Motor-protective circuit-breaker, 3p, Ir=16-20A, screw connection

Part no. PKZM0-20
Catalog No. 046988
Alternate Catalog No. XTPR020BC1NL
EL-Nummer 4355148

Delivery program
Product range
PKZM0 motor protective circuit-breakers up to 32 A

Basic function
Motor protection

Notes
Also suitable for motors with efficiency class IE3.
IE3-ready devices are identified by the logo on their packaging.

Connection technique
Screw terminals

Max. motor rating
AC-3

<table>
<thead>
<tr>
<th>Voltage</th>
<th>PkW</th>
<th>PkW</th>
<th>PkW</th>
</tr>
</thead>
<tbody>
<tr>
<td>220 V</td>
<td>380 V</td>
<td>440 V</td>
<td>500 V</td>
</tr>
<tr>
<td>230 V</td>
<td>400 V</td>
<td>415 V</td>
<td></td>
</tr>
<tr>
<td>240 V</td>
<td>415 V</td>
<td></td>
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<tr>
<td>240 V</td>
<td>415 V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rated uninterrupted current
Iu A

Setting range
Overload releases
Ir A

short-circuit release
max.
Irm A

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

Explosion protection (according to ATEX 94/9/EC)
PTB 10, ATEX 3013, Ex II(2) GD

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 °C -40 - 80
Open °C -25 - +55
Enclosed °C - 25 - 40
Mounting position

Direction of incoming supply as required

Degree of protection
- Device IP20
- 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 g 25

Altitude m Max. 2000

Terminal capacity main cable
- Screw terminals
  - Solid mm² 1 x (1 - 6) 2 x (1 - 6)
  - Flexible with ferrule to DIN 46228 mm² 1 x (1 - 6) 2 x (1 - 6)
  - Solid or stranded AWG 18 - 10

- Stripping length mm 10

Specified tightening torque for terminal screws
- Main cable Nm 1.7
- Control circuit cables Nm 1

Main conducting paths
- Rated impulse withstand voltage U_{imp} V AC 6000
- Overvoltage category/pollution degree III/3
- Rated operational voltage U_{e} V AC 690
- Rated uninterrupted current = rated operational current I_{u} = I_{e} A 20
- Rated frequency f Hz 40 - 60
- Current heat loss (3 pole at operating temperature) W 5.82
- Impedance per pole mΩ 5
- Lifespan, mechanical Operations x 10^{6} 0.1
- Lifespan, electrical (AC-3 at 400 V) Operations x 10^{6} 0.1
- Max. operating frequency Ops/h 40

Short-circuit rating
- DC Short-circuit rating kA 40

Notes up to 250 V

Motor switching capacity
- AC-3 (up to 690V) A 20
- DC-5 (up to 250V) A 20 (3 contacts in series)

Trip blocks
- Temperature compensation to IEC/EN 60947, VDE 0660 °C - 5 … 40
- Operating range °C - 25 … 55
- Temperature compensation residual error for T > 40 °C ± 0.25 %/K
- Setting range of overload releases x I_{u} 0.6 - 1
- 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
      - 200 V HP 5
      - 208 V 0.8/1.3
**Design verification as per IEC/EN 61439**

### Technical data for design verification

- **Rated operational current for specified heat dissipation**
  \[ I_n \] A 20

- **Heat dissipation per pole, current-dependent**
  \[ P_{vid} \] W 1.94

- **Equipment heat dissipation, current-dependent**
  \[ P_{vid} \] W 5.82

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

- **Heat dissipation capacity**
  \[ P_{diss} \] W 0

- **Operating ambient temperature min.**
  °C -25

- **Operating ambient temperature max.**
  °C 55

### IEC/EN 61439 design verification

- **10.2 Strength of materials and parts**
  - **10.2.2 Corrosion resistance**
    Meets the product standard’s requirements.
  - **10.2.3.1 Verification of thermal stability of enclosures**
    Meets the product standard’s requirements.
  - **10.2.3.2 Verification of resistance of insulating materials to normal heat**
    Meets the product standard’s requirements.
  - **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.
  - **10.2.4 Resistance to ultra-violet (UV) radiation**
    Meets the product standard’s requirements.
  - **10.2.5 Lifting**
    Does not apply, since the entire switchgear needs to be evaluated.
  - **10.2.6 Mechanical impact**
    Does not apply, since the entire switchgear needs to be evaluated.
  - **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.
  - **10.9.3 Impulse withstand voltage**
    Is the panel builder’s responsibility.
  - **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.
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 [AGZS929016])

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overload release current setting</td>
<td>A 16 - 20</td>
</tr>
<tr>
<td>Adjustment range undelayed short-circuit release</td>
<td>A 310 - 310</td>
</tr>
<tr>
<td>With thermal protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Phase failure sensitive</td>
<td>Yes</td>
</tr>
<tr>
<td>Switch off technique</td>
<td>Thermomagnetic</td>
</tr>
<tr>
<td>Rated operating voltage</td>
<td>V 690 - 690</td>
</tr>
<tr>
<td>Rated permanent current Iu</td>
<td>A 20</td>
</tr>
<tr>
<td>Rated operation power at AC-3, 230 V</td>
<td>kW 5.5</td>
</tr>
<tr>
<td>Rated operation power at AC-3, 400 V</td>
<td>kW 9</td>
</tr>
<tr>
<td>Type of electrical connection of main circuit</td>
<td>Screw connection</td>
</tr>
<tr>
<td>Type of control element</td>
<td>Turn button</td>
</tr>
<tr>
<td>Device construction</td>
<td>Built-in device fixed built-in technique</td>
</tr>
<tr>
<td>With integrated auxiliary switch</td>
<td>No</td>
</tr>
<tr>
<td>With integrated under voltage release</td>
<td>No</td>
</tr>
<tr>
<td>Number of poles</td>
<td>3</td>
</tr>
<tr>
<td>Rated short-circuit breaking capacity lc at 400 V, AC</td>
<td>kA 50</td>
</tr>
<tr>
<td>Degree of protection (IP)</td>
<td>IP20</td>
</tr>
<tr>
<td>Height</td>
<td>mm 93</td>
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<tr>
<td>Width</td>
<td>mm 45</td>
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<tr>
<td>Depth</td>
<td>mm 76</td>
</tr>
</tbody>
</table>

### 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

08/13/2020
Characteristics

1. Standard auxiliary contact
2. Trip-indicating auxiliary contact
3. Shunt releases, undervoltage releases
Tripping characteristics motor circuit breaker PKZM0-..., PKZM01
1: Minimum level, 3-phase
2: Maximum level, 3-phase
3: Minimum marker, 2-phase
4: Highest marker, 2-phase
Let-through current
① 1 half-cycle
Let-through energy
Dimensions

Motor-protective circuit-breaker with standard auxiliary contact
PKZM0-…+(NHI-E-…-PKZ0)
PKZM0-…-T+(NHI-E-…-PKZ0)
PKM0-…+(NHI-E-…-PKZ0)

Motor-protective circuit-breakers with lockable rotary handles
PKZM0-…+AK-PKZ0
Motor-protective circuit-breakers with early-make auxiliary contacts
PKZM0-…+VHI-…-PKZ0

Additional product information (links)

| EC prototype test certification PTB (German National Institute of Natural and Engineering Sciences) 10 ATEX 3013 | http://intranet.moeller.net/technik_daten/file/produkt_deklarationen/file/approbationen/00001731.pdf |
| 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 |