



Motor-protective circuit-breaker, 440 V: 12.5 kW, I<sub>r</sub>= 10 - 16 A, IP20



Part no. PKZM01-16  
283390  
EL Number 4365021  
(Norway)

General specifications

|                      |                                                                                                                                                                                                                         |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product name         | Eaton Moeller® series PKZM01 Motor-protective circuit-breaker                                                                                                                                                           |
| Part no.             | PKZM01-16                                                                                                                                                                                                               |
| EAN                  | 4015082833909                                                                                                                                                                                                           |
| Product Length/Depth | 93 millimetre                                                                                                                                                                                                           |
| Product height       | 90 millimetre                                                                                                                                                                                                           |
| Product width        | 45 millimetre                                                                                                                                                                                                           |
| Product weight       | 0.3 kilogram                                                                                                                                                                                                            |
| Certifications       | UL File No.: E36332<br>CSA-C22.2 No. 60947-4-1-14<br>IEC/EN 60947-4-1<br>CSA File No.: 165628<br>CSA Class No.: 3211-05<br>VDE 0660<br>CSA<br>IEC/EN 60947<br>UL Category Control No.: NLRV<br>CE<br>UL 60947-4-1<br>UL |
| Product Tradename    | PKZM01                                                                                                                                                                                                                  |
| Product Type         | Motor-protective circuit-breaker                                                                                                                                                                                        |
| Product Sub Type     | None                                                                                                                                                                                                                    |
| Catalog Notes        | IE3-ready devices are identified by the logo on their packaging.                                                                                                                                                        |

Features & Functions

|                 |                                                                              |
|-----------------|------------------------------------------------------------------------------|
| Actuator type   | Push button                                                                  |
| Features        | Phase-failure sensitivity (according to IEC/EN 60947-4-1, VDE 0660 Part 102) |
| Functions       | Motor protection<br>Phase failure sensitive                                  |
| Number of poles | Three-pole                                                                   |

General information

|                                        |                                                                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Connection                             | Screw terminals                                                                                                                             |
| Degree of protection                   | IP20<br>Terminals: IP00                                                                                                                     |
| Lifespan, electrical                   | 50,000 operations (at 400V, AC-3)                                                                                                           |
| Lifespan, mechanical                   | 50,000 Operations (Main conducting paths)                                                                                                   |
| Mounting position                      | Can be snapped on to IEC/EN 60715 top-hat rail with 7.5 or 15 mm height.                                                                    |
| Operating frequency                    | 25 Operations/h                                                                                                                             |
| Overvoltage category                   | III                                                                                                                                         |
| Pollution degree                       | 3                                                                                                                                           |
| Product category                       | Motor protective circuit breaker                                                                                                            |
| Protection                             | Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)                                        |
| Rated impulse withstand voltage (Uimp) | 6000 V AC                                                                                                                                   |
| Shock resistance                       | 25 g, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms                                                               |
| Suitable for                           | Branch circuit: Manual type E if used with terminal, or suitable for group installations, (UL/CSA)<br>Also motors with efficiency class IE3 |
| Temperature compensation               | -25 - 55 °C, Operating range<br>-5 - 40 °C to IEC/EN 60947, VDE 0660<br>≤ 0.25 %/K, residual error for T > 40°                              |

Climatic environmental conditions

|                                     |             |
|-------------------------------------|-------------|
| Altitude                            | Max. 2000 m |
| Ambient operating temperature - min | -25 °C      |
| Ambient operating temperature - max | 55 °C       |

