

# Specifications



Photo is representative



## Eaton 278477

Eaton Moeller® series PKZM01 Motor-protective circuit-breaker, 440 V: 0.12 kW,  $I_r$  = 0.25 - 0.4 A, IP20

### General specifications

|                     |                                                               |
|---------------------|---------------------------------------------------------------|
| <b>PRODUCT NAME</b> | Eaton Moeller® series PKZM01 Motor-protective circuit-breaker |
|---------------------|---------------------------------------------------------------|

|                       |        |
|-----------------------|--------|
| <b>CATALOG NUMBER</b> | 278477 |
|-----------------------|--------|

|                   |            |
|-------------------|------------|
| <b>MODEL CODE</b> | PKZM01-0,4 |
|-------------------|------------|

|            |               |
|------------|---------------|
| <b>EAN</b> | 4015082784775 |
|------------|---------------|

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| <b>PRODUCT LENGTH/DEPTH</b> | 93 mm |
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| <b>PRODUCT HEIGHT</b> | 90 mm |
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| <b>PRODUCT WIDTH</b> | 45 mm |
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| <b>PRODUCT WEIGHT</b> | 0.259 kg |
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| <b>CERTIFICATIONS</b> | UL 60947-4-1<br>CSA-C22.2 No. 60947-4-1-14<br>IEC/EN 60947-4-1<br>CSA<br>UL<br>UL File No.: E36332<br>CSA Class No.: 3211-05<br>IEC/EN 60947<br>CSA File No.: 165628<br>VDE 0660<br>UL Category Control No.: NLRV<br>CE |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Climatic environmental conditions

|                                                       |                                                                                |
|-------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>ALTITUDE</b>                                       | Max. 2000 m                                                                    |
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b>            | 55 °C                                                                          |
| <b>AMBIENT STORAGE TEMPERATURE - MAX</b>              | 80 °C                                                                          |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b>            | -25 °C                                                                         |
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b> | 40 °C                                                                          |
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b> | -25 °C                                                                         |
| <b>AMBIENT STORAGE TEMPERATURE - MIN</b>              | -40 °C                                                                         |
| <b>CLIMATIC PROOFING</b>                              | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78 |

## Design verification

|                                                                                         |                                                                                                                                  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>                    | 0.4 A                                                                                                                            |
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>                               | 0 W                                                                                                                              |
| <b>10.10 TEMPERATURE RISE</b>                                                           | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| <b>10.11 SHORT-CIRCUIT RATING</b>                                                       | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>                                              | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.13 MECHANICAL FUNCTION</b>                                                        | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |
| <b>10.2.2 CORROSION RESISTANCE</b>                                                      | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>                         | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>       | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b> | Meets the product standard's requirements.                                                                                       |
| <b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>                                 | Meets the product standard's requirements.                                                                                       |
| <b>10.2.5 LIFTING</b>                                                                   | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| <b>10.2.6 MECHANICAL IMPACT</b>                                                         | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| <b>10.2.7 INSCRIPTIONS</b>                                                              | Meets the product                                                                                                                |

|                                                                 |                                                                    |
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|                                                                 | standard's requirements.                                           |
| <b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>                  | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>                   | Meets the product standard's requirements.                         |
| <b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>                   | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>   | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>        | Is the panel builder's responsibility.                             |
| <b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>                 | Is the panel builder's responsibility.                             |
| <b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>                 | Is the panel builder's responsibility.                             |
| <b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>                         | Is the panel builder's responsibility.                             |
| <b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b> | Is the panel builder's responsibility.                             |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>       | 5.22 W                                                             |
| <b>HEAT DISSIPATION CAPACITY PDISS</b>                          | 0 W                                                                |
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>        | 1.74 W                                                             |

## Electrical rating

|                              |       |
|------------------------------|-------|
| <b>RATED FREQUENCY - MAX</b> | 60 Hz |
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|                              |       |
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| <b>RATED FREQUENCY - MIN</b> | 50 Hz |
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| <b>RATED OPERATIONAL CURRENT (IE)</b> | 0.4 A |
|---------------------------------------|-------|

