DATASHEET - NZMS2-4-PX40/VAR-TZ

Similar to illustration

NZM2 PXR25 circuit breaker - integrated energy measurement class 1, 40A, 4p, variable, Screw terminal, earth-fault protection and zone selectivity

Part no. NZMS2-4-PX40/VAR-TZ
Catalog No. 192232

Powering Business Worldwide

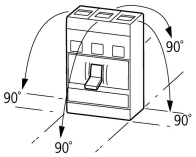
Delivery program

Product range			Circuit-breaker
Protective function			Systems, cable, selectivity and generator protection Earth-fault protection Zone selectivity
Standard/Approval			IEC
Installation type			Fixed
Release system			Electronic release
Construction size			NZM2
Description			LSIG overload protection and delayed and non-delayed short-circuit protective device, earth-fault protection Class 1 energy measurement, r.m.s. value measurement, and "thermal memory" USB interface for configuration and test function with Power Xpert Protection Manager software Zone selectivity ZSI Interface module in equipment supplied. Optionally communication-capable with internal Modbus RTU module or CAM
Number of poles			4 pole
Standard equipment			Screw connection
Switching capacity			
400/415 V 50 Hz	I_{cu}	kA	70
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	A	40
Neutral conductor	% of phase conductor	%	0 - 60 - 100
Setting range			
Overload trip			
	I_r	A	20 - 40
Short-circuit releases 			
Non-delayed 	$I_i = I_n$ x …		2 – 18
Delayed 	$I_{sd} = I_r$ x …		2 – 10
Setting range of earth fault release min.	Ig = Inx…		20
Setting range of earth fault release max.	Ig = Inx…		40

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  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
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)			Temperature dependency, Derating

Circuit-breakers

Rated current = rated uninterrupted current	$I_n = I_u$	A	40
Rated surge voltage invariability	U_{imp}		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	U_e	V AC	690
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U_i	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	154
440 V 50/60 Hz	I_{cm}	kA	143
525 V 50/60 Hz	I_{cm}	kA	80
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	100
400/415 V 50/60 Hz	I_{cu}	kA	70
440 V 50/60 Hz	I_{cu}	kA	65
525 V 50/60 Hz	I_{cu}	kA	36
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	100
400/415 V 50/60 Hz	I_{cs}	kA	70
440 V 50/60 Hz	I_{cs}	kA	65
525 V 50/60 Hz	I_{cs}	kA	36
690 V 50/60 Hz	I_{cs}	kA	6
			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	Operations		7500
Max. operating frequency		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 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	I_n	A	40
Equipment heat dissipation, current-dependent	P_{vid}	W	1.32

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 8.0

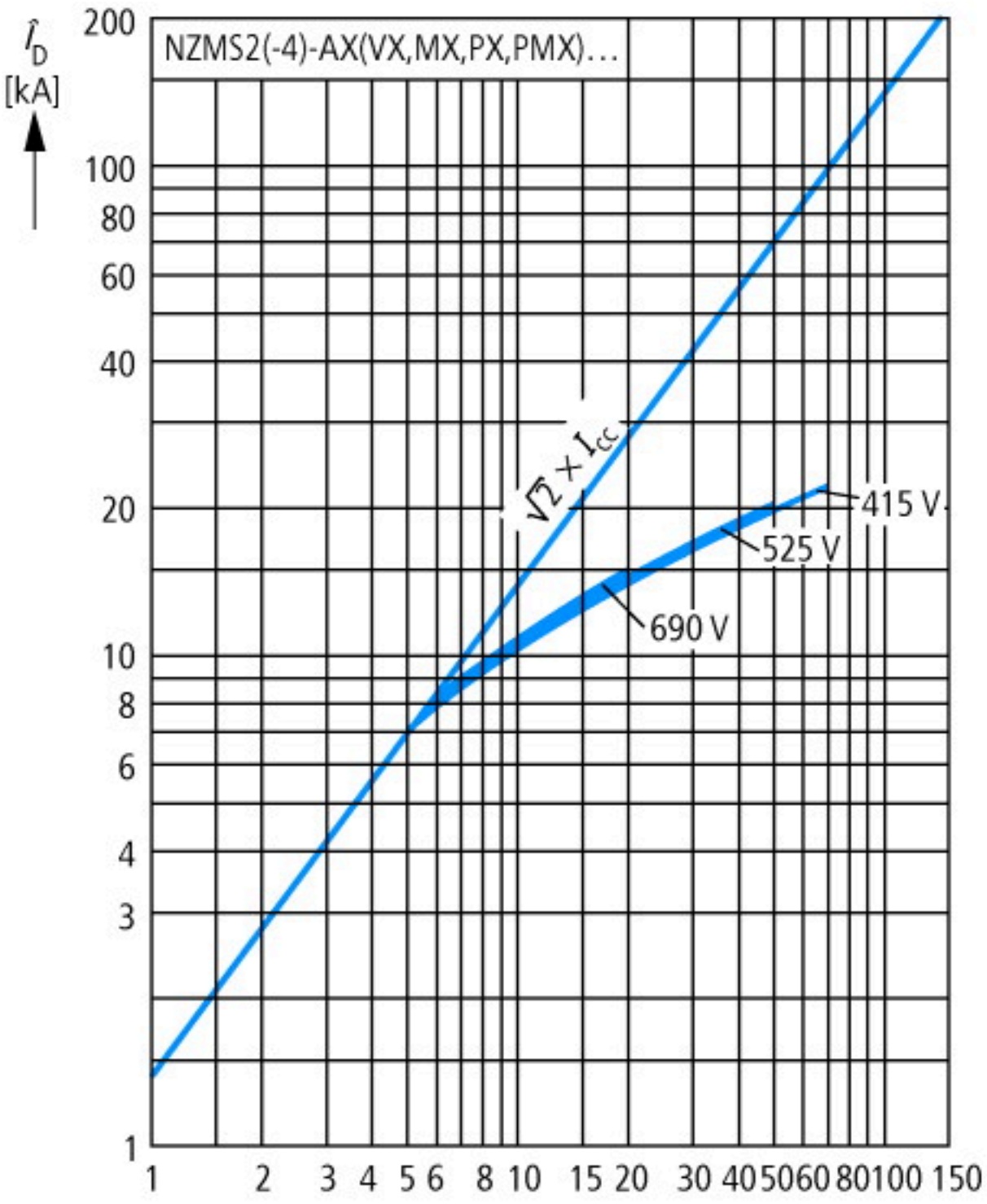
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

