auxiliary contacts as change-over contact 74 740 740 Number of poles 74 740 740 740 Number of poles 740 740 740 740 Number of poles 740 </th <th>protection (eci@ss10.0.1-2/-3/-04-09 [AJZ/16013])</th> <th></th> <th></th>	protection (eci@ss10.0.1-2/-3/-04-09 [AJZ/16013])		
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Overload release current setting A B0 - 200 Adjustment range short-term delayed short-circuit release A 0 0 Adjustment range undelayed short-circuit release A 200-2000 Integrated earth fault protection No No Type of electrical connection of main circuit Y Fame clamp Device construction Y Fame clamp DIN rail (top hat rail) mounting optional Y Suitable for DIN rail (top hat rail) mounting optional Number of auxiliary contacts as normally closed contact Y No Number of auxiliary contacts as change-over contact Y No With under voltage release Y No Number of poles Y No Position of connection for main current circuit Y No Yup of control element Y No Complete device with protection unit Y No Motor drive integrated Y No Motor drive integrated Y No	Rated voltage	V	690 - 690
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Alyakment range undelayed short-circuit release Image and Alyakment range undelayed short-circuit release Image Alignment range Undelayed short-circuit release Image Alignment range Undelayed short-circuit release Integrated earth fault protection Frame clamp Frame clamp Device construction Frame clamp Frame clamp Suitable for DIN rail (top hat rail) mounting optional Frame clamp Frame clamp Number of auxiliary contacts as normally closed contact Frame Clamp Frame Clamp Number of auxiliary contacts as change-over contact Frame Clamp Frame Clamp With under voltage release Frame Clamp Frame Clamp Number of poles Frame Clamp Frame Clamp Position of connection formain current circuit Frame Clamp Frame Clamp Type of control element Frame Clamp Frame Clamp Complete device with protection unit Frame Clamp Frame Clamp Motor drive integrated	Overload release current setting	А	160 - 200
Integrated each fault protection No Type of electrical connection of main circuit Frame clamp Device construction Built-in device fixed built-in technique Device construction Built-in device fixed built-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 Yes Number of auxiliary contacts as change-over contact Yes With under voltage release Yes Number of poles Yes Position of connection for main current circuit Yes Type of control element Yes Complete device with protection unit Yes Motor drive integrated Yes	Adjustment range short-term delayed short-circuit release	А	0 - 0
Type of electrical connection of main circuit Frame clamp Device construction Built- in device fixed built- 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 Yes Number of auxiliary contacts as normally closed contact Yes Number of auxiliary contacts as change-over contact Yes With under voltage release No Number of poles Yes Position of connection formain current circuit Yes Type of control element Yes Complete device with protection unit Yes Motor drive integrated Yes Motor drive integrated Yes	Adjustment range undelayed short-circuit release	А	1200 - 2000
Device construction Model Built-in device fixed built-in technique Suitable for DIN rail (top hat rail) mounting No No DIN rail (top hat rail) mounting optional Ves Suitable for DIN rail (top hat rail) mounting optional Ves Number of auxiliary contacts as normally closed contact Model O O Number of auxiliary contacts as normally open contact Model O O Number of auxiliary contacts as change-over contact Model O O Number of auxiliary contacts as change-over contact Model O O Number of auxiliary contacts as change-over contact Model No No Number of auxiliary contacts as change-over contact Model No No Number of poles Model No No No Number of poles Socker lever Fort side No No Type of control element Socker lever No No No No Motor drive integrated Socker lever No No No No No No No No </td <td>Integrated earth fault protection</td> <td></td> <td>No</td>	Integrated earth fault protection		No
Suitable for DIN rail (top hat rail) mounting No Suitable for 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 No Number of auxiliary contacts as change-over contact So Number of poles No Type of control element So Complet device with protection unit No Motor drive integrated No Nor No <td>Type of electrical connection of main circuit</td> <td></td> <td>Frame clamp</td>	Type of electrical connection of main circuit		Frame clamp
DIN rail (top hat rail) mounting optionalYesNumber of auxiliary contacts as normally closed contact0Number of auxiliary contacts as normally open contact0Number of auxiliary contacts as normally open contact0Number of auxiliary contacts as change-over contact0With switched-off indicatorNoWith under voltage releaseNoNumber of polesSPosition of connection for main current circuitCType of control elementRocker leverComplete device with protection unitYesMotor drive integratedNoMotor drive potionalYes	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 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 Font side Type of control element Rocker lever Complete device with protection unit Yes Motor drive integrated No Motor drive optional Yes	Suitable for DIN rail (top hat rail) mounting		No
Number of auxiliary contacts as normally open contact 0 Number of auxiliary contacts as change-over contact 0 With switched-off indicator 0 With switched-off indicator No Number of poles 0 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	DIN rail (top hat rail) mounting optional		Yes
Number of auxiliary contacts as change-over contact Image: Content of auxiliary contacts as change-over contact With switched-off indicator No With under voltage release No Number of poles S Position of connection for main current circuit Front side Type of control element Rocker lever Complete device with protection unit Image: Solution of connection for main current circuit Mutor drive integrated Solution Motor drive integrated Solution Motor drive optional Solution Mutor drive optional Solution	Number of auxiliary contacts as normally closed contact		0
With switched-off indicatorNoWith switched-off indicatorNoWith under voltage releaseNoNumber of poles3Position of connection for main current circuitImage: Control elementType of control elementImage: Control elementComplete device with protection unitImage: Control elementMotor drive integratedImage: Control elementMotor drive optionalImage: Control ele	Number of auxiliary contacts as normally open contact		0
With under voltage releaseNoNumber of poles3Position of connection for main current circuitFront sideType of control elementRocker leverComplete device with protection unitYesMotor drive integratedNoMotor drive optionalSecter lever	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 Yes	With switched-off indicator		No
Position of connection for main current circuitFind sideType of control elementRocker leverComplete device with protection unitYesMotor drive integratedNoMotor drive optionalSease	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 Yes Motor drive integrated No Motor drive optional Ses	Position of connection for main current circuit		Front side
Motor drive optional Model	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

