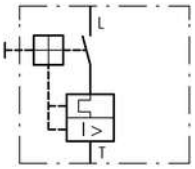


Motor-protective circuit-breaker, 3p, Ir=2.5-4A

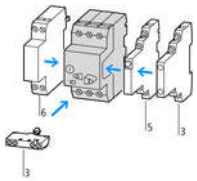
Part no. PKZM01-4
Article no. 278482
Catalog No. XTPB004BC1

Powering Business Worldwide

Delivery programme

Product range			PKZM01 motor protective circuit-breakers up to 16 A with pushbutton actuation
Basic function			Motor protection
			IE3
Notes			Also suitable for motors with efficiency class IE3. IE3-ready devices are identified by the logo on their packaging.
Contact sequence			
Max. motor rating			
AC-3			
220 V 230 V 240 V	P	kW	0.75
380 V 400 V 415 V	P	kW	1.5
440 V	P	kW	1.5
Setting range			
Overload releases	I_r	A	2.5 - 4
Short-circuit releases			
max.	I_{rm}	A	62
Connection technique			Screw terminals

Notes



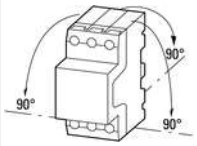
Accessory	Page
3 Standard auxiliary contact	→ 072896
5 Trip-indicating auxiliary contact	→ 072898
6 Shunt release, undervoltage release	→ 073187

phase failure sensitivity to IEC/EN 60947-4-1, VDE 0660 part 102.
Can be snap-fitted to IEC/EN 60715 DIN-rail with 7.5 or 15 mm height

Technical data

General

Standards			IEC/EN 60947, VDE 0660
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature		°C	
Storage	ϑ	°C	-40 - +80
Open		°C	- 25 - 55
Enclosed		°C	- 25 - 40

Mounting position			
Direction of incoming supply			as required
Degree of protection			
Device			IP20
Terminations			IP00
Protection against direct contact			Finger and back-of-hand proof
Mechanical shock resistance half-sinusoidal shock 10 ms to IEC 60068-2-27		g	25
Altitude		m	2000
Terminal capacity screw terminals		mm^2	
Solid		mm^2	1 x (1 - 6) 2 x (1 - 6)
Flexible with ferrule to DIN 46228		mm^2	1 x (1 - 6) 2 x (1 - 6)
Solid or stranded		AWG	18 - 10
Specified tightening torque for terminal screws			
Main cable		Nm	1.7
Control circuit cables		Nm	1

Main conducting paths

Rated impulse withstand voltage	U_{imp}	V AC	6000
Overvoltage category/pollution degree			III/3
Rated operational voltage	U_e	V AC	690
Rated uninterrupted current = rated operational current	$I_u = I_e$	A	16 or current setting of the overcurrent release
Rated frequency	f	Hz	40 - 60
Rated frequency		Hz	40 - 60
Current heat loss (3 pole at operating temperature)		W	6
Lifespan, mechanical	Operations	x 10^6	0.05
Lifespan, electrical (AC-3 at 400 V)	Operations	x 10^6	0.05
Maximum operating frequency		Ops./h	
Max. operating frequency		Ops/h	25
Short-circuit rating			
DC			
Short-circuit rating		kA	60
Short-circuit rating			60
Motor switching capacity		kA_{rms}	
AC-3 (up to 690 V)		A	16
DC-5 (up to 250 V)		A	16 (3 contacts in series)

Trip blocks

Temperature compensation			
to IEC/EN 60947, VDE 0660		°C	- 5 … 40
Operating range		°C	- 25 … 55
Temperature compensation residual error for T > 40 °C			0.25 %/K
Setting range of overload releases		x I_u	0.6 - 1
Short-circuit release fixed		x I_u	15
Fixed short-circuit release			Basic device 15.5 x I_u
Short-circuit release tolerance			± 20%
Phase-failure sensitivity			IEC/EN 60947-1-1, VDE 0660 Part 102

Data for design verification according to IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	4
Equipment heat dissipation, current-dependent	P_{vid}	W	5.33
Heat dissipation capacity	P_{diss}	W	0

