

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

**Part no.** PKZM0-20-T  
**Catalog No.** 088918  
**Alternate Catalog No.** XTPT020BC1NL  
**EL-Nummer (Norway)** 4315161

## Delivery program

|                                                                                                                                                         |          |   |                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|--------------------------------------------------------------|
| Product range                                                                                                                                           |          |   | PKZM0...T transformer-protective circuit-breakers up to 25 A |
| Basic function                                                                                                                                          |          |   | Transformer protection                                       |
| Notes                                                                                                                                                   |          |   | Also suitable for motors with efficiency class IE3.          |
| Connection technique                                                                                                                                    |          |   | Screw terminals                                              |
| Rated uninterrupted current                                                                                                                             | $I_u$    | A | 20                                                           |
| <b>Setting range</b>                                                                                                                                    |          |   |                                                              |
| Overload releases<br>                                                  | $I_r$    | A | 16 - 20                                                      |
| short-circuit release<br>                                              |          |   |                                                              |
| max.                                                                                                                                                    | $I_{rm}$ | A | 350                                                          |
| Phase-failure sensitivity                                                                                                                               |          |   | IEC/EN 60947-4-1, VDE 0660 Part 102                          |
| <b>Notes</b> For the protection of transformers with a high inrush current.<br>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                                                         |
| 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             | 20                        |
| Rated frequency                                         | f           | Hz            | 50/60                     |
| Current heat loss (3 pole at operating temperature)     |             | W             | 5.68                      |
| 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            | 40                        |
| 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 $T > 40\text{ °C}$ |  |              | $\leq 0.25\text{ \%/K}$              |
| Setting range of overload releases                             |  | $\times I_u$ | 0.6 - 1                              |
| short-circuit release                                          |  |              | Basic device, fixed: $20 \times I_u$ |
| Short-circuit release tolerance                                |  |              | $\pm 20\%$                           |
| Phase-failure sensitivity                                      |  |              | IEC/EN 60947-4-1, VDE 0660 Part 102  |

## 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  | 1.89                                                               |
| Equipment heat dissipation, current-dependent                                                                          | $P_{vid}$  | W  | 5.68                                                               |
| 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.                                   |
| 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) / Power circuit-breaker for trafo/generator/installation protection (EC000228)                                                                                                                 |    |  |                                          |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecI@ss10.0.1-27-37-04-09 [AJZ716013]) |    |  |                                          |
| Rated permanent current I <sub>u</sub>                                                                                                                                                                                                      | A  |  | 20                                       |
| Rated voltage                                                                                                                                                                                                                               | V  |  | 690 - 690                                |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz                                                                                                                                                                       | kA |  | 50                                       |
| Overload release current setting                                                                                                                                                                                                            | A  |  | 16 - 20                                  |
| Adjustment range short-term delayed short-circuit release                                                                                                                                                                                   | A  |  | 0 - 0                                    |
| Adjustment range undelayed short-circuit release                                                                                                                                                                                            | A  |  | 380 - 380                                |
| Integrated earth fault protection                                                                                                                                                                                                           |    |  | No                                       |
| Type of electrical connection of main circuit                                                                                                                                                                                               |    |  | Screw connection                         |
| Device construction                                                                                                                                                                                                                         |    |  | Built-in device fixed built-in technique |
| Suitable for DIN rail (top hat rail) mounting                                                                                                                                                                                               |    |  | Yes                                      |
| DIN rail (top hat rail) mounting optional                                                                                                                                                                                                   |    |  | Yes                                      |
| Number of auxiliary contacts as normally closed contact                                                                                                                                                                                     |    |  | 0                                        |
| Number of auxiliary contacts as normally open contact                                                                                                                                                                                       |    |  | 0                                        |
| Number of auxiliary contacts as change-over contact                                                                                                                                                                                         |    |  | 0                                        |
| With switched-off indicator                                                                                                                                                                                                                 |    |  | Yes                                      |
| With integrated under voltage release                                                                                                                                                                                                       |    |  | No                                       |
| Number of poles                                                                                                                                                                                                                             |    |  | 3                                        |
| Position of connection for main current circuit                                                                                                                                                                                             |    |  | Other                                    |
| Type of control element                                                                                                                                                                                                                     |    |  | Turn button                              |
| Complete device with protection unit                                                                                                                                                                                                        |    |  | Yes                                      |
| Motor drive integrated                                                                                                                                                                                                                      |    |  | No                                       |
| Motor drive optional                                                                                                                                                                                                                        |    |  | No                                       |
| Degree of protection (IP)                                                                                                                                                                                                                   |    |  | IP20                                     |