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])

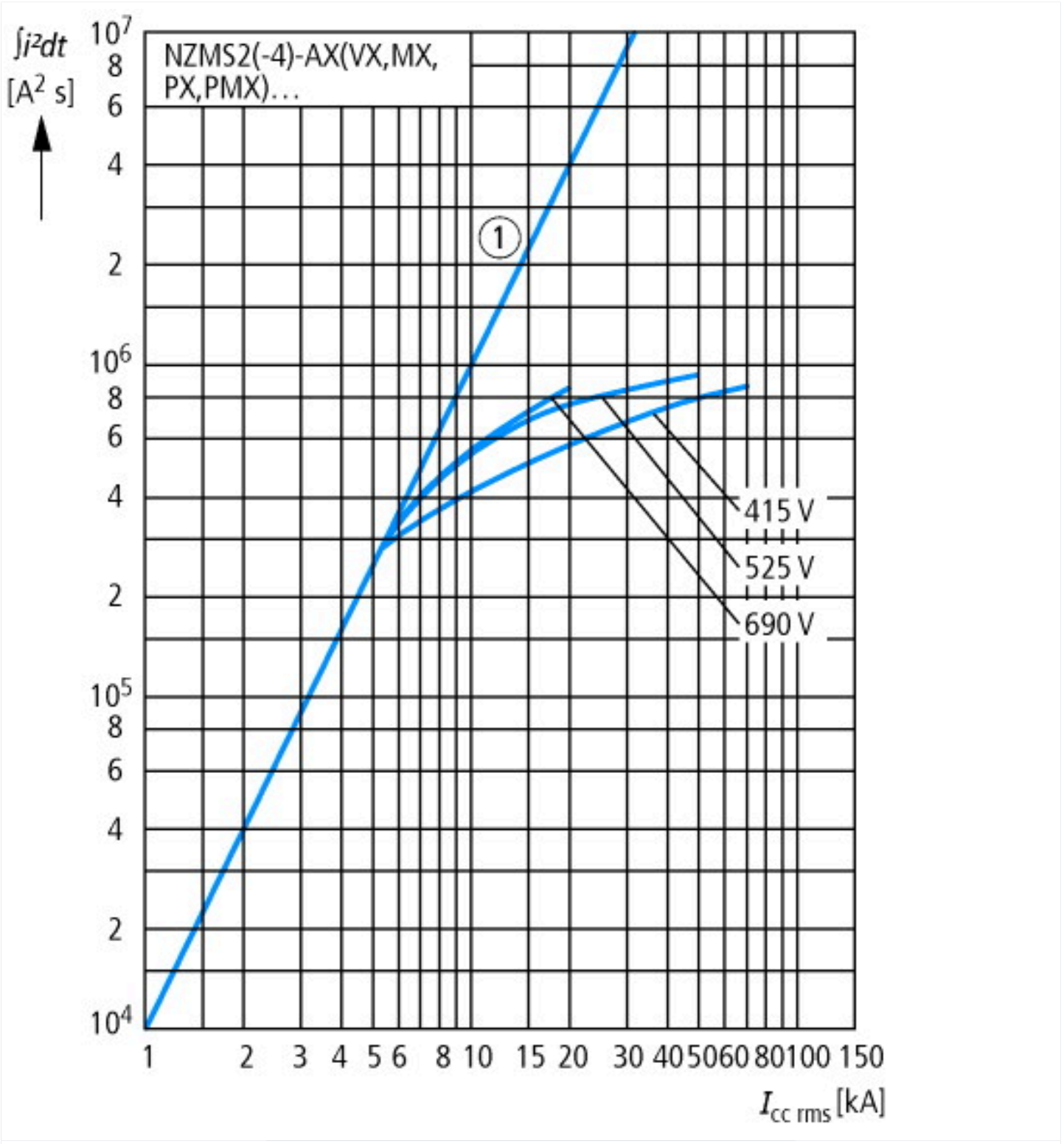
Rated permanent current Iu	A	40
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	70
Overload release current setting	A	20 - 40
Adjustment range short-term delayed short-circuit release	A	2 - 10
Adjustment range undelayed short-circuit release	A	2 - 18
Integrated earth fault protection		Yes
Type of electrical connection of main circuit		Screw connection
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		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 integrated 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

