

# Specifications



Photo is representative



## Eaton 278536

Eaton Moeller series xEffect - FAZ MCB. FAZ, 1-pole, tripping characteristic: B, rated current In: 20 A

### General specifications

|                             |                                                                                                                                                                                                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller series xEffect - FAZ MCB                                                                                                                                                                                                                                           |
| <b>CATALOG NUMBER</b>       | 278536                                                                                                                                                                                                                                                                           |
| <b>MODEL CODE</b>           | FAZ-B20/1                                                                                                                                                                                                                                                                        |
| <b>EAN</b>                  | 4015082785369                                                                                                                                                                                                                                                                    |
| <b>PRODUCT LENGTH/DEPTH</b> | 80 mm                                                                                                                                                                                                                                                                            |
| <b>PRODUCT HEIGHT</b>       | 75.5 mm                                                                                                                                                                                                                                                                          |
| <b>PRODUCT WIDTH</b>        | 17.7 mm                                                                                                                                                                                                                                                                          |
| <b>PRODUCT WEIGHT</b>       | 0.111 kg                                                                                                                                                                                                                                                                         |
| <b>COMPLIANCES</b>          | UL CSA09 (with supplementary protector only)<br>RoHS conform                                                                                                                                                                                                                     |
| <b>CERTIFICATIONS</b>       | UL 1077<br>North America (UL recognized, CSA certified)<br>CSA-C22.2 No. 235<br>IEC/EN 60898<br>CE marking<br>CSA (Class No. 3215-30)<br>UL (File No. E177451)<br>UL (Category Control Number QVNU2, QVNU8)<br>IEC/EN 60947-2<br>CSA (File No. 204453)<br>EN45545-2<br>IEC 61373 |
| <b>CATALOG NOTES</b>        | For applications that require protection due to potential wiring damage at low fault conditions.                                                                                                                                                                                 |

## Delivery Programme

### APPLICATION

- Branch circuits, not as BCPD
- Switchgear for industrial and advanced commercial applications
- xEffect - Switchgear for industrial and advanced commercial applications

|                                    |                                                                                              |
|------------------------------------|----------------------------------------------------------------------------------------------|
| <b>NUMBER OF POLES</b>             | Single-pole                                                                                  |
| <b>NUMBER OF POLES (TOTAL)</b>     | 1                                                                                            |
| <b>NUMBER OF POLES (PROTECTED)</b> | 1                                                                                            |
| <b>TRIPPING CHARACTERISTIC</b>     | B                                                                                            |
| <b>RELEASE CHARACTERISTIC</b>      | B                                                                                            |
| <b>AMPERAGE RATING</b>             | 20 A                                                                                         |
| <b>TYPE</b>                        | <ul style="list-style-type: none"> <li>• FAZ</li> <li>• Miniature circuit breaker</li> </ul> |

## Technical data - electrical

|                                                                        |                     |
|------------------------------------------------------------------------|---------------------|
| <b>VOLTAGE TYPE</b>                                                    | AC                  |
| <b>VOLTAGE RATING</b>                                                  | 240 V AC / 415 V AC |
| <b>VOLTAGE RATING AT DC</b>                                            | 60 V DC (per pole)  |
| <b>VOLTAGE RATING (IEC/EN 60898-1)</b>                                 | 240 VAC             |
| <b>VOLTAGE RATING (UL)</b>                                             | 277 V               |
| <b>VOLTAGE RATING (UL CSA 13)</b>                                      | 277 V AC; 48 V DC   |
| <b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b>                            | 230 V               |
| <b>OPERATIONAL VOLTAGE (IEC/EN 60947-2) - MAX</b>                      | 254 VAC             |
| <b>RATED INSULATION VOLTAGE (UI)</b>                                   | 440 V               |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>                          | 4 kV                |
| <b>FREQUENCY RATING - MIN</b>                                          | 50 Hz               |
| <b>FREQUENCY RATING - MAX</b>                                          | 60 Hz               |
| <b>RATED SWITCHING CAPACITY (IEC/EN 60947-2) AT MAX VOLTAGE RATING</b> | 10 kA               |
| <b>RATED SWITCHING CAPACITY (IEC/EN 60947-2)</b>                       | 15 kA               |
| <b>RATED SWITCHING CAPACITY (IEC/EN 60898-1)</b>                       | 10 kA               |
| <b>OPERATIONAL SWITCHING CAPACITY</b>                                  | 7.5 kA              |
| <b>BREAKING CAPACITY</b>                                               | 10 kA (UL1077)      |
| <b>RATED SERVICE SHORT-CIRCUIT BREAKING CAPACITY (IEC/EN 60898-1)</b>  | 7.5 kA              |
| <b>RATED SERVICE SHORT-CIRCUIT BREAKING CAPACITY (IEC/EN 60947-2)</b>  | 7.5 kA              |
| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY (EN 60898) AT 230 V</b>       | 10 kA               |
| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY (EN</b>                       | 10 kA               |

|                                                                             |                  |
|-----------------------------------------------------------------------------|------------------|
| <b>60898) AT 400 V</b>                                                      |                  |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY (IEC<br/>60947-2) AT 230 V</b> | 15 kA            |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY (IEC<br/>60947-2) AT 400 V</b> | 15 kA            |
| <b>ADMISSIBLE BACK-UP<br/>FUSE - MAX</b>                                    | 125 A gL/gG      |
| <b>SELECTIVITY CLASS</b>                                                    | 3                |
| <b>OVERVOLTAGE<br/>CATEGORY</b>                                             | III              |
| <b>POLLUTION DEGREE</b>                                                     | 2                |
| <b>LIFESPAN, ELECTRICAL</b>                                                 | 10000 operations |
| <b>DIRECTION OF<br/>INCOMING SUPPLY</b>                                     | As required      |

