### Transformer-protective circuit-breaker, 8 - 12 A, Push in terminals



PKZM0-12-T-PI Part no. Catalog No. 199173

Alternate Catalog XTPTPI012BC1NL

**EL-Nummer** 4312282

(Norway)

### **Delivery program**

Product range			PKZM0T transformer-protective circuit-breakers up to 25 A
Basic function			Transformer protection
			IE3 ✓
Notes			Also suitable for motors with efficiency class IE3.
Connection technique			Push in terminals
Contact sequence			
Rated uninterrupted current	Iu	Α	12
Setting range			
Overload releases	I <sub>r</sub>	Α	8 - 12
short-circuit release			
max.	I <sub>rm</sub>	Α	224
Phase-failure sensitivity			IEC/EN 60947-4-1, VDE 0660 Part 102

## **Technical data**

#### General

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		
Storage	°C	- 40 - 80
Open	°C	-25 - +55
Enclosed	°C	- 25 - 40
Mounting position		90°
Direction of incoming supply		as required
Degree of protection		
Device		IP20
Terminations		IP20
Protection against direct contact when actuated from front (EN 50274)		Finger and back-of-hand proof
Mechanical shock resistance half-sinusoidal shock 10 ms to IEC 60068-2-27	g	25
Altitude	m	Max. 2000
Terminal capacity main cable		
Push-in terminals		
Solid	mm <sup>2</sup>	1 x (1 - 6) 2 x (1 - 6)
flexible	mm <sup>2</sup>	1 x (1 - 6) 2 x (1 - 6)

