Circuit break., 4p syst./cable protect.

Part no. **NZMN2-4-A160**

Article no. **265860**

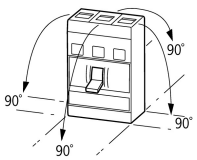
Powering Business Worldwide

An Eaton Brand

Delivery programme

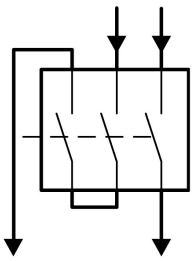
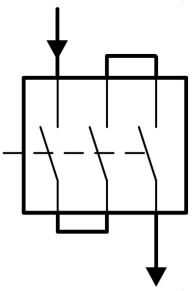
Range			Circuit-breaker
Protective function			System and cable protection
Standard/Approval			IEC
Installation type			Fixed mounted
Release system			Thermomagnetic release
Construction size			NZM2
Description			Set value in neutral conductor is synchronous with set value Ir of main pole.
Number of conductors			4 pole
Standard equipment			Screw connection
Switching capacity			
400/415 V 50/60 Hz	I_{cu}	kA	50
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	A	160
Neutral conductor	% of phase conductor	CSA	100
Setting range			
Overload trip			
Overload releases	I_r	A	125 - 160
Main pole	I_r	A	125 - 160
Short-circuit releases			
Non-delayed	$I_i = I_n$ x …		6 - 10

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		°C	
Ambient temperature, storage		°C	- 40 - + 80
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 VDE 0106 Part 101 and Part 101/A1			
Between auxiliary contacts and main contacts		V AC	500
between the auxiliary contacts		V AC	300
Weight		kg	3.5
Mounting position			
Mounting position			Vertical and 90° in all directions  With residual-current release XFI: - NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in adapter elements - NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit: - NZM3, N3: vertical, 90 ° 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)			Weight Temperature dependency, Derating Effective power loss

Circuit-breakers

Rated current = rated uninterrupted current	$I_n = I_u$	A	160
Rated surge voltage invariability	U_{imp}		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	U_e	V AC	690
Rated operational voltage	U_e	V DC	750
			1) Details apply for 3 pole system protection circuit-breaker with thermomagnetic release NZMN(H)1(2)(3)-A... to 500 A. For rated operating voltage switching via 3 contacts: DC correction factor for instantaneous release response value: NZM1: 1.25, NZM2: 1.35, NZM3: 1.45 Set value for I_i at DC = set value I_i AC/correction factor DC **Switching of one pole via two series contacts**  **Switching of one pole via three series contacts** 
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U_i	V	1000
For use in IT electrical power networks		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 I_{cn}	I_{cn}		
Icu to IEC/EN 60947 test cycle O-t-CO	Icu	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
Ics to IEC/EN 60947 test cycle O-t-CO-t-CO	Ics	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	Ics	kA	5
Maximum low-voltage h.b.c. fuse		A gG/gL	355

			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
Rated making and breaking capacity			
Rated operational current	I_e	A	
AC-1			
400 V	I_e	A	300
415 V	I_e	A	300
690 V	I_e	A	300
AC--3			
400 V	I_e	A	160
415 V	I_e	A	160
690 V	I_e	A	160
DC - -1			
500 V DC	I_e	CSA	250
750 V DC	I_e	CSA	250
DC - 3			
500 V DC	I_e	CSA	250
750 V DC	I_e	CSA	250
Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release)	Operations		20000
Lifespan, electrical			
AC-1			
400 V V 50/60 Hz	Operations		10000
415 V V 50/60 Hz	Operations		10000
690 V 50/60 Hz	Operations		7500
AC--3			
400 V 50/60 Hz	Operations		6500
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
Current heat losses per pole at I_u are based on the maximum rated operational current of the frame size.		W	19
			For current heat loss per pole the specification refers to the maximum rated operational current of the frame size.
Total downtime in a short-circuit		ms	< 10

