



222354
PKZM4-40



Overview



Specifications



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DELIVERY PROGRAM

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

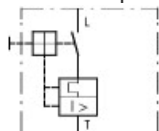
Basic function
Motor protection



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]
11 kW

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

AC-3
440 V [F]
22 kW


AC-3
500 V [F]
24 kW

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

Rated uninterrupted current [I_u]
40 A

Setting range

Overload releases  [I_r]
32 - 40 A

short-circuit release  [I_m]
max. [I_m]
620 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

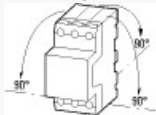
-25 - +55 °C

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) mm²

Terminal capacity main cable
Screw terminals
Flexible with ferrule to DIN 46228
1 x (1 - 35)
2 x (1 - 35) mm²

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 [$I_u = I_e$]
40 A

Rated frequency [f]
40 - 60 Hz

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

Impedance per pole
5 mΩ

Lifespan, mechanical [Operations]
0.03 x 10⁶

Lifespan, electrical (AC-3 at 400 V)
Lifespan, electrical [Operations]
0.03 x 10⁶

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)
40 A

Motor switching capacity
DC-5 (up to 250V)
40 (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
10 HP

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

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

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

Switching capacity
Maximum motor rating
Single-phase
230 V
240 V
7.5 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]
40 A

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

Equipment heat dissipation, current-dependent
[P_{vid}]
20.7 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) / 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

32 - 40 A

Adjustment range undelayed short-circuit release

620 - 620 A

With thermal protection

Yes

Phase failure sensitive

Yes

Switch off technique

Thermomagnetic

Rated operating voltage

690 - 690 V

Rated permanent current I_n
40 A

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

Rated operation power at AC-3, 400 V
20 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_{cu} at 400 V,
AC
50 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