flexible with ultrasonic welded busbar end	flexible with ferrules		mm <sup>2</sup>	1 x (1 - 6) 2 x (1 - 4)
Solid or stranded	flexible with ultrasonic welded busbar end		mm <sup>2</sup>	1 x (1 - 10)
Stripping length	flexible with uninsulated wire end ferrule		mm <sup>2</sup>	
Standard screwdriver	Solid or stranded		AWG	18 - 8
Main conducting paths           Bated impulse withstand voltage         Uinp         V AC         6000           Overvoltage category/pollution degree         III/3         III/3           Bated operational voltage         Ua         V AC         690           Bated operational voltage         Iu = Ie         A         12           Bated frequency         f         Hz         50/60           Current heat loss (3 pole at operating temperature)         W         6.37           Lifespan, nechanical         Operations x 10%         x 10%         0.1           Lifespan, electrical (AC-3 at 400 V)         Lifespan, electrical         A         0.1           Lifespan, electrical prequency         A         0.9x/h         40           Short-circuit rating         N         A         6           Motor switching capacity         A         1           AC-3 (up to 880V)         A         12           Temperature compensation         A         12           Temperature compensation         C         -5 40           Operating range         C         -5 40           Temperature compensation residual error for T > 40 °C         -5 40           Setting range of overload releases         A         1.	Stripping length		mm	12
Rated impulse withstand voltage         Ump         V AC         6000           Overvoltage category/pollution degree         Ue         V AC         690           Rated operational voltage         Ue         V AC         690           Rated uninterrupted current = rated operational current         Iu = Ie         A         12           Rated frequency         f         Hz         5060           Current heat loss (3 pole at operating temperature)         W         3.7           Lifespan, mechanical         Operations         X 106           Lifespan, electrical (AC-3 at 400 V)         T         1.1           Lifespan, electrical frequency         Operations         X 106         1.2           Not-circuit rating         Operations         Y AC         4.2           Notr-circuit rating         Notr-	Standard screwdriver			3.0 x 0.5
Overvoltage category/pollution degree         Ue         VAC         890           Rated operational voltage         Ue         VAC         890           Rated uninterrupted current = rated operational current         Iu = Ie         A         12           Rated frequency         f         Hz         5060           Current heat loss (3 pole at operating temperature)         Operations         x 108         37           Lifespan, nechanical         Operations         x 108         0.1           Lifespan, electrical (AC-3 at 400 V)         V         0.1           Max. operating frequency         N 108         0.1           Short-circuit rating         V         V         0.2           Motor switching capacity         KA         0.0           Motor switching capacity         X         0.2           AC-3 (up to 890V)         X         0.2           Temperature compensation         C         0.2           10 IEC/EN 66947, VDE 0660         C         0.2           Operating range         C         0.2555           Temperature compensation residual error for T > 40 °C         2555           Setting range of overload releases         X         1.0           Solution (including the properature)	Main conducting paths			
Rated operational voltage         U <sub>0</sub> V AC         690           Rated uninterrupted current = rated operational current         I <sub>u</sub> = I <sub>0</sub> A         12           Rated frequency         f         Hz         50/60           Current heat loss (3 pole at operating temperature)         W         6.37           Lifespan, mechanical         Operations         x 10 <sup>6</sup> 0.1           Lifespan, electrical (AC-3 at 400 V)         V 10 <sup>6</sup> 0.1           Lifespan, electrical in frequency         x 10 <sup>6</sup> 0.1           Short-circuit rating         Ops/to         40           Motor-switching capacity         KA         60           AC-3 (up to 690V)         A         12           Trip blocks           Temperature compensation         C         540           to IEC/EN 60947, VDE 0660         C         540           Operating range         C         2555           Temperature compensation residual error for T > 40 °C         20.25 %/K           Setting range of overload releases         X Iu         8aic device, fixed: 20 x Iu	Rated impulse withstand voltage	U <sub>imp</sub>	V AC	6000
