# Specifications

## Eaton 190881

Eaton Moeller series xEffect - FAZ-NA, FAZ-RT MCB. Miniature circuit breaker (MCB), 35 A, 4p, characteristic: C, ring tongue

### General specifications

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|---|---|
| **PRODUCT NAME** | Eaton Moeller series xEffect - FAZ-NA, FAZ-RT MCB |
| **CATALOG NUMBER** | 190881 |
| **MODEL CODE** | FAZ-C35/4-RT |
| **EAN** | 4015081905287 |
| **PRODUCT LENGTH/DEPTH** | 105 mm |
| **PRODUCT HEIGHT** | 75.5 mm |
| **PRODUCT WIDTH** | 70.8 mm |
| **PRODUCT WEIGHT** | 0.512 kg |
| **COMPLIANCES** | RoHS conform |
| **CERTIFICATIONS** | North America (UL listed, CSA certified)<br>CSA (File No. 204453)<br>UL 489<br>UL (Category Control Number DIVQ)<br>IEC 60947-2<br>CSA-C22.2 No. 5-09<br>UL (File No. E235139)<br>Specially designed for North America, suitable as BCPD<br>CE marking<br>IEC/EN 60947-2<br>CSA (Class No. 1432-01)<br>UL 489, CSA C22.2 No. 5<br>EN45545-2<br>IEC 61373 |

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## Delivery program

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| **APPLICATION** | • Feeder circuits, branch circuits<br>• Switchgear for export to North America (UL-listed)<br>• xEffect - Switchgear for industrial and advanced commercial applications |
| **NUMBER OF POLES** | Four-pole |
| **NUMBER OF POLES (TOTAL)** | 4 |
| **NUMBER OF POLES (PROTECTED)** | 4 |
| **TRIPPING CHARACTERISTIC** | C |
| **RELEASE CHARACTERISTIC** | C |
| **AMPERAGE RATING** | 35 A |
| **TYPE** | • FAZ-RT<br>• Miniature circuit breaker |

## Technical data - electrical

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|---|---|
| **VOLTAGE TYPE** | AC |
| **VOLTAGE RATING** | 277 V AC / 480 V AC |
| **VOLTAGE RATING AT DC** | 60 V DC |
| **VOLTAGE RATING (IEC/EN 60947-2)** | 440 V |
| **VOLTAGE RATING (UL)** | 240 V |
| **RATED OPERATIONAL VOLTAGE (UE) - MAX** | 240 V |
| **RATED INSULATION VOLTAGE (UI)** | 440 V |
| **RATED IMPULSE WITHSTAND VOLTAGE (UIMP)** | 4 kV |
| **FREQUENCY RATING - MIN** | 50 Hz |
| **FREQUENCY RATING - MAX** | 60 Hz |
| **RATED SWITCHING CAPACITY (IEC/EN 60947-2)** | 15 kA |
| **OPERATIONAL SWITCHING CAPACITY** | 7.5 kA |
| **BREAKING CAPACITY** | 10 kA (UL489) |
| **RATED SHORT-CIRCUIT BREAKING CAPACITY (EN 60898) AT 230 V** | 10 kA |
| **RATED SHORT-CIRCUIT BREAKING CAPACITY (EN 60898) AT 400 V** | 15 kA |
| **RATED SHORT-CIRCUIT BREAKING CAPACITY (IEC 60947-2) AT 230 V** | 10 kA |
| **RATED SHORT-CIRCUIT BREAKING CAPACITY (IEC 60947-2) AT 400 V** | 14 kA |
| **ADMISSIBLE BACK-UP FUSE - MAX** | 125 A gL/gG |
| **SELECTIVITY CLASS** | 3 |
| **OVERVOLTAGE CATEGORY** | III |
| **POLLUTION DEGREE** | 2 |
| **LIFESPAN, ELECTRICAL** | min. 1500 operations<br>min. 6000 operations (UL) |
| **DIRECTION OF INCOMING SUPPLY** | As required |