Characteristics

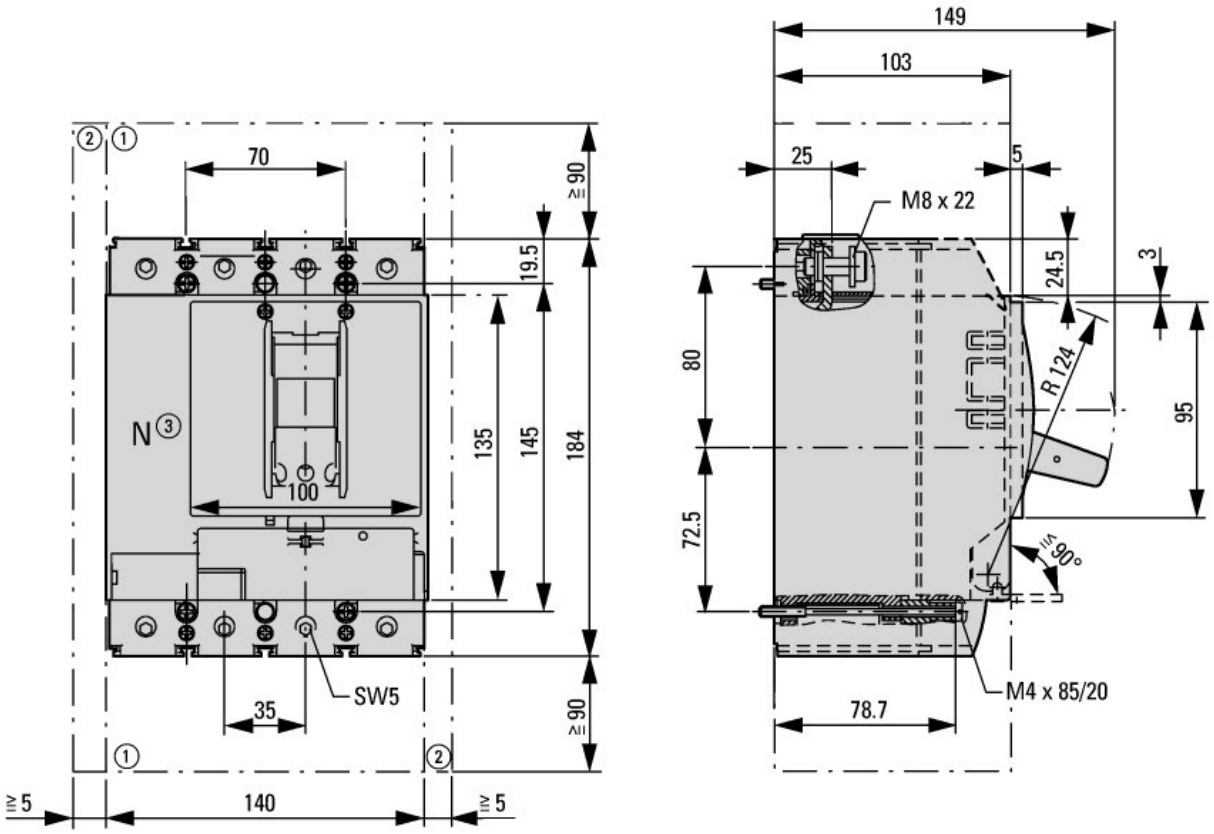


Let-through current

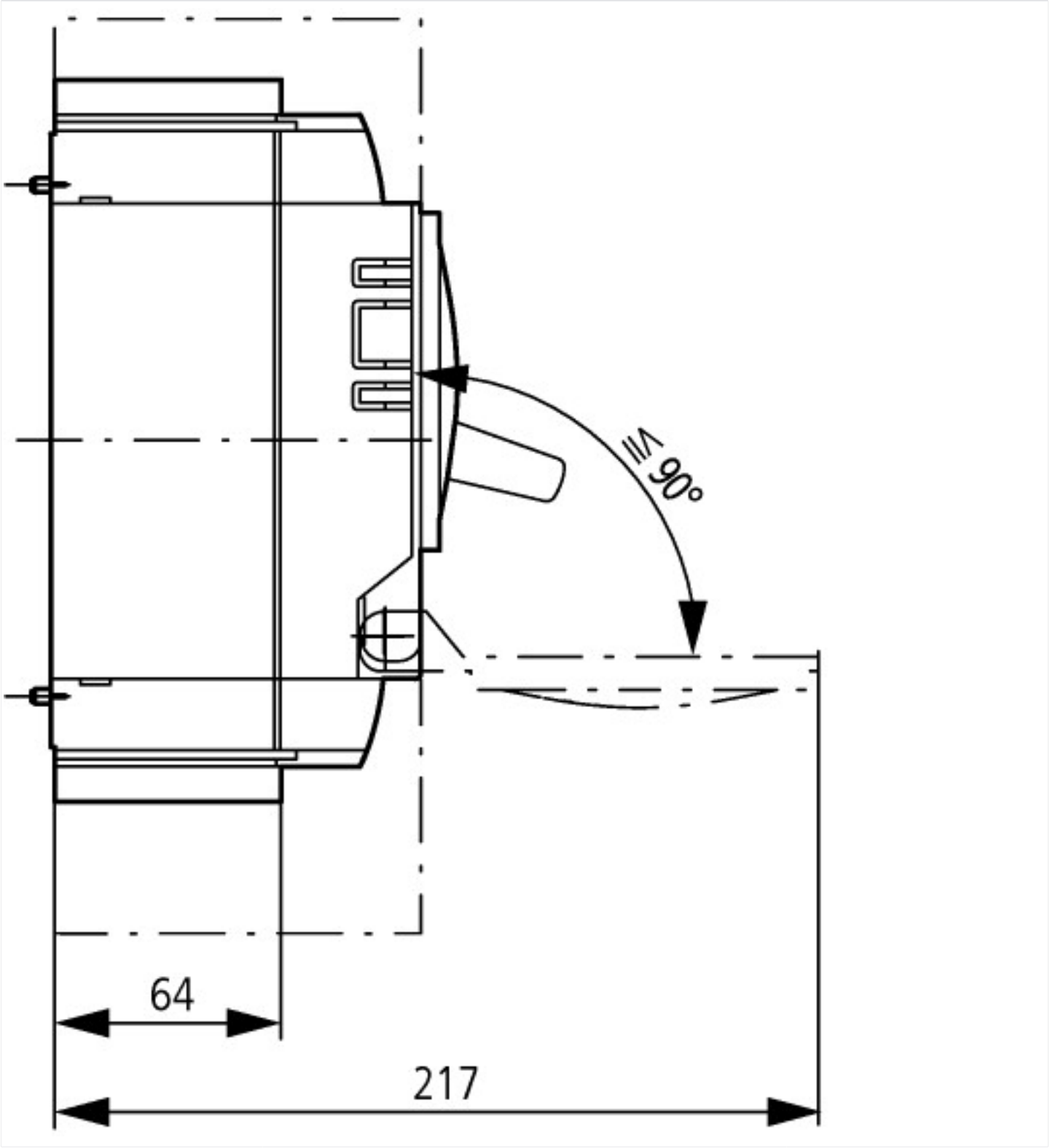


Let-through energy

Dimensions



① Blow out area, minimum clearance to adjacent parts
② Minimum clearance to adjacent parts



Additional product information (links)

IL012099ZU NZM2-PXR circuit-breaker, basic device, NZM2-PXR Circuit-Breaker, basic unit	
IL012099ZU NZM2-PXR circuit-breaker, basic device, NZM2-PXR Circuit-Breaker, basic unit	https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL012099ZU2019_03.pdf
Temperature dependency, Derating	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172
additional technical information for NZM power switch	https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf