

# Specifications



## Eaton 102231

Eaton Moeller series xEffect - FAZ-NA, FAZ-RT MCB. FAZ-RT, 2-pole, tripping characteristic: D, rated current In: 20 A

### General specifications

|                             |                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller series<br>xEffect - FAZ-NA, FAZ-RT<br>MCB                                                                                                                                                                                                                                                                                                              |
| <b>CATALOG NUMBER</b>       | 102231                                                                                                                                                                                                                                                                                                                                                               |
| <b>MODEL CODE</b>           | FAZ-D20/2-RT                                                                                                                                                                                                                                                                                                                                                         |
| <b>EAN</b>                  | 4015081021079                                                                                                                                                                                                                                                                                                                                                        |
| <b>PRODUCT LENGTH/DEPTH</b> | 105 mm                                                                                                                                                                                                                                                                                                                                                               |
| <b>PRODUCT HEIGHT</b>       | 75.5 mm                                                                                                                                                                                                                                                                                                                                                              |
| <b>PRODUCT WIDTH</b>        | 35.4 mm                                                                                                                                                                                                                                                                                                                                                              |
| <b>PRODUCT WEIGHT</b>       | 0.248 kg                                                                                                                                                                                                                                                                                                                                                             |
| <b>COMPLIANCES</b>          | RoHS conform                                                                                                                                                                                                                                                                                                                                                         |
| <b>CERTIFICATIONS</b>       | IEC 60947-2<br>UL (File No. E235139)<br>CSA (File No. 204453)<br>CSA-C22.2 No. 5-09<br>CSA (Class No. 1432-01)<br>UL 489<br>CE marking<br>Specially designed for<br>North America, suitable as<br>BCPD<br>UL (Category Control<br>Number DIVQ)<br>North America (UL listed,<br>CSA certified)<br>IEC/EN 60947-2<br>UL 489, CSA C22.2 No. 5<br>EN45545-2<br>IEC 61373 |

## Delivery program

### APPLICATION

- Feeder circuits, branch circuits
- Switchgear for industrial and advanced commercial applications
- xEffect - Switchgear for industrial and advanced commercial applications

|                             |                                                                                                 |
|-----------------------------|-------------------------------------------------------------------------------------------------|
| NUMBER OF POLES             | Two-pole                                                                                        |
| NUMBER OF POLES (TOTAL)     | 2                                                                                               |
| NUMBER OF POLES (PROTECTED) | 2                                                                                               |
| TRIPPING CHARACTERISTIC     | D                                                                                               |
| RELEASE CHARACTERISTIC      | D                                                                                               |
| AMPERAGE RATING             | 20 A                                                                                            |
| TYPE                        | <ul style="list-style-type: none"> <li>• FAZ-RT</li> <li>• Miniature circuit breaker</li> </ul> |

## Technical data - electrical

|                                                              |                     |
|--------------------------------------------------------------|---------------------|
| VOLTAGE TYPE                                                 | AC                  |
| VOLTAGE RATING                                               | 277 V AC / 480 V AC |
| VOLTAGE RATING AT DC                                         | 60 V DC             |
| VOLTAGE RATING (IEC/EN 60947-2)                              | 415 V               |
| VOLTAGE RATING (UL)                                          | 480Y/277 V          |
| RATED OPERATIONAL VOLTAGE (UE) - MAX                         | 415 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               |
| RATED SHORT-CIRCUIT BREAKING CAPACITY (EN 60898) AT 230 V    | 0 kA                |
| RATED SHORT-CIRCUIT BREAKING CAPACITY (EN 60898) AT 400 V    | 0 kA                |
| RATED SHORT-CIRCUIT BREAKING CAPACITY (IEC 60947-2) AT 230 V | 15 kA               |
| RATED SHORT-CIRCUIT BREAKING CAPACITY (IEC 60947-2) AT 400 V | 15 kA               |
| SELECTIVITY CLASS                                            | 3                   |
| OVERVOLTAGE CATEGORY                                         | III                 |
| POLLUTION DEGREE                                             | 2                   |
| LIFESPAN, ELECTRICAL                                         | 20000 operations    |
| DIRECTION OF INCOMING SUPPLY                                 | As required         |