Terminal capacity

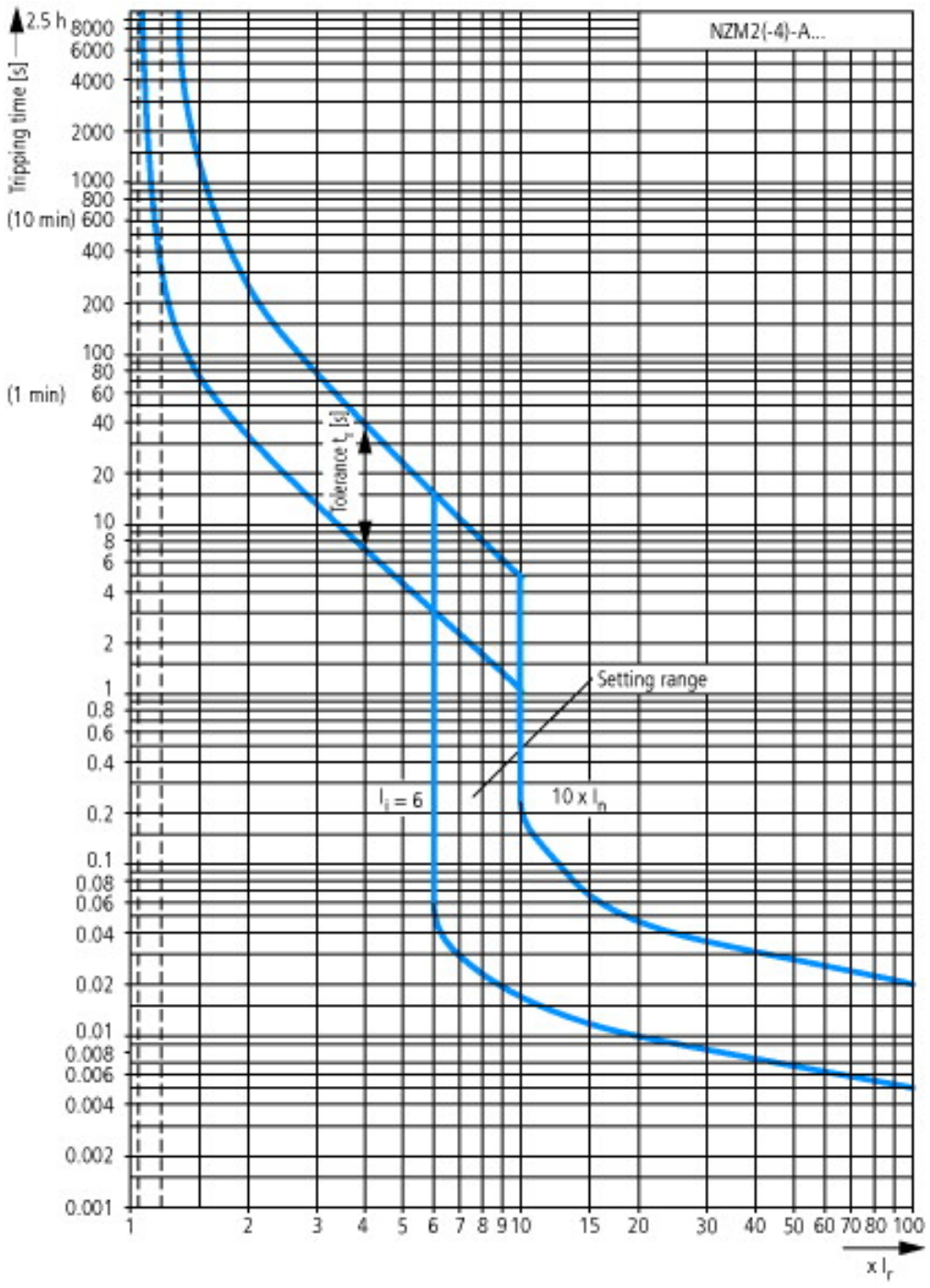
Standard equipment					Screw connection
Overview					
Basic equipment					
Box terminal	●	-	-	-	
Screw connection	-	●	●	●	
Accessories					
Box terminal	-	●	●	-	
Screw connection	●	-	-	●	
Tunnel terminal	●	●	●	●	

