

Motor-protective circuit-breaker, 3p, I<sub>r</sub>=0.63-1A, screw connection

Part no. **PKZM0-1,6-EA**  
 Catalog No. **189899**

## 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. |
| Connection technique                                                                                                           |                 |    | Screw terminals                                     |
| <b>Max. motor rating</b>                                                                                                       |                 |    |                                                     |
| AC-3                                                                                                                           |                 |    |                                                     |
| 220 V 230 V 240 V                                                                                                              | P               | kW | 0.25                                                |
| 380 V 400 V 415 V                                                                                                              | P               | kW | 0.55                                                |
| 440 V                                                                                                                          | P               | kW | 0.55                                                |
| 500 V                                                                                                                          | P               | kW | 0.75                                                |
| 660 V 690 V                                                                                                                    | P               | kW | 1.1                                                 |
| Rated uninterrupted current                                                                                                    | I <sub>u</sub>  | A  | 1.6                                                 |
| <b>Setting range</b>                                                                                                           |                 |    |                                                     |
| Overload releases<br>                         | I <sub>r</sub>  | A  | 1 - 1.6                                             |
| short-circuit release<br>                   |                 |    |                                                     |
| max.                                                                                                                           | I <sub>rm</sub> | A  | 24.8                                                |
| Phase-failure sensitivity                                                                                                      |                 |    | IEC/EN 60947-4-1, VDE 0660 Part 102                 |
| <b>Notes</b> Overload trigger: tripping class 10 A<br>Can be snapped on to IEC/EN 60715 top-hat rail with 7.5 or 15 mm height. |                 |    |                                                     |

## Technical data

|                                                                           |  |                 |                                                                                |
|---------------------------------------------------------------------------|--|-----------------|--------------------------------------------------------------------------------|
| <b>General</b>                                                            |  |                 |                                                                                |
| Standards                                                                 |  |                 | IEC/EN 60947, VDE 0660, UL, CSA                                                |
| Climatic proofing                                                         |  |                 | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature                                                       |  |                 |                                                                                |
| Storage                                                                   |  | °C              | - 40 - 80                                                                      |
| Open                                                                      |  | °C              | -25 - +55                                                                      |
| Enclosed                                                                  |  | °C              | - 25 - 40                                                                      |
| 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                                                                     |  | mm <sup>2</sup> | 1 x (1 - 6)<br>2 x (1 - 6)                                                     |
| Flexible with ferrule to DIN 46228                                        |  | mm <sup>2</sup> | 1 x (1 - 6)<br>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             | 1.6                        |
| Rated frequency                                         | f           | Hz            | 50/60                      |
| Current heat loss (3 pole at operating temperature)     |             | W             | 5.36                       |
| Impedance per pole                                      |             | mΩ            | 700                        |
| Lifespan, mechanical                                    | Operations  | $\times 10^6$ | 0.1                        |
| Lifespan, electrical (AC-3 at 400 V)                    |             |               |                            |
| Lifespan, electrical                                    | Operations  | $\times 10^6$ | 0.1                        |
| Max. operating frequency                                |             | Ops/h         | 40                         |
| Short-circuit rating                                    |             |               |                            |
| DC                                                      |             |               |                            |
| Short-circuit rating                                    |             | kA            | 60                         |
| Notes                                                   |             |               | up to 250 V                |
| Motor switching capacity                                |             |               |                            |
| AC-3 (up to 690V)                                       |             | A             | 1.6                        |
| DC-5 (up to 250V)                                       |             | A             | 1.6 (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 |  |              | $\leq 0.25$ %/K                        |
| Setting range of overload releases                      |  | $\times I_u$ | 0.6 - 1                                |
| short-circuit release                                   |  |              | Basic device, fixed: $15.5 \times I_u$ |
| Short-circuit release tolerance                         |  |              | $\pm 20\%$                             |
| 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<br>208 V                                 |  | HP   | Hinweis: Motorleistung in diesem Bereich nach Bemessungsstrom berechnen.<br>Angegebene Werte nach NEC Table 430-150 |
| 230 V<br>240 V                                 |  | HP   | Hinweis: Motorleistung in diesem Bereich nach Bemessungsstrom berechnen.<br>Angegebene Werte nach NEC Table 430-150 |
| 460 V<br>480 V                                 |  | HP   | 0.75                                                                                                                |
| 575 V<br>600 V                                 |  | HP   | 0.75                                                                                                                |
| Single-phase                                   |  |      |                                                                                                                     |
| 230 V<br>240 V                                 |  | HP   | 0.1                                                                                                                 |
| Short Circuit Current Rating, type E           |  | SCCR |                                                                                                                     |
| 240 V                                          |  | kA   | 65                                                                                                                  |
| 480 Y / 277 V                                  |  | kA   | 65                                                                                                                  |
| 600 Y / 347 V                                  |  | kA   | 50                                                                                                                  |
| Accessories required                           |  |      | BK25/3-PKZ0-E                                                                                                       |
| Short Circuit Current Rating, group protection |  | SCCR |                                                                                                                     |
| 600 V High Fault                               |  |      |                                                                                                                     |
| SCCR (fuse)                                    |  | kA   | 50                                                                                                                  |
| max. Fuse                                      |  | A    | 600                                                                                                                 |
| SCCR (CB)                                      |  | kA   | 50                                                                                                                  |
| max. CB                                        |  | A    | 600                                                                                                                 |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                   |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                   |    |                                                                                                                                  |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>    | A  | 1.6                                                                                                                              |
| Heat dissipation per pole, current-dependent                                                                           | P <sub>vid</sub>  | W  | 1.79                                                                                                                             |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub>  | W  | 5.36                                                                                                                             |
| Static heat dissipation, non-current-dependent                                                                         | P <sub>vs</sub>   | W  | 0                                                                                                                                |
| Heat dissipation capacity                                                                                              | P <sub>diss</sub> | 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.                                   |
| 10.13 Mechanical function                                                                                              |                   |    | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |

## Technical data ETIM 8.0

|                                                                                                                                                                                                       |  |    |                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|------------------------------------------|
| 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                                                                                                                                                                      |  | A  | 1 - 1.6                                  |
| Adjustment range undelayed short-circuit release                                                                                                                                                      |  | A  | 25 - 25                                  |
| With thermal protection                                                                                                                                                                               |  |    | No                                       |
| Phase failure sensitive                                                                                                                                                                               |  |    | Yes                                      |
| Switch off technique                                                                                                                                                                                  |  |    | Thermomagnetic                           |
| Rated operating voltage                                                                                                                                                                               |  | V  | 690 - 690                                |
| Rated permanent current I <sub>u</sub>                                                                                                                                                                |  | A  | 1.6                                      |
| Rated operation power at AC-3, 230 V                                                                                                                                                                  |  | kW | 0.25                                     |
| Rated operation power at AC-3, 400 V                                                                                                                                                                  |  | kW | 0.55                                     |
| 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 | kA | 150  |
| Degree of protection (IP)                              |    | IP20 |
| Height                                                 | mm | 93   |
| Width                                                  | mm | 45   |
| Depth                                                  | mm | 76   |