

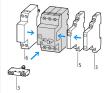
## Motor-protective circuit-breaker, 3p, Ir=20-25A

Powering Business Worldwide™

PKZM01-25 Part no. Article no. 288893 Catalog No. XTPB025BC1

## **Delivery programme**

Derivery programme			DI/7M01
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	Р	kW	5.5
380 V 400 V 415 V	Р	kW	12.5
440 V	P	kW	12.5
Setting range			
Overload releases	I <sub>r</sub>	A	20 - 25
Short-circuit releases			
max.	I <sub>rm</sub>	Α	388
Connection technique			Screw terminals



Ascessory
3 Standard auxiliary contact
5 Trip-indicating auxiliary contact
6 Shunt release, undervoltage release
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

#### Page

→ 072896 → 072898

→ 073187

### **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

Device   Projection   Projec	Mounting position			90°
Devote   Page	Direction of incoming supply			as required
Terminations    Provincion against direct currant   Provincion against direct vestimanis   Provincion against	Degree of protection			
Protection against direct contact  Mechanical shock resistance half-ainsoldid shock 10 ms to 1EC 60088 2-77  Mechanical shock resistance half-ainsoldid shock 10 ms to 1EC 60088 2-77  Solidi  Solidi  Flexible with ferrule to DIN 4528  Solid or stranded  Solidi or st	Device			IP20
Manufacian shock resistance half-airusoidal shock 10 ms to IEC 60008-2-77   9 25   25     Manufacian capacity screw terminals   9 2000   7 2000	Terminations			IP00
Activated	Protection against direct contact			Finger and back-of-hand proof
Solid or stranded Specified screw terminals areason with ferrule to DIN 46228	Mechanical shock resistance half-sinusoidal shock 10 ms to IEC 60068-2-27		g	25
Solid	Altitude		m	2000
Fexible with furnule to DIN 42228	Terminal capacity screw terminals		$mm^2$	
Solid or stranded   Soli	Solid		mm <sup>2</sup>	
Secified tightening torque for terminal screws	Flexible with ferrule to DIN 46228		mm <sup>2</sup>	
Main cable         Nm         1.7           Control circuit cables         Min         1           Main conducting paths         VAC         6000           Stated impulsa withstand voltage         U <sub>limp</sub> VAC         6000           Stated impulsa withstand voltage         U <sub>limp</sub> VAC         600           Stated sperational voltage         U <sub>lim</sub> VAC         890           Stated frequency         f         Hz         40 - 60           Stated frequency         W         6         40 - 60           Lidespan, mechanical         Operations         x 10 <sup>8</sup> 0.5           Lidespan, electrical (AC-3 at 400 V)         Operations         x 10 <sup>8</sup> 0.5           Max operating frequency         Operations         x 10 <sup>8</sup> 0.5           Maximum operating frequency         Operations         x 10 <sup>8</sup> 0.5           Maximum operating frequency         Operations         x 10 <sup>8</sup> 0.5           Maximum operating frequency         Operations         X 10 <sup>8</sup> 0.5           Motor circuit rating         Operations         X 10 <sup>8</sup> 0.5           Motor circuit rating         X 10         0.5         0.5         0.5	Solid or stranded		AWG	18 - 10
