



**222352**  
**PKZM4-25**

Overview

Specifications

Resources



Delivery program

Technical data

Design verification as per IEC/EN 61439

Technical data ETIM7.0

Approvals

Characteristics

Dimensions

## DELIVERY PROGRAM

Product range  
PKZM4 motor protective circuit-breakers up to 65 A

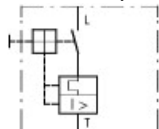
Basic function  
Motor protection



Notes  
Also suitable for motors with efficiency class IE3.

Connection technique  
Screw terminals

Contact sequence



## Max. motor rating

AC-3  
220 V 230 V 240 V [F]  
5.5 kW

AC-3  
380 V 400 V 415 V [F]  
12.5 kW

AC-3  
440 V [F]  
12.5 kW


AC-3  
500 V [F]  
15 kW

AC-3  
660 V 690 V [F]  
22 kW

Rated uninterrupted current [ $I_u$ ]  
25 A

## Setting range

Overload releases  [ $I_r$ ]  
16 - 25 A

short-circuit release  [ $I_{rm}$ ]  
max. [ $I_{rm}$ ]  
388 A

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

Explosion protection (according to ATEX 94/9/EC)  
 PTB 10, ATEX 3012, Ex II(2) G  
Observe manual MN03402002Z-DE/EN

### Notes

Overload trigger: tripping class 10 A  
Can be snapped on to IEC/EN 60715 top-hat rail  
with 7.5 or 15 mm height.

# TECHNICAL DATA

## General

### Standards

IEC/EN 60947, VDE 0660, UL, CSA

### Climatic proofing

Damp heat, constant, to IEC 60068-2-78

Damp heat, cyclic, to IEC 60068-2-30

### Ambient temperature

#### Storage

- 40 - 80 °C

### Ambient temperature

#### Open

-25 - +55 °C

### Ambient temperature

#### Enclosed

- 25 - 40 °C

### Mounting position

### Direction of incoming supply

as required

### Degree of protection

#### Device

IP20

### Degree of protection

#### Terminations

IP00

### 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

15 g

Altitude  
Max. 2000 m

Terminal capacity main cable  
Screw terminals  
Solid  
1 x (1 - 50)  
2 x (1 - 35) mm<sup>2</sup>

Terminal capacity main cable  
Screw terminals  
Flexible with ferrule to DIN 46228  
1 x (1 - 35)  
2 x (1 - 35) mm<sup>2</sup>

Terminal capacity main cable  
Screw terminals  
Solid or stranded  
14 - 2 AWG

Terminal capacity main cable  
Screw terminals  
Stripping length  
14 mm

Specified tightening torque for terminal screws  
Main cable  
3.3 Nm

## Main conducting paths

Rated impulse withstand voltage [ $U_{imp}$ ]  
6000 V AC

Overvoltage category/pollution degree  
III/3

Rated operational voltage [ $U_e$ ]  
690 V AC

Rated uninterrupted current = rated operational  
current [ $I_u = I_e$ ]  
25 A

Rated frequency [f]  
40 - 60 Hz

Current heat loss (3 pole at operating temperature)  
14.7 W

Impedance per pole  
12 mΩ

Lifespan, mechanical [Operations]  
0.03 x 10<sup>6</sup>

Lifespan, electrical (AC-3 at 400 V)  
Lifespan, electrical [Operations]  
0.03 x 10<sup>6</sup>