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 5.0

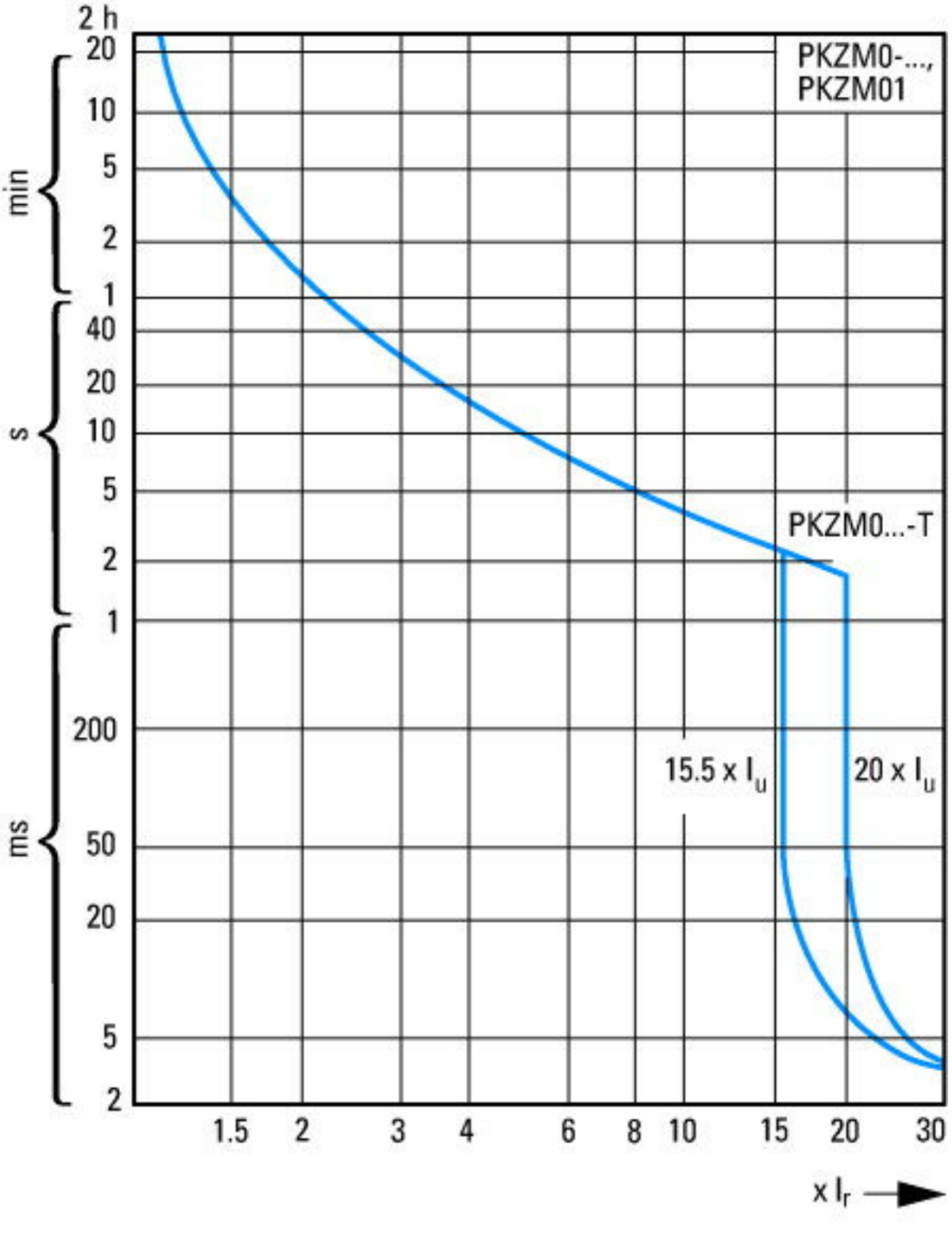
Low-voltage industrial components (EG000017) / Motor protective circuit-breaker (EC000074)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker motor protection (ecl@ss8-27-37-04-01 [AGZ529012])		
Setting range overload protector	A	2.5 - 4
Adjustment range undelayed short-circuit release	A	62 - 62
Phase failure sensitive		Yes
Switch off technique		Thermomagnetic
Rated operating voltage	V	690 - 690
Rated permanent current Iu	A	4
Rated operation power at AC-3, 230 V	kW	0.75
Rated operation power at AC-3, 400 V	kW	1.5
Connection type main current circuit		Screw connection
Device construction		Built-in device fixed built-in technique
With integrated auxiliary switch		No
With integrated under voltage release		No
Number of poles		3
Rated short-circuit breaking capacity Icu at 400 V, AC	kA	50
Degree of protection (IP)		IP20

