DATASHEET - NZMH1-A32



Circuit-breaker, 3p, 32A

NZMH1-A32 284378

4363448



EL-Nummer (Norway)

Part no.

Catalog No.

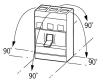
Similar to illustration

Delivery program

Product range			Circuit-breaker
Protective function			System and cable protection
Standard/Approval			IEC
Installation type			Fixed
Release system			Thermomagnetic release
Construction size			NZM1
Number of poles			3 pole
Standard equipment			Box terminal
Switching capacity			
400/415 V 50 Hz	l _{cu}	kA	100
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	А	32
Setting range			
Overload trip			
द	l _r	A	25 - 32
Short-circuit releases			
Non-delayed	l _i = l _n x		350 A fixed
Short-circuit releases			
min.		А	350

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
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: - 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: IP00			

Temperature dependency, Derating

А	32
V	6000
V	6000
V AC	690
V DC	450

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

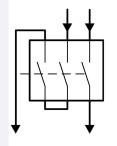
- o NZM2: 1.35
- o NZM3: 1.45
- Example: NZM3 le = 500A. Desired DC tripping current: 10 * le = 5000A.

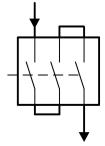
Calculation:

• 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			111/3
Rated insulation voltage	Ui	V	690
Use in unearthed supply systems		V	≦ 690
Switching capacity			
Rated short-circuit making capacity	I _{cm}		
240 V	I _{cm}	kA	220
400/415 V	I _{cm}	kA	220
440 V 50/60 Hz	I _{cm}	kA	74
525 V 50/60 Hz	I _{cm}	kA	40
690 V 50/60 H	lc	kA	17
Rated short-circuit breaking capacity 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	100
400/415 V 50/60 Hz	I _{cu}	kA	100
440 V 50/60 Hz	I _{cu}	kA	70
525 V 50/60 Hz	I _{cu}	kA	20
690 V 50/60 Hz	I _{cu}	kA	10
450 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	100
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	10
690 V 50/60 Hz		kA	7.5
	I _{cs}		
450 V DC	I _{cs}	kA	30
			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		10000
690 V 50/60 Hz	Operations		7500
DC-1			
450 V DC	Operations		10000
Max. operating frequency		Ops/h	120
Total break time at short-circuit		ms	< 10
Terminal capacity			
Standard equipment			Box terminal
Optional accessories			Screw connection 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 × (10 - 70) ³⁾ 2 × (6-25)
			 ³⁾ Up to 95 mm² can be connected depending on the cable manufacturer.
Tunnel terminel			op to so mini can be connected depending on the Cable manufacturer.
Tunnel terminal		2	1 ~ 16
Solid		mm ²	1 x 16
Stranded			
1-hole		mm ²	1 x (25 - 95)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm ²	1 x (10 - 16) 2 x (6 - 16)
		mm ² mm ²	2 x (6 - 16) 1 x (10 - 70) ³⁾ 2 x 25
Solid			2 x (6 - 16) 1 x (10 - 70) ³⁾
Solid			2 x (6 - 16) 1 x (10 - 70) ³⁾ 2 x 25
Solid Stranded			2 x (6 - 16) 1 x (10 - 70) ³⁾ 2 x 25
Solid Stranded Al circular conductor			2 x (6 - 16) 1 x (10 - 70) ³⁾ 2 x 25
Solid Stranded Al circular conductor Tunnel terminal		mm ²	2 x (6 - 16) 1 x (10 - 70) ³⁾ 2 x 25 ³⁾ Up to 95 mm ² can be connected depending on the cable manufacturer.
Solid Stranded Al circular conductor Tunnel terminal Solid		mm ²	2 x (6 - 16) 1 x (10 - 70) ³⁾ 2 x 25 ³⁾ Up to 95 mm ² can be connected depending on the cable manufacturer.
Solid Stranded Al circular conductor Tunnel terminal Solid Stranded		mm ²	2 x (6 - 16) 1 x (10 - 70) ³⁾ 2 x 25 ³⁾ Up to 95 mm ² can be connected depending on the cable manufacturer. 1 x 16