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| <b>RATED OPERATIONAL POWER AT AC-3E, 220/230 V, 50 HZ</b> | 0.06 kW |
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| <b>RATED OPERATIONAL POWER AT AC-3E, 380/400 V, 50 HZ</b> | 0.09 kW |
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|                                                       |         |
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| <b>RATED OPERATIONAL POWER AT AC-3E, 440 V, 50 HZ</b> | 0.12 kW |
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| <b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b> | 440 V |
|---------------------------------------------|-------|

|                                             |       |
|---------------------------------------------|-------|
| <b>RATED OPERATIONAL VOLTAGE (UE) - MIN</b> | 440 V |
|---------------------------------------------|-------|

|                                         |       |
|-----------------------------------------|-------|
| <b>RATED UNINTERRUPTED CURRENT (IU)</b> | 0.4 A |
|-----------------------------------------|-------|

## Features & functions

|                      |             |
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| <b>ACTUATOR TYPE</b> | Push button |
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|                 |                                                                              |
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| <b>FEATURES</b> | Phase-failure sensitivity (according to IEC/EN 60947-4-1, VDE 0660 Part 102) |
|-----------------|------------------------------------------------------------------------------|

|                  |                                             |
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| <b>FUNCTIONS</b> | Motor protection<br>Phase failure sensitive |
|------------------|---------------------------------------------|

|                        |            |
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| <b>NUMBER OF POLES</b> | Three-pole |
|------------------------|------------|

## General information

|                                               |                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CONNECTION</b>                             | Screw terminals                                                                                                                             |
| <b>DEGREE OF PROTECTION</b>                   | IP20<br>Terminals: IP00                                                                                                                     |
| <b>LIFESPAN, ELECTRICAL</b>                   | 50,000 operations (at 400V, AC-3)                                                                                                           |
| <b>LIFESPAN, MECHANICAL</b>                   | 50,000 Operations (Main conducting paths)                                                                                                   |
| <b>MOUNTING POSITION</b>                      | Can be snapped on to IEC/EN 60715 top-hat rail with 7.5 or 15 mm height.                                                                    |
| <b>OPERATING FREQUENCY</b>                    | 25 Operations/h                                                                                                                             |
| <b>OVERVOLTAGE CATEGORY</b>                   | III                                                                                                                                         |
| <b>POLLUTION DEGREE</b>                       | 3                                                                                                                                           |
| <b>PRODUCT CATEGORY</b>                       | Motor protective circuit breaker                                                                                                            |
| <b>PROTECTION</b>                             | Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)                                        |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b> | 6000 V AC                                                                                                                                   |
| <b>SHOCK RESISTANCE</b>                       | 25 g, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms                                                               |
| <b>SUITABLE FOR</b>                           | Branch circuit: Manual type E if used with terminal, or suitable for group installations, (UL/CSA)<br>Also motors with efficiency class IE3 |
| <b>TEMPERATURE COMPENSATION</b>               | -5 - 40 °C to IEC/EN 60947, VDE 0660<br>≤ 0.25 %/K, residual error for T > 40°<br>-25 - 55 °C, Operating range                              |

## Switching capacity

|                           |                                                                          |
|---------------------------|--------------------------------------------------------------------------|
| <b>SWITCHING CAPACITY</b> | 0.4 A (3 contacts in series), DC-5 up to 250V<br>0.4 A, AC-3 up to 440 V |
|---------------------------|--------------------------------------------------------------------------|

## Short-circuit rating

|                                                              |                                                                                                                                                                                              |
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| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS AT 400 V AC</b> | 50 kA                                                                                                                                                                                        |
| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS AT 440 V AC</b> | 50 kA                                                                                                                                                                                        |
| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICU AT 400 V AC</b> | 50 kA                                                                                                                                                                                        |
| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICU AT 440 V AC</b> | 50 kA                                                                                                                                                                                        |
| <b>SHORT-CIRCUIT CURRENT</b>                                 | 60 kA DC, up to 250 V DC, Main conducting paths                                                                                                                                              |
| <b>SHORT-CIRCUIT CURRENT RATING (GROUP PROTECTION)</b>       | 50 kA, 600 V High Fault, Fuse, SCCR (UL/CSA) with 600 A, 600 V High Fault, Fuse, SCCR (UL/CSA)<br>50 kA, 600 V High Fault, CB, SCCR (UL/CSA) with 600 A, 600 V High Fault, CB, SCCR (UL/CSA) |
| <b>SHORT-CIRCUIT RELEASE</b>                                 | Basic device fixed 15.5 x Iu<br>± 20% tolerance<br>6.2 A, I <sub>rm</sub>                                                                                                                    |