Approvals

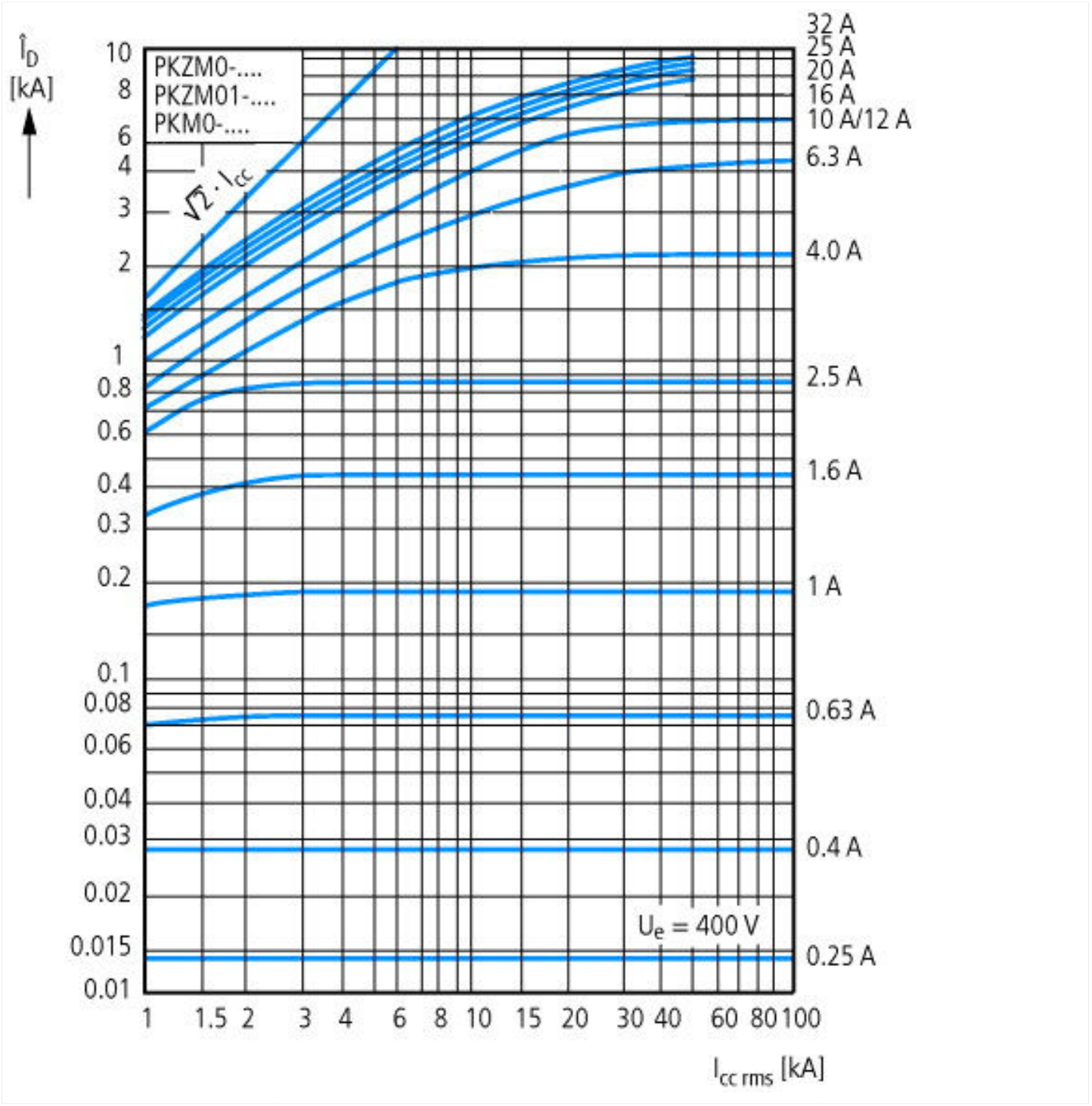
Product Standards		UL 508; CSA-C22.2 No. 14; IEC60947-4-1; CE marking
UL File No.		E36332
UL Category Control No.		NLRV
CSA File No.		165628
CSA Class No.		3211-05
North America Certification		UL listed, CSA certified
Specially designed for North America		No

