

# Specifications

## Eaton 235454

Eaton Moeller series xPole - PFIM Type AC, A, U, R RCCB. Residual current circuit breaker (RCCB), 40A, 4p, 30mA, type G/A, MW

### General specifications

|                             |                                                         |
|-----------------------------|---------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller series xPole - PFIM Type AC, A, U, R RCCB |
| <b>CATALOG NUMBER</b>       | 235454                                                  |
| <b>MODEL CODE</b>           | PFIM-40/4/003-G/A-MW                                    |
| <b>EAN</b>                  | 4015082354541                                           |
| <b>PRODUCT LENGTH/DEPTH</b> | 76 mm                                                   |
| <b>PRODUCT HEIGHT</b>       | 80 mm                                                   |
| <b>PRODUCT WIDTH</b>        | 70 mm                                                   |
| <b>PRODUCT WEIGHT</b>       | 0.352 kg                                                |
| <b>COMPLIANCES</b>          | RoHS conform                                            |
| <b>CERTIFICATIONS</b>       | IEC/EN 61008<br>ÖVE E 8601                              |



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## Additional information

**ACCESSORIES REQUIRED** Z-HK 248432

### FEATURES

Residual current circuit breaker  
Additional equipment possible

**FITTED WITH:** Interlocking device

### FUNCTIONS

Short-time delayed tripping

### SPECIAL FEATURES

- Maximum operating temperature is 60 °C: Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C
- Tripping signal contact for subsequent installation Z-NHK 248434

### USED WITH

Residual current circuit breakers  
PFIM  
KLV-TC-4 276241 (Compact enclosure)  
Z-FW/LP 248296 (Remote control and automatic switching device)  
Z-RC/AK-4MU 101062 (sealing cover set)  
Type G/A (ÖVE E 8601)

## Delivery programme

**AMPERAGE RATING** 40 A

### APPLICATION

- 3-phase application without N (400V AC phase-phase) not allowed
- Residual current circuit breaker for residential and commercial applications
- xPole - Switchgear for residential and commercial applications

**FAULT CURRENT RATING** 30 mA

**IMPULSE WITHSTAND CURRENT** Surge-proof, 3 kA

**NUMBER OF POLES** Four-pole

**RATED SHORT-CIRCUIT STRENGTH** 10 kA

**SENSITIVITY TYPE** Pulse-current sensitive

**TRIPPING TIME** Short time-delayed

### TYPE

- PFIM
- Residual current circuit breakers
- Type G/A (ÖVE E 8601)

## Design verification to IEC/EN 61439

|                                                                                         |                                                                                                                                  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <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 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</b>                                                                  | Does not apply, since the                                                                                                        |

## Design verification to IEC/EN 61439 - technical data

|                                                                      |        |
|----------------------------------------------------------------------|--------|
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b>                           | 60 °C  |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b>                           | -25 °C |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>                 | 13.1 W |
| <b>HEAT DISSIPATION CAPACITY</b>                                     | 0 W    |
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT</b>                  | 0 W    |
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 40 A   |
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT</b>                | 0 W    |

|                                                                 |                                                                    |
|-----------------------------------------------------------------|--------------------------------------------------------------------|
| <b>AGAINST ELECTRIC SHOCK</b>                                   | 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.                             |

### Technical data - electrical

|                                                    |                                     |
|----------------------------------------------------|-------------------------------------|
| <b>ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX</b>      | 25 A gG/gL                          |
| <b>FREQUENCY RATING</b>                            | 50 Hz                               |
| <b>LEAKAGE CURRENT TYPE</b>                        | A                                   |
| <b>LIFESPAN, ELECTRICAL</b>                        | 4000 operations                     |
| <b>POLLUTION DEGREE</b>                            | 2                                   |
| <b>RATED FAULT CURRENT - MAX</b>                   | 0.03 A                              |
| <b>RATED FAULT CURRENT - MIN</b>                   | 0.03 A                              |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>      | 4 kV                                |
| <b>RATED INSULATION VOLTAGE (UI)</b>               | 440 V                               |
| <b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b>        | 400 V                               |
| <b>RATED RESIDUAL MAKING AND BREAKING CAPACITY</b> | 500 A                               |
| <b>RATED SHORT-TIME WITHSTAND CURRENT (ICW)</b>    | 10 kA                               |
| <b>SHORT-CIRCUIT RATING</b>                        | 63 A (max. admissible back-up fuse) |
| <b>SURGE CURRENT CAPACITY</b>                      | 3 kA                                |
| <b>TEST CIRCUIT RANGE</b>                          | 196 V AC - 264 V AC                 |
| <b>VOLTAGE RATING</b>                              | 230 V AC / 400 V AC                 |