Control circuit cables         Name         1           All acts impulse withstand voltage         Umm         V 6000           Overvoltage category/Pollution degree         Umm         V AC         6000           Stated impulse withstand voltage         Umm         V AC         600           Stated operational voltage         Umm         V AC         600           Stated frequency         f         Hz         40 - 60           Stated frequency         m         Hz         40 - 60           Lifespan, mechanical         Operations         x 10 ft         05           Lifespan, mechanical         Operations         x 10 ft         05           Lifespan, electrical (AC-3 at 400 V)         Operations         x 10 ft         05           Maximum operating frequency         Operations         x 10 ft         05           Maximum operating frequency         Ops/m         25         25           Short-circuit rating         Experimental rating         0 ps/m         25           Motor switching capacity         Kayms         4 ps/m         6           AC-3 lup to 580 V)         A ps/m         16 (3 contacts in series)           Typic blocks         Comperating compensation         25 m/m         25 m/m <td>Specified tightening torque for terminal screws</td> <td></td> <td></td> <td></td>	Specified tightening torque for terminal screws			
Adact or moducting paths         V AC         6000           Stated inputies withstand voltage         U <sub>mp</sub> V AC         6000           Acted operational voltage         U <sub>e</sub> V AC         890           Stated uninterrupted current = rated operational current         I <sub>w</sub> I <sub>e</sub> A         16 or current setting of the overcurrent release           Stated frequency         f         Hz         40 - 60           Stated frequency         Hz         40 - 60           Current heat itos (3 pole at operating temperature)         W         6           Lifespan, mechanical         Operations         x 10 <sup>d</sup> Maximum operating frequency         Operations         x 10 <sup>d</sup> Maximum operating frequency         Operations         x 10 <sup>d</sup> Motor switching capacity         P         25           Short-circuit rating         Karms         60           Motor switching capacity         A         16 (3 contacts in series)           Tripperature compensation         A         16 (3 contacts in series)           Tripperature compensation residual error for T > 40 °C         25 40           Setting range of overload releases         x I <sub>w</sub> 60           For the Kerk (86847, VIDE 6860)         x 10 c         5 40           Operating range<	Main cable		Nm	1.7
Name	Control circuit cables		Nm	1
	Main conducting paths			
Rated operational voltage $  0   0   0   0   0   0   0   0   0   $		U <sub>imp</sub>	V AC	
				111/3
Act of frequency         f         Hz         40 - 60           Current heat loss (3 pole at operating temperature)         W         6           Lifespan, mechanical         Operations         x 10 <sup>6</sup> 0.05           Lifespan, electrical (AC-3 at 400 V)         Operations         x 10 <sup>6</sup> 0.05           Max. operating frequency         Ops/h         25           More discovered in frequency         Ops/h         25           Short-circuit rating         60         60           Motor switching capacity         AC-3 (up to 680)         A 16 (3 contacts in series)           Frip blocks         A 16 (3 contacts in series)           Frip blocks         Setting range         C - 5 40           Generature compensation residual error for T > 40 °C         25 55           Setting range of overload releases         x I <sub>u</sub> 0.6 · 1           Short-circuit release fixed         x I <sub>u</sub> 0.5 · 1           Short-circuit release fixed         x I <sub>u</sub> 15 · 20 · 20 · 30 · 30 · 30 · 30 · 30 · 30	Rated operational voltage	U <sub>e</sub>	V AC	690
Hz   Hz   Act of Courrent heat loss (3 pole at operating temperature)	Rated uninterrupted current = rated operational current	$I_u = I_e$	Α	16 or current setting of the overcurrent release