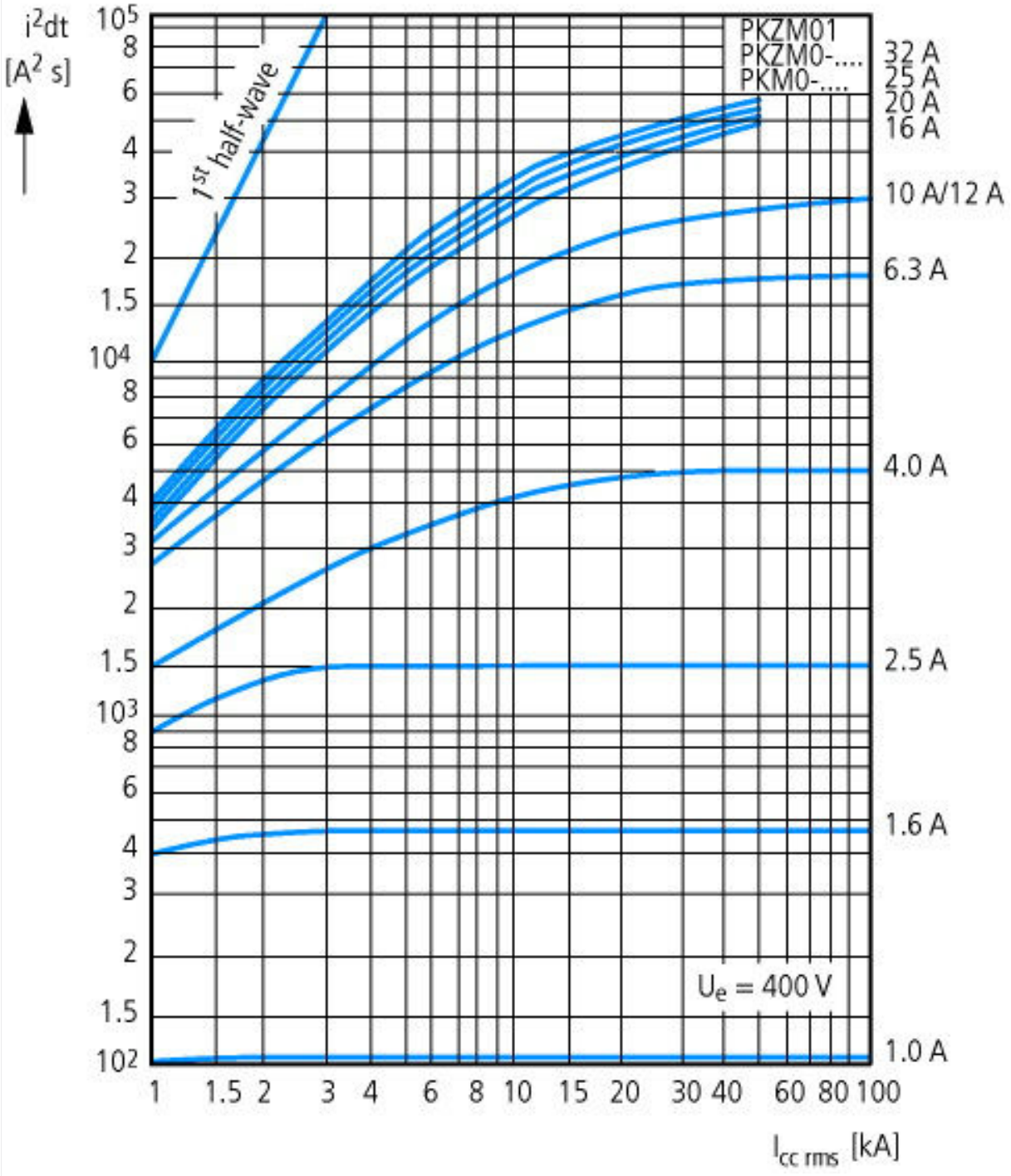
Suitable for	Branch circuit: Manual type E if used with terminal, or suitable for group installations