Direct on the switch			
Solid		mm ²	1 x (10 - 16)
			2 x (10 - 16)
Stranded		mm ²	1 x (25 - 35) 2 x (25 - 35)
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	2 x 9 x 0.8
	max.	mm	9 x 9 x 0.8
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M6
Direct on the switch			
	min.	mm	12 x 5
	max.	mm	16 x 5
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 32 P_{vid} W 9.31 Equipment heat dissipation, current-dependent °C -25 Operating ambient temperature min. °C Operating ambient temperature max. 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 Meets the product standard's requirements. and fire due to internal electric effects 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

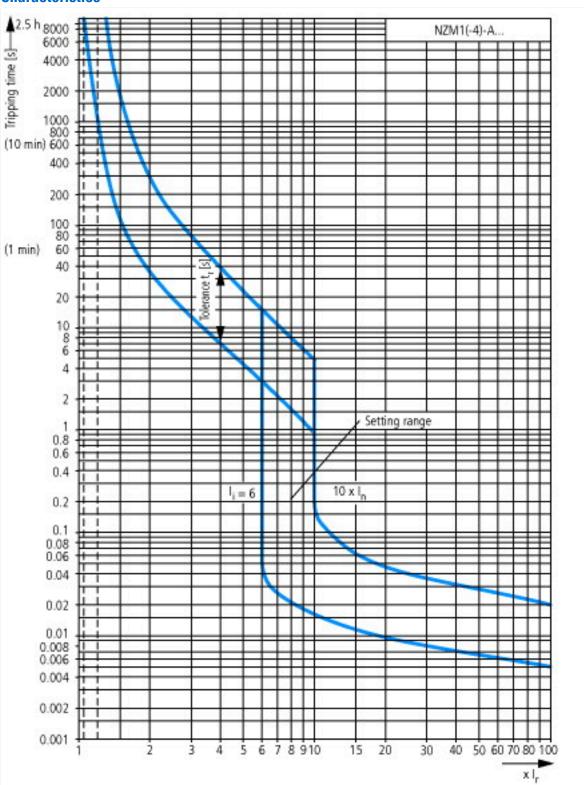
Technical data ETIM 7.0

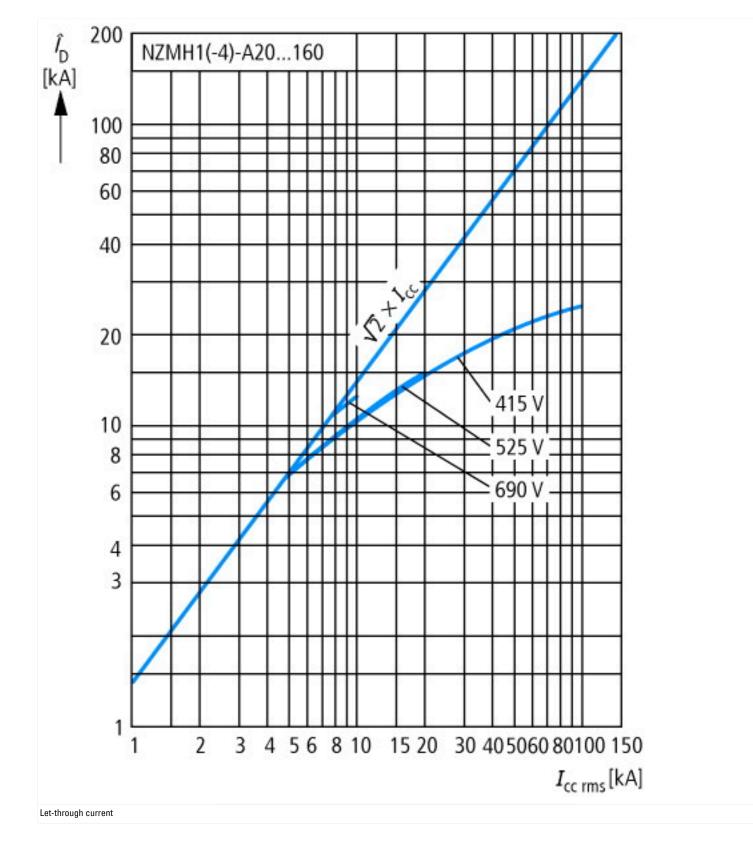
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