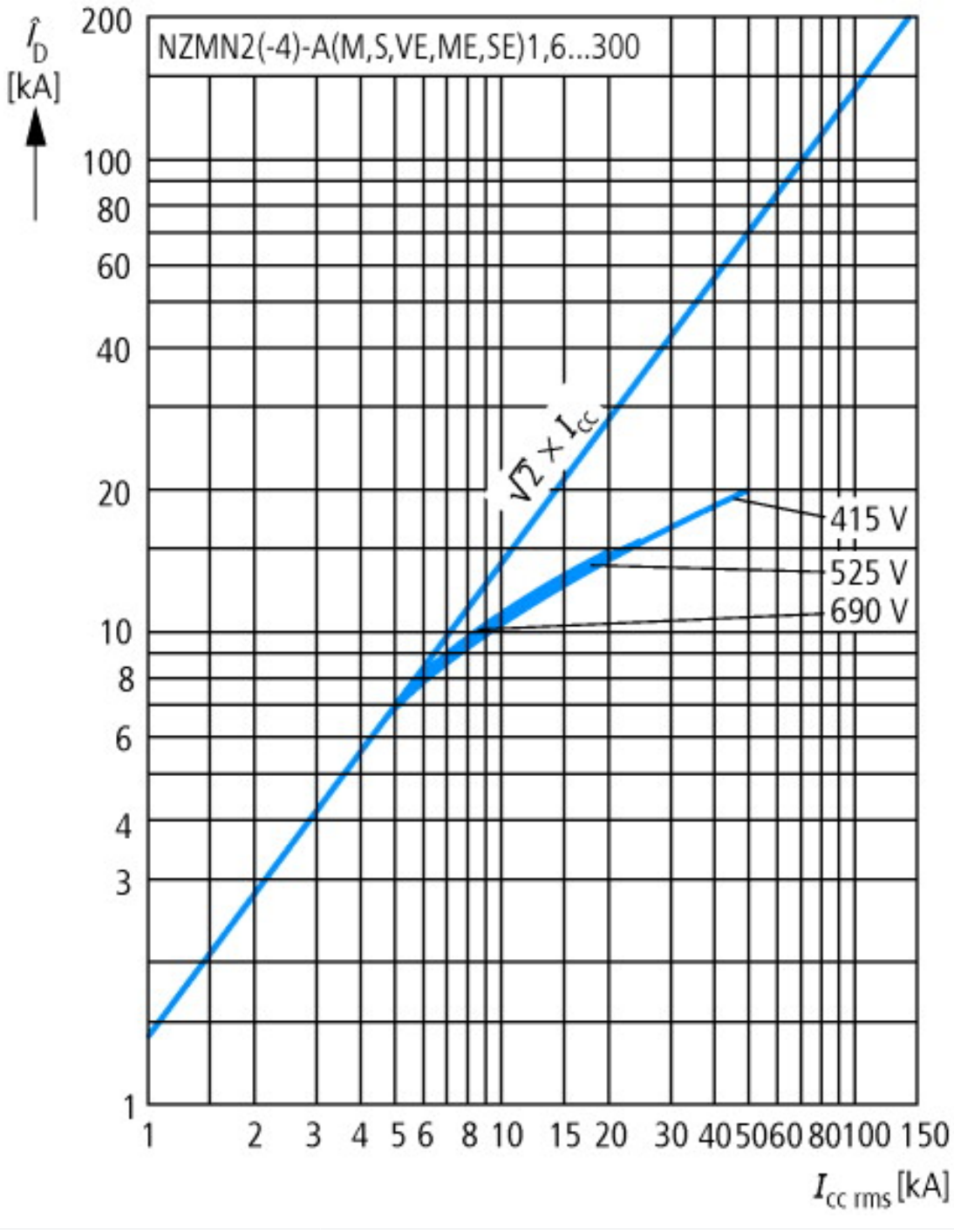
			Connection on rear ● ● ● ● Flat conductor terminal - - - ●
Round copper conductor			
Box terminal			
Solid		mm^2	1 x (4 - 16) 2 x (4 - 16)
Stranded		mm^2	1 x (25 - 185) 2 x (25 - 70)
Tunnel terminal			
Solid		mm^2	1 x 16
Stranded		mm^2	
Stranded		mm^2	1 x (25 - 185)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm^2	1 x (4 - 16) 2 x (4 - 16)
Stranded		mm^2	1 x (25 - 185) 2 x (25 - 70)
Al conductors, Cu cable			
Solid		mm^2	1 x 16
Stranded		mm^2	
Stranded		mm^2	1 x (25 - 185) je nach Kabelhersteller bis zu 240 mm^2 anschließbar
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 16 x 0.8
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm^2	2 x 9 x 0.8
	max.	mm^2	10 x 16 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 16 x 0.8
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M8
Direct on the switch			
	min.	mm^2	16 x 5
	max.	mm^2	20 x 5
Control cables			
		mm^2	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)