Rated uninterrupted current = rated operational current         Iu = Iu         A         12           Rated frequency         f         Hz         50/60           Current heat loss (3 pole at operating temperature)         w         6.37           Lifespan, mechanical         Operations         x 10 <sup>6</sup> 0.1           Lifespan, electrical (AC-3 at 400 V)         x 10 <sup>6</sup> 0.1           Max. operating frequency         x 10 <sup>6</sup> 0.1           Short-circuit rating         x 10 <sup>6</sup> 0.2           Short-circuit rating         kA         60           Motor switching capacity         x         1           AC-3 (up to 690V)         x         1           Temperature compensation         x         x           to IEC/EN 60947, VDE 0660         °C         -5 40           Operating range         °C         -5 45           Temperature compensation residual error for T > 40 °C         × 1         ≤ 0.25 %/K           Setting range of overload releases         x 1         0 6-1           short-circuit release         basic device, fixed: 20 x Iu	Overvoltage category/pollution degree			III/3
Rated frequency         f         Hz         50/60           Current heat loss (3 pole at operating temperature)         W         6.37           Lifespan, mechanical         Operations         x 10 <sup>6</sup> 0.1           Lifespan, electrical (AC-3 at 400 V)         x 10 <sup>6</sup> 0.1           Max. operating frequency         x 10 <sup>6</sup> 0.1           Short-circuit rating         V         V         0.2           Short-circuit rating         KA         60           Motor switching capacity         A         12           AC-3 (up to 890V)         A         12           Triph locks           Temperature compensation         C         -5 40           0 perating range         C         -5 40           0 perating range         C         -5 40           0 perating range of overload releases         X lu         ≤0.25 %/K           Setting range of overload releases         S lu         5 lo         6 lo	Rated operational voltage	U <sub>e</sub>	V AC	690
Current heat loss (3 pole at operating temperature)  Lifespan, mechanical  Lifespan, electrical (AC-3 at 400 V)  Lifespan, electrical  Max. operating frequency  Short-circuit rating  DC  Short-circuit rating  AC-3 (up to 690 V)  AC-3 (up to 690 V)  AC-3 (up to 690 V)  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  Setting range of overload releases  Short-circuit release  Step Setting range of overload releases  Short-circuit release  Step Setting range of overload releases  Step	Rated uninterrupted current = rated operational current	$I_u = I_e$	Α	12
Lifespan, mechanical Lifespan, electrical (AC-3 at 400 V)  Lifespan, electrical (AC-3 at 400 V)  Lifespan, electrical  Max. operating frequency  Nort-circuit rating  DC  Short-circuit rating  DC  Short-circuit rating  AC-3 (up to 690V)  AC-3 (up to 690V)  Temperature compensation  to IEC/EN 60947, VDE 0660  Operating range  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  short-circuit release  Description  A Setting range of overload releases  Note tircuit release  Description  A Des	Rated frequency	f	Hz	50/60
Lifespan, electrical (AC-3 at 400 V)  Lifespan, electrical  Max. operating frequency Short-circuit rating DC  Short-circuit rating DC  Short-circuit rating AC-3 (up to 690V) AC-3 (up to 690V)  Temperature compensation to IEC/EN 60947, VDE 0660 Operating range Operating range Temperature compensation residual error for T > 40 °C Setting range of overload releases Short-circuit release  AC-3 (up to 690V)  AC-4 (up to 690V)  AC-4 (up to 690V)  AC-5 (up to 690V)  AC-6 (up to 690V)  AC-7 (up to 690V)  AC-6 (up to 690V)  AC-7	Current heat loss (3 pole at operating temperature)		W	6.37
Lifespan, electrical  Max. operating frequency  Short-circuit rating  DC  Short-circuit rating  Notor switching capacity  AC-3 (up to 690V)  Temperature compensation  to IEC/EN 60947, VDE 0660  Operating range  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  short-circuit release  Operations  x 10 <sup>6</sup> Operations  y 10  Operations  y 10  Operations  y 10  Operations  y 10  Operations  x 10 <sup>6</sup> Operations  y 10  Operations  y 10  Operations  y 10  Operations  x 10 <sup>6</sup> Operations  y 10  Operations  x 10 <sup>6</sup> Operations  y 10  Operations  x 10 <sup>6</sup> Operations  y 10  Operations  x 10  Operations  x 10  Operations  y 10  Operations  x 10  Operations  y 10  Operations  x 10  Operations  y	Lifespan, mechanical	Operations	x 10 <sup>6</sup>	0.1
Max. operating frequency       Ops/h       40         Short-circuit rating       VAR       Frequency         Short-circuit rating       KA       60         Motor switching capacity       A       12         AC-3 (up to 690V)       A       12         Trip blocks         Temperature compensation       °C       -5 40         0 perating range       °C       -25 55         Temperature compensation residual error for T > 40 °C       ≤ 0.25 %/K         Setting range of overload releases       X I <sub>u</sub> 0.6 - 1         short-circuit release       Basic device, fixed: 20 x I <sub>u</sub>	Lifespan, electrical (AC-3 at 400 V)			
