



278482  
PKZM01-4

Overview

Specifications

Resources



Delivery program

Technical data

Design verification as per IEC/EN 61439

Technical data ETIM 7.0

Approvals

Characteristics

Dimensions

## DELIVERY PROGRAM

Product range  
PKZM01 motor protective circuit-breakers up to 25 A with pushbutton actuation

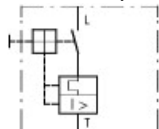
Basic function  
Motor protection



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]  
0.75 kW

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

AC-3  
440 V [F]  
1.5 kW


AC-3  
500 V [F]  
2.2 kW

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

Rated uninterrupted current [ $I_u$ ]  
4 A

## Setting range

Overload releases  [ $I_r$ ]  
2.5 - 4 A

short-circuit release  [ $I_m$ ]  
max. [ $I_m$ ]  
62 A

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

### 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

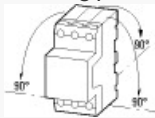
-25 - +55 °C

### 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

25 g

Altitude  
Max. 2000 m

Terminal capacity main cable  
Screw terminals  
Solid  
1 x (1 - 6)  
2 x (1 - 6) mm<sup>2</sup>

Terminal capacity main cable  
Screw terminals  
Flexible with ferrule to DIN 46228  
1 x (1 - 6)  
2 x (1 - 6) mm<sup>2</sup>

Terminal capacity main cable  
Screw terminals  
Solid or stranded  
18 - 10 AWG

Terminal capacity main cable  
Screw terminals  
Stripping length  
10 mm

Specified tightening torque for terminal screws  
Main cable  
1.7 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 [ $I_u = I_e$ ]  
4 A

Rated frequency [f]  
40 - 60 Hz

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

Impedance per pole  
110 mΩ

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

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

Max. operating frequency  
25 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)  
4 A

Motor switching capacity  
DC-5 (up to 250V)  
4 (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  
0.75 HP

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

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

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

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

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

Short Circuit Current Rating, group protection  
600 V High Fault  
SCCR (fuse)  
50 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)  
50 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 [ $I_r$ ]  
4 A

Heat dissipation per pole, current-dependent [ $P_{id}$ ]  
1.78 W

Equipment heat dissipation, current-dependent  
[ $P_{id}$ ]  
5.33 W

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

Heat dissipation capacity [ $P_{\text{diss}}$ ]

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) / Motor protection circuit-breaker (EC000074)

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

Overload release current setting  
2.5 - 4 A

Adjustment range undelayed short-circuit release  
62 - 62 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>  
4 A

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

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

Type of electrical connection of main circuit  
Screw connection

Type of control element  
Push 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  $I_{cu}$  at 400 V,  
AC  
50 kA

Degree of protection (IP)  
IP20

Height  
93 mm

Width  
45 mm

Depth  
90.5 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

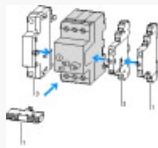
CSA Class No.  
3211-05

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

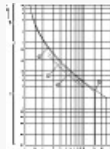
## CHARACTERISTICS



### Accessories

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

### Characteristic curve



Tripping characteristics motor circuit breaker

FKZMD-..., FKZMD1  
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