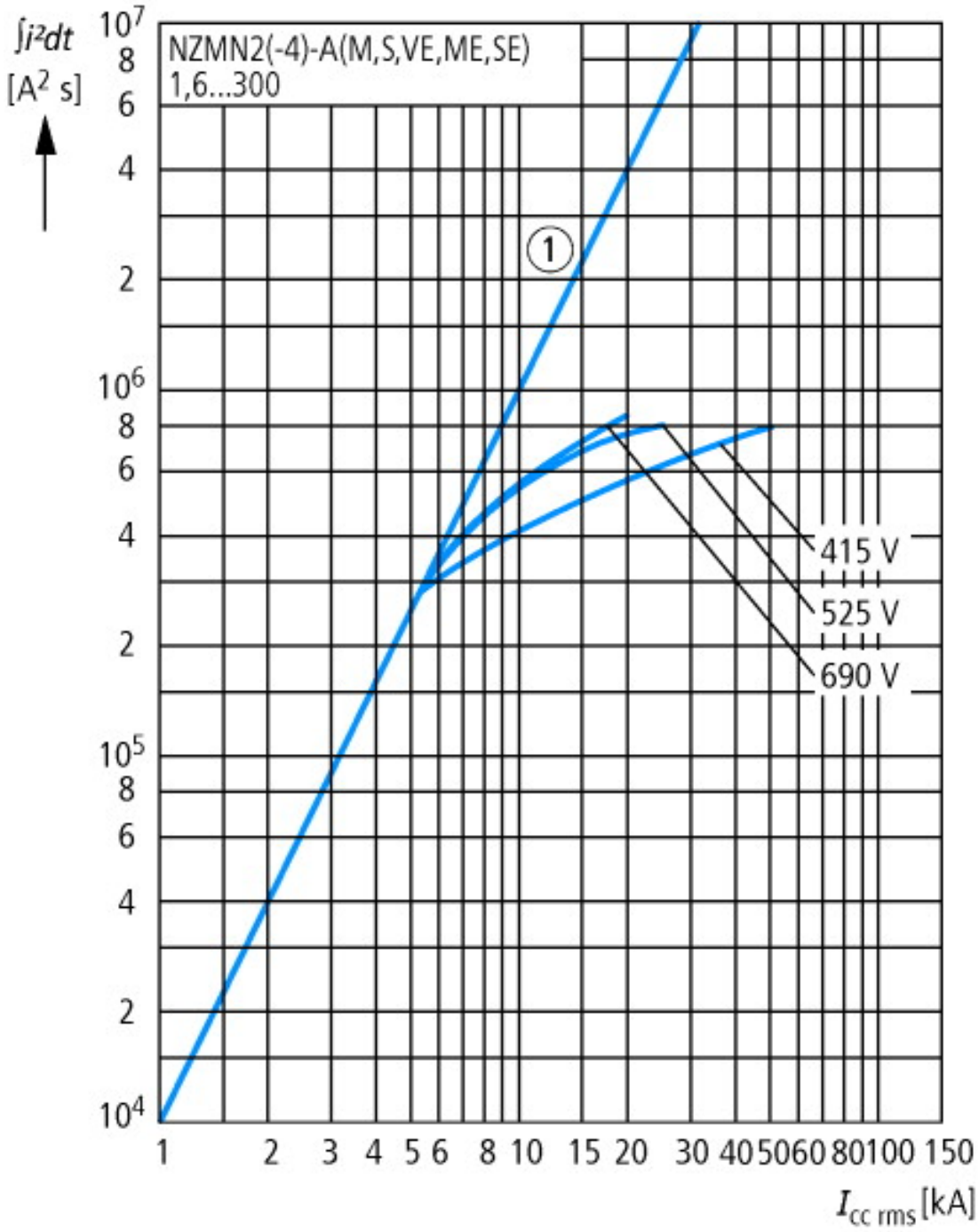
Technische Daten nach ETIM 4.0

Number of poles			4
Rated uninterrupted current Iu		A	160
Number of auxiliary contacts as N/Cs			0
Number of auxiliary contacts as N/Os			0
Device construction			Built-in device fixed built-in technique
With under voltage release			No
Motor operator optional			YES
Integrated earth fault protection			No
Suitable for DIN rail (top hat rail) mounting			No

