222355
PKZM4-50

Overview | Specifications | Resources

Delivery program
Technical data
Design verification as per IEC/EN 61439
Technical data ETIM 7.0
Approvals
Characteristics
Dimensions

DELIVERY PROGRAM

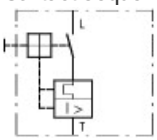
Product range
PKZM4 motor protective circuit-breakers up to 65 A

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 [P]
14 kW

AC-3
380 V 400 V 415 V [P]
25 kW

AC-3
440 V [P]
30 kW

AC-3
500 V [P]
30 kW

AC-3
660 V 690 V [P]
45 kW

Rated uninterrupted current [I_u]
50 A

Setting range

Overload releases [I_r]
40 - 50 A

short-circuit release [I_{rm}]
max. [I_{rm}]
775 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^2

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

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 [$I_u = I_e$]
50 A

Rated frequency [f]
40 - 60 Hz

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

Impedance per pole
3 mΩ

Lifespan, mechanical [Operations]
0.03×10^6

Lifespan, electrical (AC-3 at 400 V)
Lifespan, electrical [Operations]
0.03×10^6

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)
50 A

Motor switching capacity
DC-5 (up to 250V)
50 (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_u

short-circuit release
Basic device, fixed: 15.5 x I_u

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
230 V
240 V
15 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
40 HP

Short Circuit Current Rating, type E
240 V
50 kA

Short Circuit Current Rating, type E
480 Y / 277 V
50 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]
50 A

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

Equipment heat dissipation, current-dependent [P_{vid}]
24.6 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
40 - 50 A

Adjustment range undelayed short-circuit release
775 - 775 A

With thermal protection
Yes

Phase failure sensitive
Yes

Switch off technique
Thermomagnetic

Rated operating voltage
690 - 690 V

Rated permanent current Iu
50 A

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

Rated operation power at AC-3, 400 V
25 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 Icu 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-PKZ0