Current heat loss (3 pole at operating temperature)         W         6           Lifespan, mechanical         Operations x 10 <sup>6</sup> 0.05           Lifespan, electrical (AC-3 at 400 V)         Operations x 10 <sup>6</sup> 0.05           Max. operating frequency         Ops/h         25           Max. operating frequency         Comps/h         25           Short-circuit rating         Comps/h         60           Motor switching capacity         KArms         60           AC-3 (up to 690 V)         A         16 (3 contacts in series)           Life Negoty, VDE 0660         A         16 (3 contacts in series)           Trip blocks         C         2 - 5 40           Generature compensation         C         2 - 5 40           Operating range         C         2 - 5 40           Generating range of overload releases         X lu         0 6 - 1           Short-circuit release fixed         X lu         15           Short-circuit release fixed         X lu         15           Basic device 15.5 x lu         20%	Rated frequency	f	Hz	40 - 60
Lifespan, mechanical Operations x 10 <sup>8</sup> 0.05   Lifespan, electrical (AC-3 at 400 V) Operations x 10 <sup>8</sup> 0.05   Max. operating frequency Ops./h 25   Short-circuit rating Ops./h 25   DC Short-circuit rating 60   Motor switching capacity A 16   AC-3 (up to 690 V) A 16 (3 contacts in series)   DC-5 (up to 250 V) A 16 (3 contacts in series)   Trip blocks   Temperature compensation C 5 40   1 bLC/FN 60947, VDE 0660 °C 5 40   Operating range °C 25 55   Temperature compensation residual error for T > 40 °C x 1 <sub>0</sub> 06 - 1   Setting range of overload releases x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1   Short-circuit release fixed x 1 <sub>0</sub> 06 - 1 <td>Rated frequency</td> <td></td> <td>Hz</td> <td>40 - 60</td>	Rated frequency		Hz	40 - 60
Lifespan, electrical (AC-3 at 400 V)         Operations x 106         0.05           Maximum operating frequency         Ops/h         25           Short-circuit rating         C         60           DC         KA <sub>rms</sub> 60           Motor switching capacity         A         16           AC-3 (up to 690 V)         A         16 (3 contacts in series)           DC-5 (up to 250 V)         A         16 (3 contacts in series)           Trip blocks         C         -5 40           Temperature compensation         °C         -5 40           Operating range         °C         -5 40           Centing range of overload releases         x I <sub>u</sub> 06 - 1           Setting range of overload releases         x I <sub>u</sub> 06 - 1           Short-circuit release fixed         x I <sub>u</sub> 06 - 1           Short-circuit release fixed         x I <sub>u</sub> 15           Basic device 15.5 x I <sub>u</sub> ± 20%	Current heat loss (3 pole at operating temperature)		W	6
Maximum operating frequency         Ops./h         Des./h         Des./h         25           Short-circuit rating         Ops./h         25         30 </td <td>Lifespan, mechanical</td> <td>Operations</td> <td>x 10<sup>6</sup></td> <td>0.05</td>	Lifespan, mechanical	Operations	x 10 <sup>6</sup>	0.05
Max. operating frequency  Short-circuit rating  DC  Short-circuit rating  Motor switching capacity  AC-3 (up to 690 V)  AC-3 (up to 690 V)  BC-5 (up to 250 V)  AC-5 (up to 250 V)  AC-7	Lifespan, electrical (AC-3 at 400 V)	Operations		0.05
Short-circuit rating  DC Short-circuit rating  Motor switching capacity  AC-3 (up to 690 V)  AC-3 (up to 590 V)  AC-4 (up to				
DC Short-circuit rating Motor switching capacity  AC-3 (up to 690 V)  DC-5 (up to 250 V)  A 16  DC-5 (up to 250 V)  A 16 (3 contacts in series)  Femperature compensation  to IEC/EN 60947, VDE 0660  CC -5 40  Operating range  Femperature compensation residual error for T > 40 °C  Setting range of overload releases  Short-circuit release fixed  Short-circuit release  Short-circuit release tolerance  Short-circuit release tolerance  A 16  So (3 contacts in series)  To (5 contacts in series)  To (6 contacts in series)  To (7 contacts in series)  To (8 contacts in series)  To (9 co	, , ,		Ops/h	25