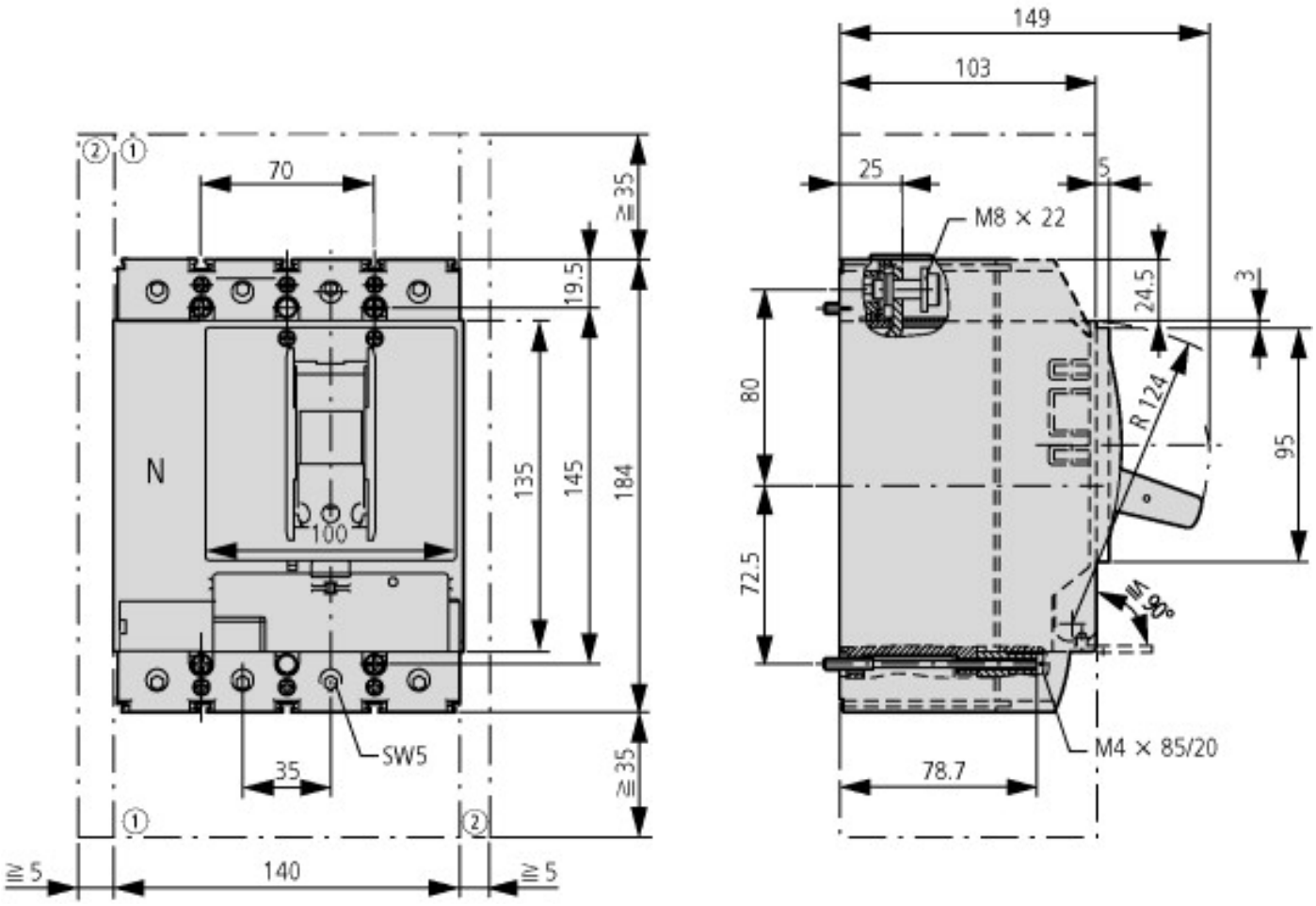
Setting range non-delayed short-circuit release		A	1600
Setting range short-term delayed short-circuit release		A	0
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz		kA	50
Switched-off indicator available			No
Type of control element			Toggle lever
Connection type main current circuit			Screw connection
Motor operator integrated			No
Position of connection for main circuit			Front connection
Protection type (IP)			IP20
Number of auxiliary contacts as changeover contact			0
Setting range of overload releases		A	160