## Terminal capacities

|                                                  |                                                                                                          |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>STRIPPING LENGTH (MAIN CABLE)</b>             | 10 mm                                                                                                    |
| <b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b> | 2 x (1 - 6) mm <sup>2</sup> , ferrule to DIN 46228<br>1 x (1 - 6) mm <sup>2</sup> , ferrule to DIN 46228 |

|                                               |                                                            |
|-----------------------------------------------|------------------------------------------------------------|
| <b>TERMINAL CAPACITY (SOLID)</b>              | 2 x (1 - 6) mm <sup>2</sup><br>1 x (1 - 6) mm <sup>2</sup> |
| <b>TERMINAL CAPACITY (SOLID/STRANDED AWG)</b> | 18 - 10                                                    |
| <b>TIGHTENING TORQUE</b>                      | 1.7 Nm, Screw terminals,<br>Main cable                     |

## Trip blocks

**OVERLOAD RELEASE  
CURRENT SETTING - MAX** 0.4 A

**OVERLOAD RELEASE  
CURRENT SETTING - MIN** 0.25 A

**TRIPPING  
CHARACTERISTIC** Overload trigger: tripping  
class 10 A

## Resources

**BROCHURES** [eaton-motor-starters-system-xstart-brochure-br03407001en-en-us.pdf](#)

[eaton-push-in-technology-product-overview-brochure-br034012-en-us.pdf](#)

**CATALOGUES** [eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf](#)

[Product Range Catalog Switching and protecting motors](#)

[eaton-manual-motor-starters-characteristic-characteristic-curve-008.eps](#)

**CHARACTERISTIC CURVE** [eaton-manual-motor-starters-characteristic-characteristic-curve-003.eps](#)

[eaton-manual-motor-starters-characteristic-characteristic-curve-009.eps](#)

**DECLARATIONS OF CONFORMITY** [eaton-motor-protective-circuit-breaker-declaration-of-conformity-uk251175en.pdf](#)

[eaton-motor-protective-circuit-breaker-declaration-of-conformity-eu250692en.pdf](#)

[eaton-manual-motor-starters-circuit-breaker-pkzm01-dimensions.eps](#)

**DRAWINGS** [eaton-general-ie-ready-dilm-contactor-standards.eps](#)

[eaton-manual-motor-starters-mounting-3d-drawing-002.eps](#)

|                           |                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------|
|                           | <a href="#">eaton-manual-motor-starters-circuit-breaker-pkzm01-3d-drawing-002.eps</a> |
| ECAD MODEL                | <a href="#">ETN.278477.edz</a>                                                        |
|                           | <a href="#">IL122012ZU</a>                                                            |
| INSTALLATION INSTRUCTIONS | <a href="#">IL03407011Z.pdf</a>                                                       |
|                           | <a href="#">IL03402034Z</a>                                                           |
| INSTALLATION VIDEOS       | <a href="#">WIN-WIN with push-in technology</a>                                       |
| MANUALS AND USER GUIDES   | <a href="#">IL122023ZU</a>                                                            |
|                           | <a href="#">DA-CS-pkzm01</a>                                                          |
| MCAD MODEL                | <a href="#">eaton-breakers-mcad-drawings-pkzm01.dwg</a>                               |
|                           | <a href="#">eaton-link-module-for-motor-starters-pkz-flyer-fl034003en-en-us.pdf</a>   |
| SALES NOTES               | <a href="#">eaton-link-module-for-motor-starters-pkz-flyer-fl034003en-en-us.pdf</a>   |

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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