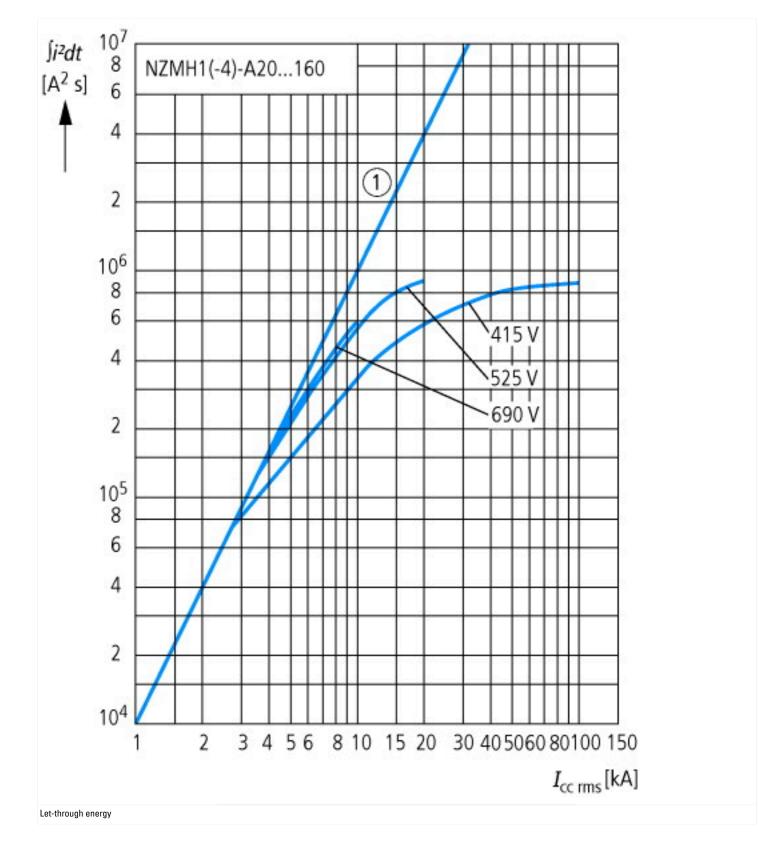
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013])

leaflet (IL) is observed.