NZMN2(-4)-A(M,S,VE,ME,SE)1,6...300
$\hat{I}_D$ [kA]
200
100
80
60
40
20
10
8
6
4
3
1
$\sqrt{2} \times I_{cc}$
415 V
525 V
690 V
1
2
3
4
5
6
8
10
15
20
30
40
50
60
80
100
150
$I_{cc\ rms}$ [kA]

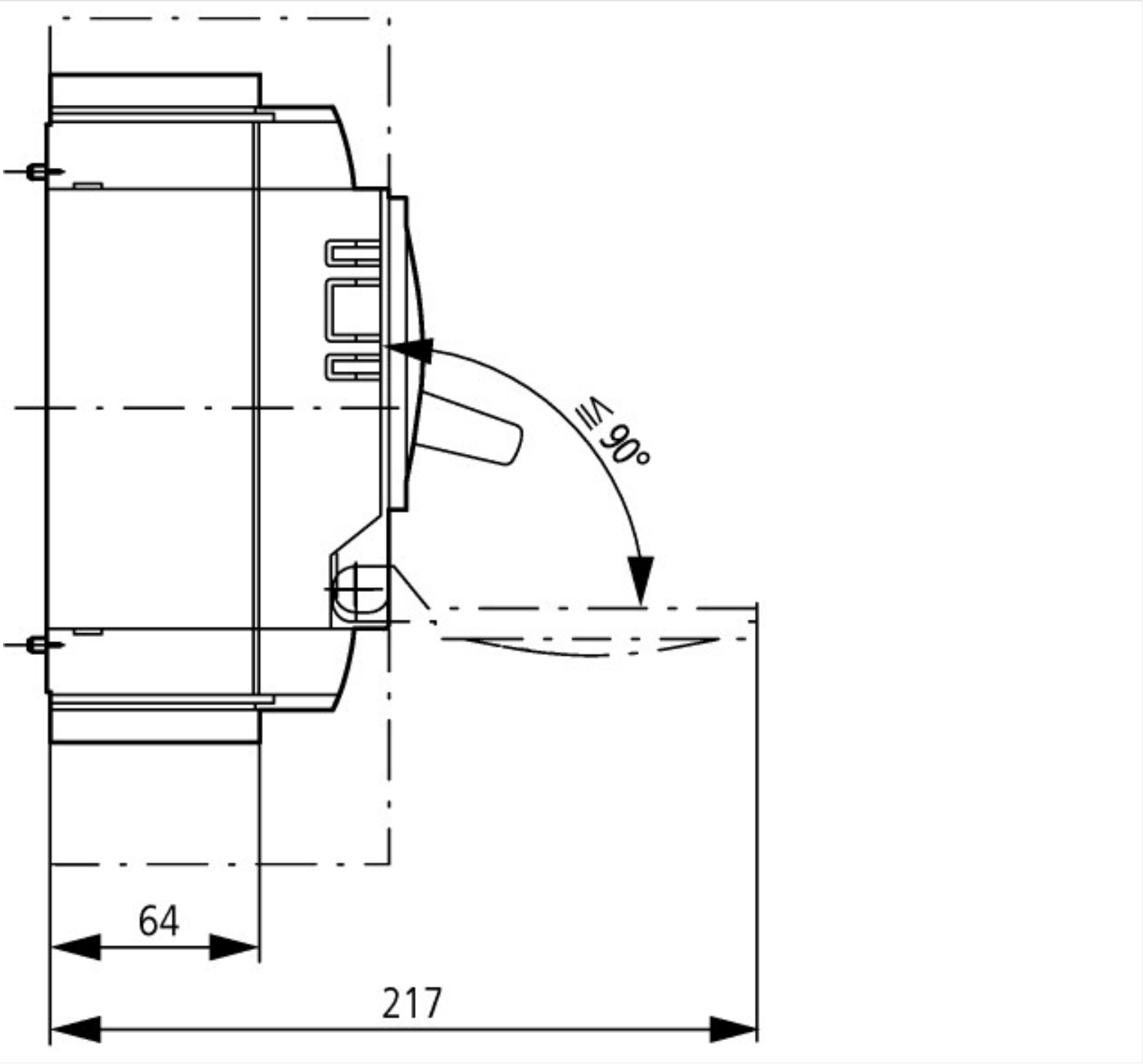


Dimensions



① Blow out area, minimum clearance to adjacent parts

② Minimum clearance to adjacent parts



Additional product information (links)

IL01206006Z (AWA1230-1916) Circuit-breaker, basic device	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL01206006Z2010_11.pdf