## Technical data - mechanical

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| **FRAME** | 45 mm |
| **ENCLOSURE WIDTH** | 105 mm |
| **WIDTH IN NUMBER OF MODULAR SPACINGS** | 4 |
| **BUILT-IN DEPTH** | 60 mm |
| **MOUNTING WIDTH PER POLE** | 17.7 mm |
| **MOUNTING WIDTH** | 17.7 mm |
| **MOUNTING METHOD** | Top-hat rail IEC/EN 60715 |
| **MOUNTING POSITION** | As required |
| **DEGREE OF PROTECTION** | IP40 (when fitted)<br>IP20 (IEC)<br>IP20<br>UL/CSA Type: - |
| **TERMINALS (TOP AND BOTTOM)** | Lift terminal / ring-tongue |
| **CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN** | 1 $mm^2$ |
| **CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX** | 25 $mm^2$ |
| **CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN** | 1 $mm^2$ |
| **CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX** | 25 $mm^2$ |
| **TERMINAL CAPACITY OF SCREW TERMINALS FOR MAIN CABLE** | 10 $mm^2$ (2x) |
| **TERMINAL CAPACITY (CONTROL CABLE)** | 25 $mm^2$ (1x) |
| **TERMINAL PROTECTION** | Finger and hand touch safe, DGUV VS3, EN 50274 |
| **CONTACT POSITION INDICATOR COLOR** | Red / green |
| **TIGHTENING TORQUE** | UL: 4 Nm (36 lb-in) for AWG 6<br>UL: 2.4 Nm (21 lb-in) for AWG 18 - AWG 12<br>Max. 2.4 Nm<br>UL: 2.8 Nm (25 lb-in) for |

## Design verification as per IEC/EN - technical data

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|---|---|
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 35 A |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT** | 0 W |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT** | 0 W |
| **HEAT DISSIPATION CAPACITY** | 0 W |
| **AMBIENT OPERATING TEMPERATURE - MIN** | -25 °C |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 75 °C |
| **AMBIENT OPERATING TEMPERATURE (UL) - MIN** | -5 °C |
| **AMBIENT OPERATING TEMPERATURE (UL) - MAX** | 40 °C |

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| | AWG 10 - AWG 8 |
| **LIFESPAN, MECHANICAL** | 10000 operations |

## Design verification as per IEC/EN 61439

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| **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** | Is the panel builder's responsibility. |

## Additional information

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| **ACCESSORIES REQUIRED** | Z-IHK-NA 113895 |
| **CURRENT LIMITING CLASS** | 3 |
| **FEATURES** | Additional equipment possible |
| **FITTED WITH:** | Z-IS/SPE-1TE 274418 |
| **FUNCTIONS** | Current limiting circuit breaker |
| **INTERNAL RESISTANCE AT ROOM TEMPERATURE (SINGLE-POLE, 50 HZ)** | 2.5 mΩ |
| **SPECIAL FEATURES** | • Ambient temperature hint: a 1 °C increase results in a 0.5% linear reduction of current carrying capacity<br>• Tripping signal contact for subsequent installation Z-NHK 248434 |
| **SUITABLE FOR** | Flush-mounted installation |
| **USED WITH** | FAZ-XAA-NA110-415V AC 102036 (Shunt trip release) FAZ-XAA-NA12-110V AC 102037 (Shunt trip release)<br>Miniature circuit breaker FAZ-RT<br>FAZ-XAA-NA110-415V AC 102036 (Shunt trip release)<br>FAZ-XAA-NA12-110V AC 102037 (Shunt trip release) |

| INSULATING MATERIAL | |
|---|---|
| **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. |

## Resources

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| **BROCHURES** | eaton-pdd-railrolling-stock-brochure-br011002en-en-us.pdf |
| **CATALOGUES** | eaton-xeffect-faz-na-rt-mcb-catalog-ca003032en-en-us.pdf |
| **CHARACTERISTIC CURVE** | eaton-mcb-xeffect-faz-na,-characteristic-curve-002.eps<br>eaton-xeffect-faz-na,-mcb-characteristic-curve.jpg<br>eaton-xeffect-faz-na,-mcb-3d-drawing-003.jpg<br>eaton-mcb-xeffect-faz-na,-characteristic-curve.eps<br>eaton-xeffect-faz-na,-mcb-3d-drawing-007.jpg<br>eaton-xeffect-faz-na,-mcb-dimensions-004.jpg<br>eaton-xeffect-faz-na,-mcb-characteristic-curve-002.jpg |
| **DECLARATIONS OF CONFORMITY** | DA-DC-03_FAZ-RT<br>DA-DC-03_FAZ-B-C-D |
| **DRAWINGS** | eaton-xeffect-faz-na,-mcb-dimensions.jpg |
| **ECAD MODEL** | ETN.FAZ-C35_4-RT.edz |
| **INSTALLATION INSTRUCTIONS** | IL019133ZU |
| **MCAD MODEL** | DA-CD-faz_na_4p<br>DA-CS-faz_na_4p |
| **WIRING DIAGRAMS** | eaton-xpole-mmc4-6-m-mcb-wiring-diagram-006.jpg |

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|---|---|
| **PROJECT NAME:** | |
| **PROJECT NUMBER:** | |
| **PREPARED BY:** | |
| **DATE:** | |

**Eaton Corporation plc**
Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com



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