Short-circuit rating  Motor switching capacity  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  Setting range of overload releases  Short-circuit release fixed  Short-circuit release tolerance  60  60  60  60  60  60  60  60  60  6				
Motor switching capacity  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  Setting range of overload releases  X l <sub>u</sub> 0.6 - 1  Short-circuit release fixed  X l <sub>u</sub> 15  Basic device 15.5 x l <sub>u</sub> ±20%				
AC-3 (up to 690 V)  DC-5 (up to 250 V)  A 16 (3 contacts in series)  Firip blocks  Temperature compensation  to IEC/EN 60947, VDE 0660  Operating range  Operature compensation residual error for T > 40 °C  Setting range of overload releases $x \mid_{u}$ $x \mid_{u}$ Short-circuit release fixed $x \mid_{u}$ Short-circuit release tolerance $x \mid_{u}$	-			60
DC-5 (up to 250 V)  A 16 (3 contacts in series)  Frip blocks  Femperature compensation  to IEC/EN 60947, VDE 0660  °C -5 40  Operating range  or -25 55  Femperature compensation residual error for T > 40 °C  Setting range of overload releases  Short-circuit release fixed  Short-circuit release  Short-circuit release tolerance  A 16 (3 contacts in series)  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  Setting range of overload releases  x I <sub>u</sub> 0.6 - 1  Short-circuit release fixed  x I <sub>u</sub> 15  Basic device 15.5 x I <sub>u</sub> ± 20%				
Temperature compensation  to IEC/EN 60947, VDE 0660  °C -5 40  Operating range  °C -25 55  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  x I <sub>u</sub> 0.6 - 1  Short-circuit release fixed  x I <sub>u</sub> 15  Existed short-circuit release  Short-circuit release tolerance  x I <sub>u</sub> 20%			Α	16 (3 contacts in series)
to IEC/EN 60947, VDE 0660  Operating range  °C -5 40  Operating range  remperature compensation residual error for T > 40 °C  Enting range of overload releases  × I <sub>u</sub> 0.6 - 1  Short-circuit release fixed  × I <sub>u</sub> 15  Exicuted short-circuit release  Short-circuit release tolerance  **Exicute release tolerance*  **Exicute release release tolerance*  **Exicute release release tolerance*  **Exicute release re	_			
Operating range  °C - 25 55  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  × I <sub>u</sub> 0.6 - 1  Short-circuit release fixed  × I <sub>u</sub> 15  Basic device 15.5 × I <sub>u</sub> ± 20%			۰C	-5 40
Femperature compensation residual error for T > 40 °C  Setting range of overload releases  x I <sub>u</sub> 0.6 - 1  X I <sub>u</sub> 15  Existed short-circuit release  Short-circuit release tolerance  x I <sub>u</sub> ± 20%				
Setting range of overload releases x I <sub>u</sub> 0.6 - 1  Short-circuit release fixed x I <sub>u</sub> 15  Fixed short-circuit release  Short-circuit release tolerance ± 20%			J	
Short-circuit release fixed x I u 15  Fixed short-circuit release  Short-circuit release tolerance ± 20%	Tomporation Compensation residual error for 1 2 70 C			■ 0.25 %/K
Fixed short-circuit release  Basic device 15.5 x I <sub>u</sub> ± 20%	Setting range of overload releases		x l <sub>u</sub>	0.6 - 1
Short-circuit release tolerance ± 20%	Short-circuit release fixed		x I <sub>u</sub>	15
	Fixed short-circuit release			Basic device 15.5 x I <sub>u</sub>
Phase-failure sensitivity IEC/EN 60947-1-1, VDE 0660 Part 102	Short-circuit release tolerance			± 20%
	Phase-failure sensitivity			IEC/EN 60947-1-1, VDE 0660 Part 102