Characteristics



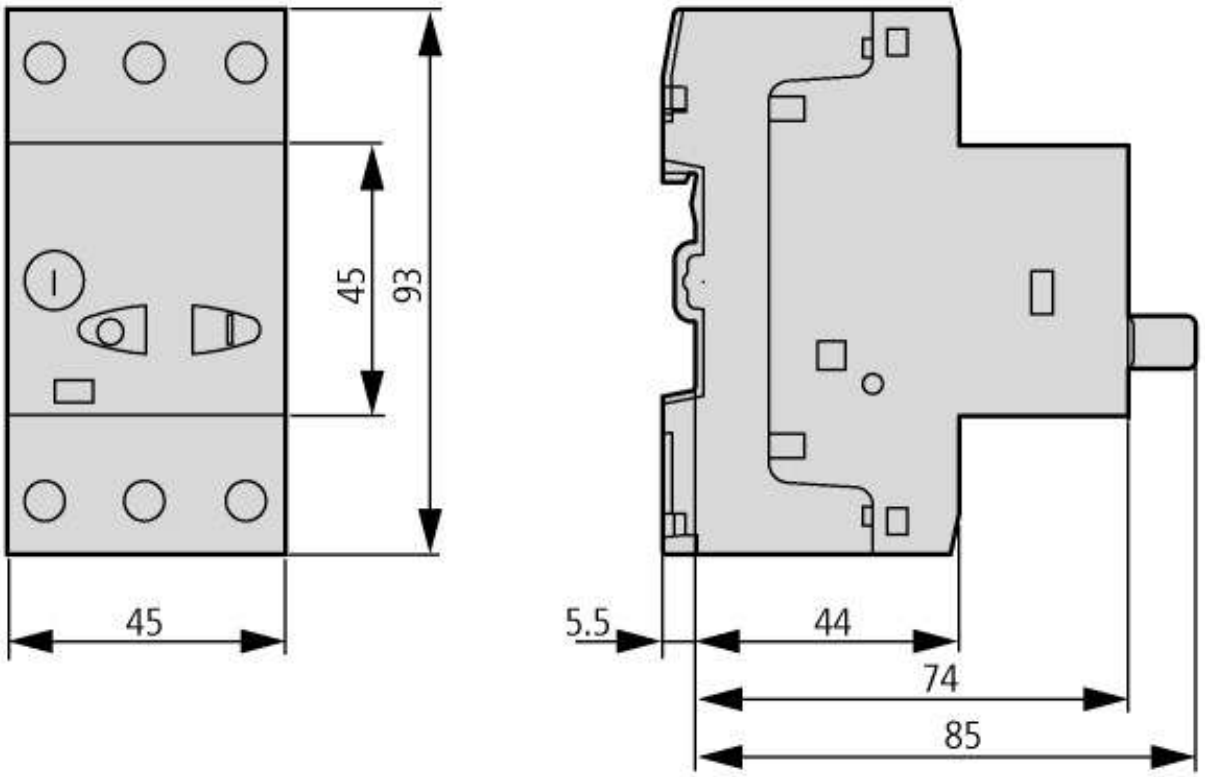
Motor-protective circuit-breaker tripping characteristic (high-capacity) compact starter, PKZM0-…T (not for PKM0-…), PKZM01


$\hat{I}_D$ [kA]
PKZM0-....
PKZM01-....
PKM0-....
$\sqrt{2} \cdot I_{cc}$
32 A
25 A
20 A
16 A
10 A/12 A
6.3 A
4.0 A
2.5 A
1.6 A
1 A
0.63 A
0.4 A
0.25 A
U_e = 400 V
10
8
6
4
3
2
1
0.8
0.6
0.4
0.3
0.2
0.1
0.08
0.06
0.04
0.03
0.02
0.015
0.01
1
1.5
2
3
4
6
8
10
15
20
30
40
60
80
100
$I_{cc\ rms}$ [kA]



Let-through characteristics

Dimensions



Additional product information (links)

IL03407010Z (AWA1210-2138) Motor-protective circuit-breaker	
IL03407010Z (AWA1210-2138) Motor-protective circuit-breaker	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407010Z2014_02.pdf
Motor starters and "Special Purpose Ratings" for the North American market	http://www.moeller.net/binary/ver_techpapers/ver953en.pdf
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf

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