## Technical data - mechanical

|                                                         |                                                            |
|---------------------------------------------------------|------------------------------------------------------------|
| FRAME                                                   | 45 mm                                                      |
| ENCLOSURE WIDTH                                         | 80 mm                                                      |
| WIDTH IN NUMBER OF MODULAR SPACINGS                     | 1                                                          |
| BUILT-IN DEPTH                                          | 70.5 mm                                                    |
| MOUNTING WIDTH PER POLE                                 | 17.5 mm                                                    |
| MOUNTING WIDTH                                          | 17.5 mm                                                    |
| MOUNTING METHOD                                         | Top-hat rail IEC/EN 60715                                  |
| MOUNTING POSITION                                       | As required                                                |
| DEGREE OF PROTECTION                                    | IP20<br>IP20 (IEC)<br>UL/CSA Type: -<br>IP40 (when fitted) |
| TERMINALS (TOP AND BOTTOM)                              | Twin-purpose terminals                                     |
| CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN  | 1 mm <sup>2</sup>                                          |
| CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX  | 25 mm <sup>2</sup>                                         |
| CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN | 1 mm <sup>2</sup>                                          |
| CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX | 25 mm <sup>2</sup>                                         |
| TERMINAL CAPACITY OF SCREW TERMINALS FOR MAIN CABLE     | 10 mm <sup>2</sup> (2x)                                    |
| TERMINAL CAPACITY (CONTROL CABLE)                       | 25 mm <sup>2</sup> (1x)                                    |
| TERMINAL PROTECTION                                     | Finger and hand touch safe, DGUV VS3, EN 50274             |
| BUSBAR MATERIAL THICKNESS                               | 0.8 mm - 2 mm                                              |

## Design verification as per IEC/EN 61439 - technical data

|                                                               |        |
|---------------------------------------------------------------|--------|
| RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN) | 20 A   |
| HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT                  | 0 W    |
| EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT                 | 3.2 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  |

## Design verification as per IEC/EN 61439

|                                                                                         |                                                                    |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <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 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</b>                                             | Is the panel builder's responsibility.                             |

## Additional information

|                               |                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>CURRENT LIMITING CLASS</b> | 3                                                                                                         |
| <b>FEATURES</b>               | Additional equipment possible                                                                             |
| <b>SPECIAL FEATURES</b>       | Ambient temperature hint: a 1 °C increase results in a 0.5% linear reduction of current carrying capacity |
| <b>USED WITH</b>              | Miniature circuit breaker FAZ                                                                             |

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**INSULATING MATERIAL**

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**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.

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## Resources

**CATALOGUES** [eaton-xeffect-industrial-switchgear-range-catalog-ca003002en-en-us.pdf](#)

**CHARACTERISTIC CURVE**

[eaton-xeffect-faz-mcb-characteristic-curve.jpg](#)

[eaton-mcb-tripping-characteristic-xeffect-faz-characteristic-curve-002.eps](#)

[eaton-mcb-xeffect-faz-characteristic-curve.eps](#)

[eaton-mcb-current-xeffect-faz-characteristic-curve-002.eps](#)

[eaton-mcb-current-xeffect-faz-characteristic-curve.eps](#)

[eaton-mcb-xeffect-faz-characteristic-curve-002.eps](#)

**DECLARATIONS OF CONFORMITY** [eaton-mcb-declaration-of-conformity-eu250395en.pdf](#)

**DRAWINGS**

[eaton-mcb-xeffect-faz-dimensions.eps](#)

[eaton-xeffect-faz-mcb-dimensions.jpg](#)

[eaton-mcb-faz-xeffect-faz-3d-drawing.eps](#)

[eaton-xeffect-faz-mcb-3d-drawing.jpg](#)

[eaton-xeffect-faz-mcb-3d-drawing-007.jpg](#)

[eaton-xeffect-faz-mcb-3d-drawing-008.jpg](#)

**ECAD MODEL** [ETN.FAZ-B20\\_1](#)

**INSTALLATION INSTRUCTIONS** [eaton-rccb-rcbo-g9-il019140zu.pdf](#)

**MCAD MODEL** [faz\\_1p.dwg](#) [faz\\_1p.stp](#)

**PEP ECO-PASSPORT** [EATO-00047-V01.01-EN](#)

**WIRING DIAGRAMS** [eaton-mcb-xeffect-faz-wiring-diagram.eps](#)

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[eaton-xpole-mmc4-6-m-  
mcb-wiring-diagram-  
002.jpg](#)

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**PROJECT NAME:**

**PROJECT NUMBER:**

**PREPARED BY:**

**DATE:**

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