Max. operating frequency  
40 Ops/h

Short-circuit rating  
DC  
Short-circuit rating  
60 kA

Short-circuit rating  
DC  
Notes  
up to 250 V

Motor switching capacity  
AC-3 (up to 690V)  
25 A

Motor switching capacity  
DC-5 (up to 250V)  
25 (3 contacts in series) A

## Trip blocks

Temperature compensation  
to IEC/EN 60947, VDE 0660  
- 5...40 °C

Temperature compensation  
Operating range  
- 25...55 °C

Temperature compensation residual error for T >  
40 °C

□ 0.25 %/K

Setting range of overload releases  
0.6 - 1 x  $I_n$

short-circuit release  
Basic device, fixed: 15.5 x  $I_n$

Short-circuit release tolerance  
± 20%

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

### Rating data for approved types

Switching capacity  
Maximum motor rating  
Three-phase  
200 V  
208 V  
5 HP

Switching capacity  
Maximum motor rating  
Three-phase  
230 V  
240 V  
7.5 HP

Switching capacity  
Maximum motor rating  
Three-phase  
460 V  
480 V  
15 HP

Switching capacity  
Maximum motor rating  
Three-phase  
575 V  
600 V  
20 HP

Switching capacity  
Maximum motor rating  
Single-phase  
115 V  
120 V  
2 HP

Switching capacity  
Maximum motor rating  
Single-phase  
230 V  
240 V  
3 HP

Short Circuit Current Rating, type E  
240 V  
65 kA

Short Circuit Current Rating, type E  
480 Y / 277 V  
65 kA

Short Circuit Current Rating, type E  
600 Y / 347 V  
25 kA

Short Circuit Current Rating, type E  
Accessories required  
BK50/3-PKZ4-E

Short Circuit Current Rating, group protection  
600 V High Fault  
SCCR (fuse)  
42 kA

Short Circuit Current Rating, group protection  
600 V High Fault  
max. Fuse  
600 A

Short Circuit Current Rating, group protection  
600 V High Fault  
SCCR (CB)  
42 kA

Short Circuit Current Rating, group protection  
600 V High Fault  
max. CB  
600 A

## DESIGN VERIFICATION AS PER IEC/EN 61439

## Technical data for design verification

Rated operational current for specified heat dissipation [ $I_n$ ]  
25 A

Heat dissipation per pole, current-dependent [ $P_{vid}$ ]  
4.9 W

Equipment heat dissipation, current-dependent [ $P_{vid}$ ]  
14.7 W

Static heat dissipation, non-current-dependent [ $P_{vs}$ ]  
0 W

Heat dissipation capacity [ $P_{diss}$ ]  
0 W

Operating ambient temperature min.  
-25 °C

Operating ambient temperature max.  
+55 °C

## 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 Strength of materials and parts  
10.2.3.1 Verification of thermal stability of enclosures  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
10.2.3.2 Verification of resistance of insulating materials to normal heat  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
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 Strength of materials and parts  
10.2.4 Resistance to ultra-violet (UV) radiation  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
10.2.5 Lifting  
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts  
10.2.6 Mechanical impact  
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts  
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 Insulation properties  
10.9.3 Impulse withstand voltage

Is the panel builder's responsibility.

#### 10.9 Insulation properties

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 7.0

Low-voltage industrial components (EG000017) / Mtor protection circuit-breaker (EC000074)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Mtor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016])

Overload release current setting

16 - 25 A

Adjustment range undelayed short-circuit release

388 - 388 A

With thermal protection

Yes

Phase failure sensitive

Yes

Switch off technique  
Thermomagnetic

Rated operating voltage  
690 - 690 V

Rated permanent current I<sub>u</sub>  
25 A

Rated operation power at AC-3, 230 V  
5.5 kW

Rated operation power at AC-3, 400 V  
12.5 kW

Type of electrical connection of main circuit  
Screw connection

Type of control element  
Turn button

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 I<sub>cu</sub> at 400 V,  
AC  
150 kA

Degree of protection (IP)  
IP20

Height  
140 mm

Width  
55 mm

Depth  
160 mm

## APPROVALS

Product Standards  
IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No.  
60947-4-1-14; CE marking

UL File No.  
E36332

UL Category Control No.  
NLRV

CSA File No.  
165628

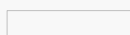
CSA Class No.  
3211-05

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



#### Accessories

- 1: Standard auxiliary contact
- 2: Trip-indicating auxiliary contact
- 3: Shunt releases, undervoltage releases

#### Characteristic curve

#### Tripping characteristics motor-protective circuit breaker PKZM4-...

- 1: Minimum level, 3-phase
- 2: Maximum level, 3-phase
- 3: Minimum marker, 2-phase
- 4: Highest marker, 2-phase

#### Characteristic curve

#### Let-through current

#### Characteristic curve

- 1 half-cycle
- Let-through energy

## DIMENSIONS

PKZM4-... +AK-PKZO