## Technical data - mechanical

|                                                                |                                                                                                                                       |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>FRAME</b>                                                   | 45 mm                                                                                                                                 |
| <b>ENCLOSURE WIDTH</b>                                         | 105 mm                                                                                                                                |
| <b>WIDTH IN NUMBER OF MODULAR SPACINGS</b>                     | 2                                                                                                                                     |
| <b>BUILT-IN DEPTH</b>                                          | 70.5 mm                                                                                                                               |
| <b>MOUNTING WIDTH PER POLE</b>                                 | 17.7 mm                                                                                                                               |
| <b>MOUNTING WIDTH</b>                                          | 17.7 mm                                                                                                                               |
| <b>MOUNTING METHOD</b>                                         | Top-hat rail IEC/EN 60715                                                                                                             |
| <b>MOUNTING POSITION</b>                                       | As required                                                                                                                           |
| <b>DEGREE OF PROTECTION</b>                                    | UL/CSA Type: -<br>IP20<br>IP20 (IEC)<br>IP40 (when fitted)                                                                            |
| <b>TERMINALS (TOP AND BOTTOM)</b>                              | Twin-purpose terminals                                                                                                                |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN</b>  | 1 mm <sup>2</sup>                                                                                                                     |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX</b>  | 25 mm <sup>2</sup>                                                                                                                    |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN</b> | 1 mm <sup>2</sup>                                                                                                                     |
| <b>CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX</b> | 25 mm <sup>2</sup>                                                                                                                    |
| <b>TERMINAL PROTECTION</b>                                     | Finger and hand touch safe, DGUV VS3, EN 50274                                                                                        |
| <b>TIGHTENING TORQUE</b>                                       | UL: 2.4 Nm (21 lb-in) for AWG 18 - AWG 12<br>UL: 2.8 Nm (25 lb-in) for AWG 10 - AWG 8<br>Max. 2.4 Nm<br>UL: 4 Nm (36 lb-in) for AWG 6 |

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

|                                                                      |        |
|----------------------------------------------------------------------|--------|
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 20 A   |
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT</b>                  | 0 W    |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>                 | 3.7 W  |
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT</b>                | 0 W    |
| <b>HEAT DISSIPATION CAPACITY</b>                                     | 0 W    |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b>                           | -25 °C |
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b>                           | 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>FUNCTIONS</b>              | Current limiting circuit breaker                                                                          |
| <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-RT                                                                          |

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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

|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| <b>BROCHURES</b>                  | <a href="#">eaton-pdd-railrolling-stock-brochure-br011002en-en-us.pdf</a> |
| <b>CATALOGUES</b>                 | <a href="#">eaton-xeffect-faz-na-rt-mcb-catalog-ca003032en-en-us.pdf</a>  |
|                                   | <a href="#">eaton-xeffect-faz-na,-mcb-3d-drawing-009.jpg</a>              |
|                                   | <a href="#">eaton-xeffect-faz-na,-mcb-3d-drawing-010.jpg</a>              |
|                                   | <a href="#">eaton-mcb-xeffect-faz-na,-characteristic-curve-003.eps</a>    |
| <b>CHARACTERISTIC CURVE</b>       | <a href="#">eaton-xeffect-faz-na,-mcb-characteristic-curve.jpg</a>        |
|                                   | <a href="#">eaton-mcb-xeffect-faz-na,-characteristic-curve-004.eps</a>    |
|                                   | <a href="#">eaton-xeffect-faz-na,-mcb-characteristic-curve-002.jpg</a>    |
|                                   | <a href="#">eaton-xeffect-faz-na,-mcb-dimensions-005.jpg</a>              |
| <b>DECLARATIONS OF CONFORMITY</b> | <a href="#">DA-DC-03 FAZ-DU</a>                                           |
|                                   | <a href="#">DA-DC-03 FAZ-RT</a>                                           |
|                                   | <a href="#">DA-DC-03 FAZ-B-C-D</a>                                        |
| <b>DRAWINGS</b>                   | <a href="#">eaton-xeffect-faz-na,-mcb-dimensions.jpg</a>                  |
|                                   | <a href="#">eaton-mcb-xeffect-faz-na,-3d-drawing-003.eps</a>              |
| <b>ECAD MODEL</b>                 | <a href="#">DA-CE-ETN.FAZ-D20 2-RT</a>                                    |
| <b>INSTALLATION INSTRUCTIONS</b>  | <a href="#">IL019133ZU</a>                                                |
| <b>MCAD MODEL</b>                 | <a href="#">faz_na_2p.dwg</a>                                             |
|                                   | <a href="#">faz_na_2p.stp</a>                                             |
| <b>WIRING DIAGRAMS</b>            | <a href="#">eaton-xpole-mmc4-6-m-mcb-wiring-diagram-003.jpg</a>           |
|                                   | <a href="#">eaton-mcb-xeffect-faz-na,-wiring-diagram-003.eps</a>          |

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



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