# **Design verification as per IEC/EN 61439**

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	25
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	7.04
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25

Operating ambient temperature max.	°C	55
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 switch gear must be observed. $\label{eq:constraint}$
10.12 Electromagnetic compatibility		Is the panel builder's responsibility. The specifications for the switch gear must be observed. $\label{eq:constraint}$
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed. $\label{eq:continuous}$

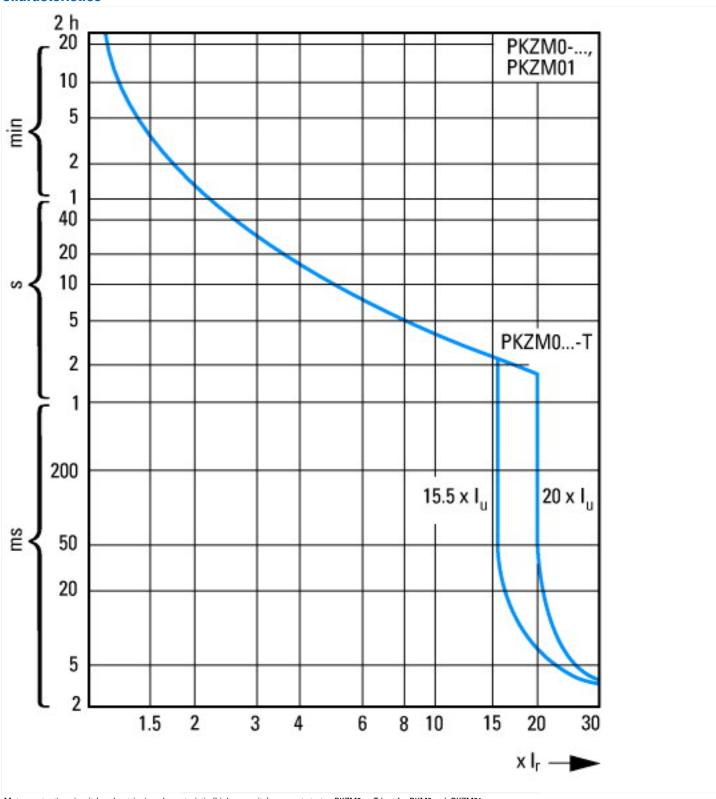
### **Technical data ETIM 5.0**

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 Α 16 - 25 Α Adjustment range undelayed short-circuit release 388 - 388 Phase failure sensitive Yes Switch off technique Thermomagnetic 690 - 690 Rated operating voltage Rated permanent current lu Α 25 Rated operation power at AC-3, 230 V kW 5.5 kW 12.5 Rated operation power at AC-3, 400 V Connection type main current circuit Screw connection Built-in device fixed built-in technique Device construction 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