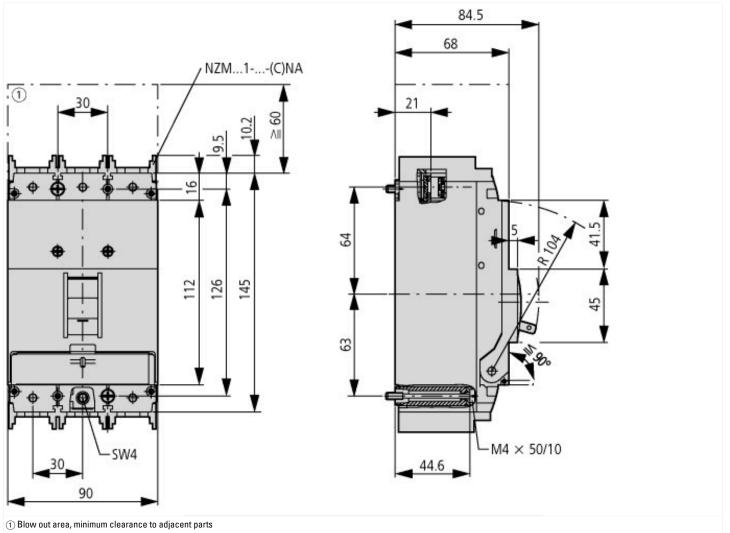
Arad voltage V 600 - 600 Rade voltage KA 00 Rade short-circuit breaking capacity (cu st 400 V, 50 Hz KA 50 - 32 Outor dar lease current setting S -32 Adjustment range short-circuit release S -30 Adjustment range undelayed short-circuit release S -30 Adjustment range undelayed short-circuit release S -30 Device construction S -30 Suitable for DIN rail (top hat rail) mounting S -30 DIN rail (top hat rail) mounting optional S -30 Number of auxiliary contacts as normally copen contact S -30 Number of auxiliary contacts as normally copen contact S -30 Number of poles			
Rated short-circuit breaking capacity lou at 400 V, 50 Hz Image: A construction Image: A construction Adjustment range short-term delayed short-circuit release A construction Image: A construction Adjustment range undelayed short-circuit release A construction Image: A construction Adjustment range undelayed short-circuit release A construction Image: A construction Subte for DIN rail top hat rail) mounting optional Image: A construction Image: A construction Subte for DIN rail top hat rail) mounting optional Image: A construction Image: A construction Number of auxiliary contacts as normally closed contact Image: A construction Image: A construction Number of auxiliary contacts as normally closed contact Image: A construction Image: A construction Number of auxiliary contacts as normally closed contact Image: A construction Image: A construction Number of auxiliary contacts as normally closed contact Image: A construction Image: A construction Number of auxiliary contacts as normally closed contact Image: A construction Image: A construction Number of poles Image: A construction Image: A construction Image: A construction Number of poles Image: A construction Image: A construction </td <td>Rated permanent current lu</td> <td>A</td> <td>32</td>	Rated permanent current lu	A	32
Autorioad release current sitting A 2-32 Adjustment range short-term delayed short-circuit release A 0 Adjustment range undelayed short-circuit release A 30-350 Adjustment range undelayed short-circuit release No No Integrated earth fault protection Frame clamp No Device construction Mainterin device fixed built-in technique No Device construction Mainterin device fixed built-in technique No DIN rail (top hat rail) mounting optional Mainterin device fixed built-in technique No Number of auxiliary contacts as normally closed contact Mainterin device fixed built-in technique No Number of auxiliary contacts as change-over contact Mainterin device fixed built-in technique No Number of poles No No No Number of poles No No No Number of poles No No No Yope of control element Kocker lever No No Complete device with protection unit No No No Motor drive pitonal No	Rated voltage	V	690 - 690
Adjustment range short-terruit release Adjustment range undelayed short-circuit release Adjustment range undelayed short-cir	Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	100
Adjustment range undelayed short-circuit release A 350-350 Adjustment range undelayed short-circuit release Frame clamp Device construction of main circuit Frame clamp Device construction Built-in device fixed built-in technique Suitable for DIN rail (top hat rail) mounting optional K Frame clamp Number of auxiliary contacts as normally closed contact K Frame clamp Number of auxiliary contacts as normally open contact K Frame clamp Number of auxiliary contacts as change-over contact K Frame clamp Number of poles No C Frame clamp Position of connection framin current circuit K Frame clamp Frame clamp Number of poles K Frame clamp Frame clamp Frame clamp Position of connection framin current circuit K Frame clamp Frame clamp Frame clamp Position of connection framin current circuit K Frame clamp Frame clamp Frame clamp Position of connection framin current circuit K Frame clamp Frame clamp Frant side Frant side Fra	Overload release current setting	А	25 - 32
Integrated earth fault protection No Type of electrical connection of main circuit Frame clamp Device construction Built-in device fixed built-in technique Device construction No Suitable for DIN rail (top hat rail) mounting No DIN rail (top hat rail) mounting optional Ves Number of auxiliary contacts as normally closed contact Ves Number of auxiliary contacts as change-over contact Ves Number of poles No Number of poles No Number of poles No Number of connection for main current circuit Ves Number of poles No Number of poles No Number of poles No Number of poles Secter Se	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 copen contact Yes Number of auxiliary contacts as change-over contact Yes With switched-off indicator Yes Number of ples No Position of connection for main current circuit Yes Number of element Yes Complete device with protection unit Yes Motor drive integrated Yes Motor drive integrated Yes	Adjustment range undelayed short-circuit release	А	350 - 350
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 See Ves Number of auxiliary contacts as normally closed contact See O Number of auxiliary contacts as normally open contact See See Number of auxiliary contacts as change-over contact See See Number of auxiliary contacts as change-over contact See See Number of auxiliary contacts as change-over contact See See Number of auxiliary contacts as change-over contact See See Number of auxiliary contacts as change-over contact See See Number of auxiliary contacts as change-over contact See See Number of poles See See See Position of connection for main current circuit See See See Complet device with protection unit See See See See Motor drive integrated See See See See See See See	Integrated earth fault protection		No
Suitable for DIN rail (top hat rail) mounting Image: solution of auxiliary contacts as normally closed contact Normatic solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact Image: solution of auxiliary contacts as normally closed contact	Type of electrical connection of main circuit		Frame clamp
DIN rail (top hat rail) mounting optional Image: Second Secon	Device construction		Built-in device fixed built-in technique
Number of auxiliary contacts as normally closed contact Image: Contact as normally open contact Image: Contact as normally open contact Number of auxiliary contacts as change-over contact Image: Contact as normally open contact Image: Contact as normally open contact Number of auxiliary contacts as change-over contact Image: Contact as normally open conta	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 under voltage release No Number of poles 3 Position of connection for main current circuit Fort side Type of control element Fort side Complete device with protection unit Fort side Motor drive integrated Fort side Motor drive optional Fort side	DIN rail (top hat rail) mounting optional		Yes
Number of auxiliary contacts as change-over contact Image: Control element Image: Control element With under voltage release Image: Control element Image: Control element Noper of noise Image: Control element Image: Control element Complete device with protection unit Image: Control element Image: Control element Motor drive integrated Image: Control element Image: Control element Motor drive optional Image: Control element Image: Control element Motor drive integrated Image: Control element Image: Control element Motor drive integrated Image: Control element Image: Control element Motor drive integrated Image: Control element Image: Control element Motor drive integrated Image: Control element Image: Control element Motor drive optional Image: Control element Image: Control element Motor drive optional Image: Control element Image: Control element Motor drive optional Image: Control element Image: Control element Motor drive optional Image: Control element Image: Control element Motor drive optional Image: Control element Image: Control element	Number of auxiliary contacts as normally closed contact		0
With switched-off indicator No With under voltage release No Number of poles No Position of connection for main current circuit S Type of control element Image: Source Sourc	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 unitYesMotor drive integratedNoMotor drive optionalMotor drive optional	Number of auxiliary contacts as change-over contact		0
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 Image: State	With switched-off indicator		No
Position of connection for main current circuit Fornt side Fornt side Rocker lever Position unit Complete device with protection unit Position of control element Position unit Position unit Position Po	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 Mode Yes Motor drive integrated Mode No Motor drive optional Mode No	Position of connection for main current circuit		Front side
Motor drive optional A A A A A A A A A A A A A A A A A A A	Type of control element		Rocker lever
Motor drive optional No	Complete device with protection unit		Yes
	Motor drive integrated		No
Degree of protection (IP) IP20	Motor drive optional		No
	Degree of protection (IP)		IP20