|                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient operating temperature (enclosed) - min                |  | 25 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ambient operating temperature (enclosed) - max                |  | 40 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ambient storage temperature - min                             |  | 40 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ambient storage temperature - max                             |  | 80 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Climatic proofing                                             |  | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Terminal capacities</b>                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Terminal capacity (flexible with ferrule)                     |  | 1 x (1 - 6) mm <sup>2</sup> , ferrule to DIN 46228<br>2 x (1 - 6) mm <sup>2</sup> , ferrule to DIN 46228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Terminal capacity (solid)                                     |  | 2 x (1 - 6) mm <sup>2</sup><br>1 x (1 - 6) mm <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Terminal capacity (solid/stranded AWG)                        |  | 18 - 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Stripping length (main cable)                                 |  | 10 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Tightening torque                                             |  | 1.7 Nm, Screw terminals, Main cable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Electrical rating</b>                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Rated frequency - min                                         |  | 50 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Rated frequency - max                                         |  | 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Rated operational current (Ie)                                |  | 16 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Rated operational power at AC-3, 220/230 V, 50 Hz             |  | 4 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Rated operational power at AC-3, 380/400 V, 50 Hz             |  | 7.5 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Rated operational power at AC-3, 440 V, 50 Hz                 |  | 9 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Rated operational voltage (Ue) - min                          |  | 440 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Rated operational voltage (Ue) - max                          |  | 440 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Rated uninterrupted current (Iu)                              |  | 16 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Short-circuit rating</b>                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Rated short-circuit breaking capacity Icu at 400 V AC         |  | 50 kA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Short-circuit current                                         |  | 60 kA DC, up to 250 V DC, Main conducting paths                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Short-circuit current rating (group protection)               |  | 10 kA, 600 V High Fault, Fuse, SCCR (UL/CSA) with 150 A, 600 V High Fault, Fuse, SCCR (UL/CSA)<br>10 kA, 600 V High Fault, CB, SCCR (UL/CSA) with 125 A, 600 V High Fault, CB, SCCR (UL/CSA)<br>50 kA, 600 V High Fault, CB with CL, SCCR (UL/CSA) with 600 A, 600 V High Fault, CB with CL, SCCR (UL/CSA)<br>50 kA, 600 V High Fault, Fuse with CL, SCCR (UL/CSA) with 600 A, 600 V High Fault, Fuse with CL, SCCR (UL/CSA)<br>18 kA, 480 V High Fault, CB, SCCR (UL/CSA) with 600 A, 480 V High Fault, CB, SCCR (UL/CSA)<br>18 kA, 480 V High Fault, Fuse, SCCR (UL/CSA) with 600 A, 480 V High Fault, Fuse, SCCR (UL/CSA) |
| Short-circuit release                                         |  | 248 A, Irm, Setting range max.<br>± 20% tolerance, Trip blocks<br>Basic device fixed 15.5 x Iu, Trip Blocks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Switching capacity</b>                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Switching capacity                                            |  | 16 A (3 contacts in series), DC-5 up to 250V<br>16 A, AC-3 up to 440 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Motor rating</b>                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Assigned motor power at 115/120 V, 60 Hz, 1-phase             |  | 1 HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Assigned motor power at 200/208 V, 60 Hz, 3-phase             |  | 3 HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Assigned motor power at 230/240 V, 60 Hz, 1-phase             |  | 2 HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Assigned motor power at 230/240 V, 60 Hz, 3-phase             |  | 5 HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Assigned motor power at 460/480 V, 60 Hz, 3-phase             |  | 10 HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Assigned motor power at 575/600 V, 60 Hz, 3-phase             |  | 10 HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Trip blocks</b>                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Overload release current setting - min                        |  | 10 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Overload release current setting - max                        |  | 16 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Tripping characteristic                                       |  | Overload trigger: tripping class 10 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Design verification</b>                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Equipment heat dissipation, current-dependent Pvid            |  | 6.43 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Heat dissipation capacity Pdiss                               |  | 0 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Heat dissipation per pole, current-dependent Pvid             |  | 2.14 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Rated operational current for specified heat dissipation (In) |  | 16 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                                                                  |  |  |                                                                                                                                  |
|----------------------------------------------------------------------------------|--|--|----------------------------------------------------------------------------------------------------------------------------------|
| Static heat dissipation, non-current-dependent Pvs                               |  |  | 0 W                                                                                                                              |
| 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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.                                                                                           |
| 10.9.2 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 9.0

|                                                                                                                                                                                                   |    |  |                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|------------------------------------------|
| 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@ss13-27-37-04-01 [AGZ529021]) |    |  |                                          |
| Overload release current setting                                                                                                                                                                  | A  |  | 10 - 16                                  |
| Adjustment range undelayed short-circuit release                                                                                                                                                  | A  |  | 248 - 248                                |
| With thermal overload protection                                                                                                                                                                  |    |  | No                                       |
| Phase failure sensitive                                                                                                                                                                           |    |  | Yes                                      |
| Switch off technique                                                                                                                                                                              |    |  | Thermomagnetic                           |
| Rated operating voltage                                                                                                                                                                           | V  |  | 440 - 440                                |
| Rated permanent current Iu                                                                                                                                                                        | A  |  | 16                                       |
| Rated operation power at AC-3, 230 V                                                                                                                                                              | kW |  | 4                                        |
| Rated operation power at AC-3, 400 V                                                                                                                                                              | kW |  | 7.5                                      |
| Power loss                                                                                                                                                                                        | W  |  | 6.43                                     |
| Type of electrical connection of main circuit                                                                                                                                                     |    |  | Screw connection                         |
| Type of control element                                                                                                                                                                           |    |  | Push 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 |  | 50                                       |
| Degree of protection (IP)                                                                                                                                                                         |    |  | IP20                                     |
| Height                                                                                                                                                                                            | mm |  | 90                                       |
| Width                                                                                                                                                                                             | mm |  | 45                                       |
| Depth                                                                                                                                                                                             | mm |  | 93                                       |