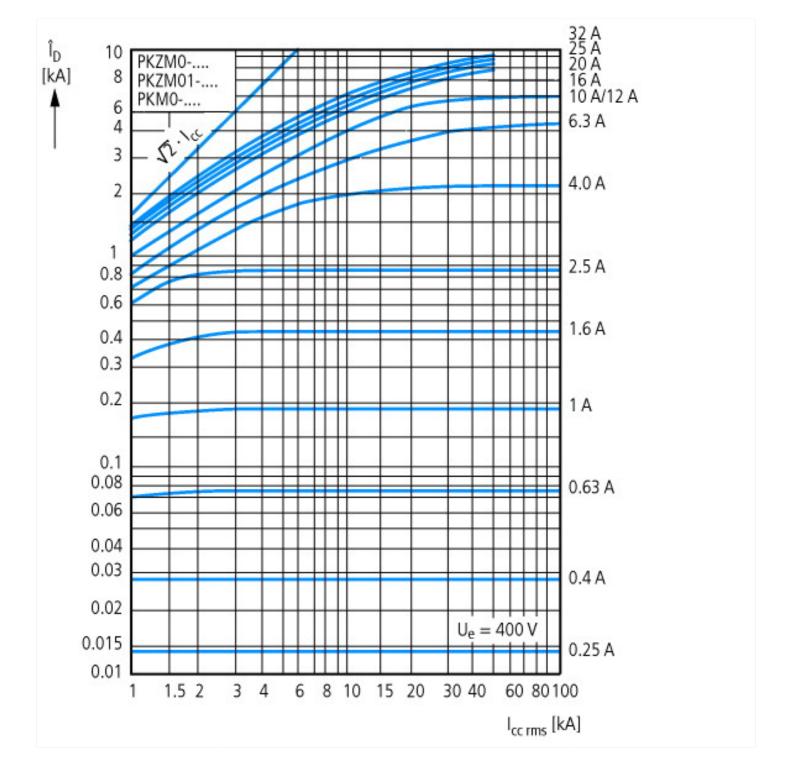
## **Approvals**

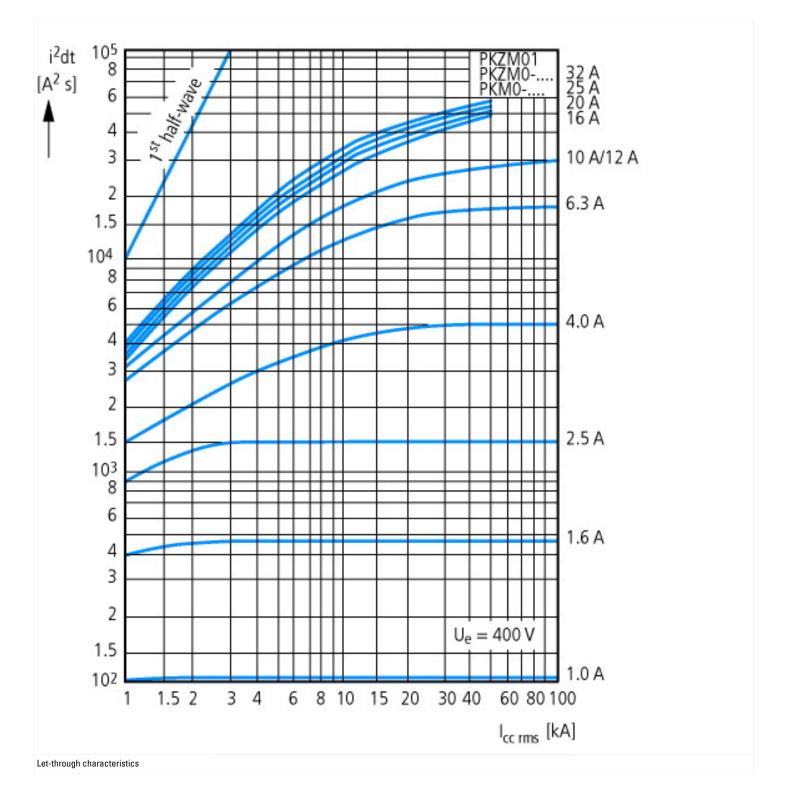
Product Standards	UL 508; CSA-C22.2 No. 14; IEC60947-4-1; CE marking
UL File No.	E36332
UL Category Control No.	NLRV
CSA File No.	165628
CSA Class No.	3211-05
North America Certification	UL listed, CSA certified

### **Characteristics**

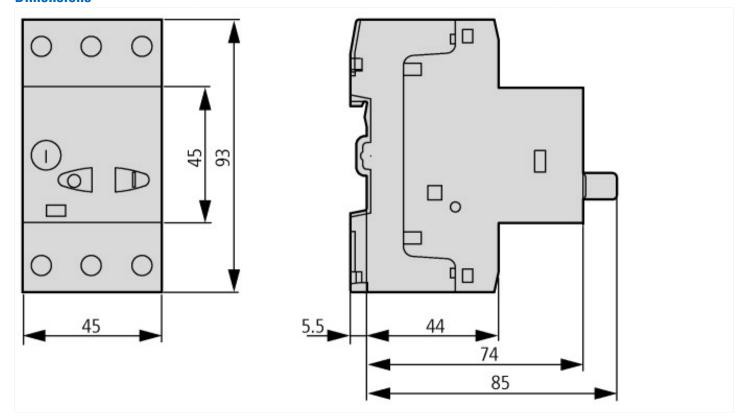


Motor-protective circuit-breaker tripping characteristic (high-capacity) compact starter, PKZM0-...T (not for PKM0-...), PKZM01





# **Dimensions**



# **Additional product information (links)**

· · · · · · · · · · · · · · · · · · ·	
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