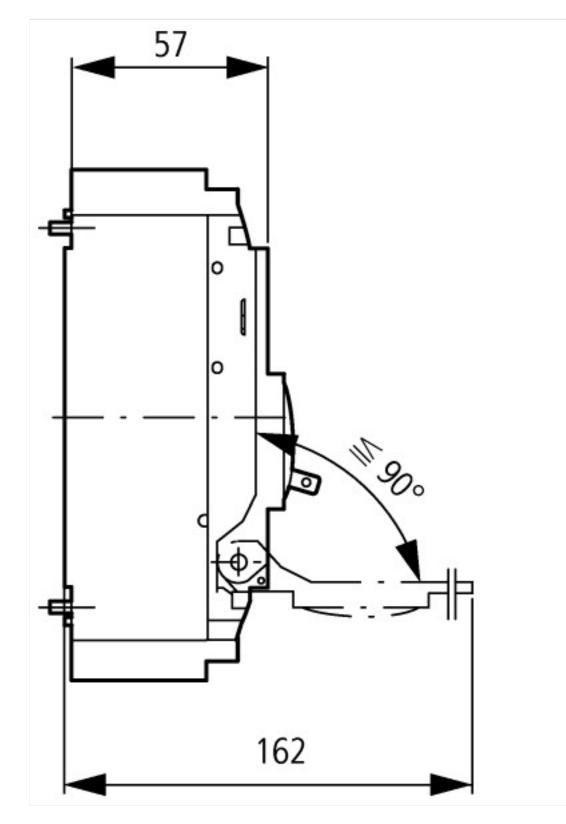












Additional product information (links)

IL01203004Z (AWA1230-1913) Circuit-breaker, Switch-Disconnector		
IL01203004Z (AWA1230-1913) Circuit-breaker, Switch-Disconnector	https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL01203004Z2015_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	