### Technical data - mechanical

|                                                                |                                                              |
|----------------------------------------------------------------|--------------------------------------------------------------|
| <b>BUILT-IN DEPTH</b>                                          | 70.5 mm                                                      |
| <b>BUILT-IN WIDTH (NUMBER OF UNITS)</b>                        | 70 mm (4 SU)                                                 |
| <b>BUSBAR MATERIAL THICKNESS</b>                               | 0.8 mm - 2 mm                                                |
| <b>CLIMATIC PROOFING</b>                                       | 25-55 °C / 90-95% relative humidity according to IEC 60068-2 |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX</b> | 16 mm <sup>2</sup>                                           |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN</b> | 1.5 mm <sup>2</sup>                                          |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX</b>  | 35 mm <sup>2</sup>                                           |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN</b>  | 1.5 mm <sup>2</sup>                                          |
| <b>DEGREE OF PROTECTION</b>                                    | IP20<br>IP20, IP40 with suitable enclosure                   |
| <b>FRAME</b>                                                   | 45 mm                                                        |
| <b>LIFESPAN, MECHANICAL</b>                                    | 20000 operations                                             |
| <b>MOUNTING METHOD</b>                                         | Quick attachment with 2 latch positions for DIN-rail         |

|                                                                  |                                                   |
|------------------------------------------------------------------|---------------------------------------------------|
|                                                                  | IEC/EN 60715<br>DIN rail                          |
| <b>PERMITTED STORAGE<br/>AND TRANSPORT<br/>TEMPERATURE - MAX</b> | 60 °C                                             |
| <b>PERMITTED STORAGE<br/>AND TRANSPORT<br/>TEMPERATURE - MIN</b> | -35 °C                                            |
| <b>TERMINAL CAPACITY<br/>(SOLID WIRE)</b>                        | 1.5 mm <sup>2</sup> - 35 mm <sup>2</sup>          |
| <b>TERMINAL CAPACITY<br/>(STRANDED CABLE)</b>                    | 16 mm <sup>2</sup> (2x)                           |
| <b>TERMINAL PROTECTION</b>                                       | Finger and hand touch<br>safe, DGUV VS3, EN 50274 |
| <b>TERMINALS (TOP AND<br/>BOTTOM)</b>                            | Open mouthed/lift<br>terminals                    |
| <b>WIDTH IN NUMBER OF<br/>MODULAR SPACINGS</b>                   | 4                                                 |

## Resources

|                            |                                                                                                                                            |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| APPLICATION NOTES          | <a href="#">eaton-rcd-application-guide-br019003en-en-us.pdf</a>                                                                           |
| CATALOGUES                 | <a href="#">eaton-xpole-protective-devices-catalog-ca019014en-en-us.pdf</a>                                                                |
| DECLARATIONS OF CONFORMITY | <a href="#">eaton-rccb-declaration-of-conformity-uk251421en.pdf</a><br><a href="#">eaton-rccb-declaration-of-conformity-eu250135en.pdf</a> |
| DRAWINGS                   | <a href="#">eaton-xpole-pf67-rccb-3d-drawing.jpg</a><br><a href="#">eaton-circuit-breaker-xeffect-frcmm-rccb-dimensions.jpg</a>            |
| ECAD MODEL                 | <a href="#">ETN.PFIM-40 4 003-G A-MW.edz</a>                                                                                               |
| INSTALLATION INSTRUCTIONS  | <a href="#">IL019172ZU</a><br><a href="#">eaton-mcb-rccb-rcbo-g9-il019140zu.pdf</a>                                                        |
| MCAD MODEL                 | <a href="#">eaton-rccb-mcad-drawings-pfi-4p.dwg</a><br><a href="#">eaton-residual-current-circuit-breakers-3d-models-pfi-4p.stp</a>        |
| PEP ECO-PASSPORT           | <a href="#">eaton-residual-current-circuit-breakers-pep-eato-00109-v0101-en.pdf</a>                                                        |
| WIRING DIAGRAMS            | <a href="#">eaton-xeffect-frcmm-rccb-wiring-diagram-002.jpg</a>                                                                            |

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**PROJECT NAME:**

**PROJECT NUMBER:**

**PREPARED BY:**

**DATE:**

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