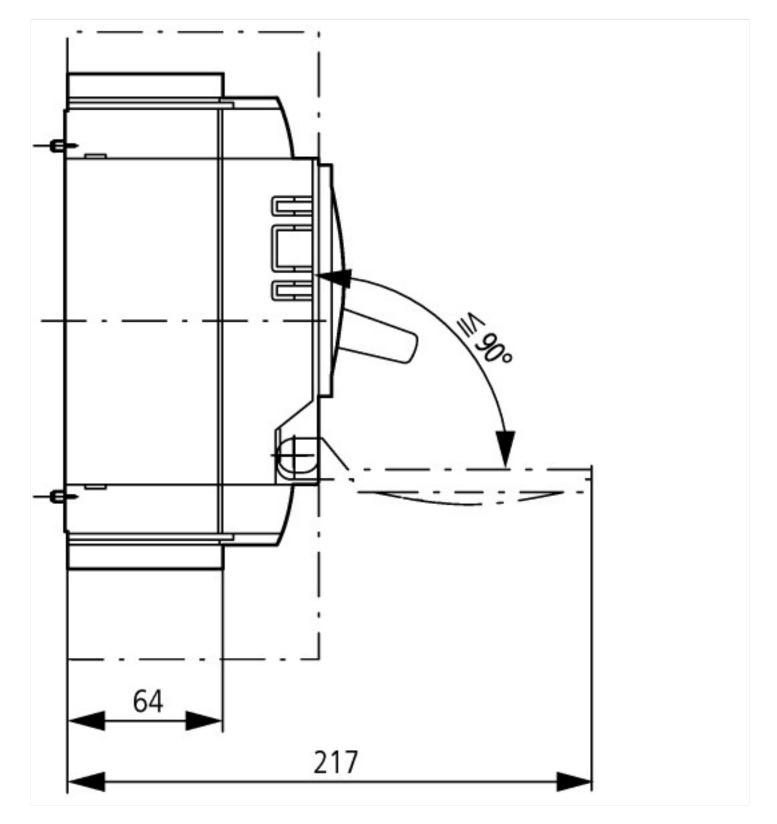






Dimensions





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