Short-circuit rating DC Short-circuit rating KA 60 Motor switching capacity AC-3 (up to 690V) AC-4 (u	Lifespan, electrical	Operations	x 10 <sup>6</sup>	0.1
Short-circuit rating  KA  60  Motor switching capacity  AC-3 (up to 690V)  AC-3 (up to 690V)  Trip blocks  Temperature compensation  to IEC/EN 60947, VDE 0660  Operating range  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  short-circuit release  A  Basic device, fixed: 20 x I <sub>u</sub>	Max. operating frequency		Ops/h	40
Short-circuit rating  Motor switching capacity  AC-3 (up to 690V)  AC-3 (up to 690V)  Trip blocks  Temperature compensation  to IEC/EN 60947, VDE 0660  Operating range  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  short-circuit release  AC-3 (up to 690V)  A 12  Temperature compensation  °C -5 40  20 -25 55  30.25 %/K  Basic device, fixed: 20 x lu  Basic device, fixed: 20 x lu	Short-circuit rating			
Motor switching capacity  AC-3 (up to 690V)  AC-3 (up to 690V)  Trip blocks  Temperature compensation  to IEC/EN 60947, VDE 0660  Operating range  CC  -25 55  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  **Nort-circuit release**	DC			
AC-3 (up to 690V)  Trip blocks  Temperature compensation to IEC/EN 60947, VDE 0660 Operating range  C -5 40  Operature compensation residual error for T > 40 °C  Setting range of overload releases  Short-circuit release  A 12  C -5 40  C -25 55  ≦ 0.25 %/K  Setting range of overload releases  A 1 u  Basic device, fixed: 20 x Iu	Short-circuit rating		kA	60
Trip blocks  Temperature compensation to IEC/EN 60947, VDE 0660 Operating range Operature compensation residual error for T > 40 °C Setting range of overload releases short-circuit release  Temperature compensation residual error for T > 40 °C Setting range of overload releases Short-circuit release  Temperature compensation residual error for T > 40 °C Setting range of overload releases Short-circuit release	Motor switching capacity			
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 Setting range of overload releases short-circuit release Setting range of overload releases	AC-3 (up to 690V)		Α	12
to IEC/EN 60947, VDE 0660  Operating range  °C  -5 40  -25 55  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  x I <sub>u</sub> short-circuit release  °C  -25 55  ≤ 0.25 %/K  A light of the compensation residual error for T > 40 °C  Setting range of overload releases  x I <sub>u</sub> Basic device, fixed: 20 x I <sub>u</sub>	Trip blocks			
Operating range  °C - 25 55  Temperature compensation residual error for T > 40 °C  Setting range of overload releases  x I <sub>u</sub> short-circuit release  °C - 25 55  ≤ 0.25 %/K  x I <sub>u</sub> 0.6 - 1  Basic device, fixed: 20 x I <sub>u</sub>	Temperature compensation			
Temperature compensation residual error for T > 40 °C ≤ 0.25 %/K  Setting range of overload releases x I <sub>u</sub> 0.6 - 1  short-circuit release Basic device, fixed: 20 x I <sub>u</sub>	to IEC/EN 60947, VDE 0660		°C	- 5 40
Setting range of overload releases x I <sub>u</sub> 0.6 - 1 short-circuit release Basic device, fixed: 20 x I <sub>u</sub>	Operating range		°C	- 25 55
short-circuit release Basic device, fixed: 20 x I <sub>u</sub>	Temperature compensation residual error for T > 40 $^{\circ}$ C			≦ 0.25 %/K
	Setting range of overload releases		x I <sub>u</sub>	0.6 - 1
Short-circuit release tolerance ± 20%	short-circuit release			Basic device, fixed: 20 x I <sub>u</sub>
	Short-circuit release tolerance			± 20%

# Design verification as per IEC/EN 61439

Technical data for design verification		
Operating ambient temperature min.	°C	-25
Operating ambient temperature max.	°C	55

IEC/EN 60947-4-1, VDE 0660 Part 102

### **Technical data ETIM 8.0**

Phase-failure sensitivity

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])

protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013])		
Rated permanent current lu	Α	12
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	50
Overload release current setting	Α	12 - 12
Adjustment range short-term delayed short-circuit release	А	0 - 0
Adjustment range undelayed short-circuit release	А	224 - 224
Integrated earth fault protection		No
Type of electrical connection of main circuit		Spring clamp connection
Device construction		Built-in device fixed built-in technique
Suitable for DIN rail (top hat rail) mounting		Yes
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	Yes
With integrated under voltage release	No
Number of poles	3
Position of connection for main current circuit	Other
Type of control element	Turn button
Complete device with protection unit	Yes
Motor drive integrated	No
Motor drive optional	No
Degree of protection (IP)	IP20

# **Dimensions**

Additional product information (links)

Schaltvermögen	https://de.ecat.eaton.com/flip-cat/?edition=MOTCONT1_DE#page_3/44
Motor starters and "Special Purpose Ratings" for the North American market	$http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct\_3258146.pdf$
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf