

# Specifications



Photo is representative



## Eaton 278613

Eaton Moeller series xEffect - FAZ MCB.  
Miniature circuit breaker (MCB), 20 A, 1p,  
characteristic: S

### General specifications

|                                 |                                                                                                                                                                                                                                                                                        |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>             | Eaton Moeller series<br>xEffect - FAZ MCB                                                                                                                                                                                                                                              |
| <b>CATALOG NUMBER</b>           | 278613                                                                                                                                                                                                                                                                                 |
| <b>MODEL CODE</b>               | FAZ-S20/1                                                                                                                                                                                                                                                                              |
| <b>EAN</b>                      | 4015082786137                                                                                                                                                                                                                                                                          |
| <b>PRODUCT<br/>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<br>supplementary protector<br>only)<br>RoHS conform                                                                                                                                                                                                                     |
| <b>CERTIFICATIONS</b>           | UL (File No. E177451)<br>IEC/EN 60898<br>UL 1077<br>CSA (Class No. 3215-30)<br>North America (UL<br>recognized, CSA certified)<br>CSA-C22.2 No. 235<br>CSA (File No. 204453)<br>CE marking<br>UL (Category Control<br>Number QVNU2, QVNU8)<br>IEC/EN 60947-2<br>EN45545-2<br>IEC 61373 |



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## Additional information

### CURRENT LIMITING CLASS

3

### FEATURES

Additional equipment possible

### SPECIAL FEATURES

Ambient temperature hint: a 1 °C increase results in a 0.5% linear reduction of current carrying capacity

### USED WITH

FAZ  
Miniature circuit breaker

## Delivery programme

### AMPERAGE RATING

20 A

### APPLICATION

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

### NUMBER OF POLES

Single-pole

### NUMBER OF POLES (PROTECTED)

1

### NUMBER OF POLES (TOTAL)

1

### RELEASE CHARACTERISTIC

Other

### TRIPPING CHARACTERISTIC

S

### TYPE

- FAZ
- Miniature circuit breaker

## 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>                           | 75 °C  |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b>                           | -25 °C |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>                 | 2.4 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> | 20 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 - MAX</b>                                     | 125 A gL/gG         |
| <b>DIRECTION OF INCOMING SUPPLY</b>                                      | As required         |
| <b>FREQUENCY RATING - MAX</b>                                            | 60 Hz               |
| <b>FREQUENCY RATING - MIN</b>                                            | 50 Hz               |
| <b>LIFESPAN, ELECTRICAL</b>                                              | 10000 operations    |
| <b>OPERATIONAL SWITCHING CAPACITY</b>                                    | 7.5 kA              |
| <b>OVERVOLTAGE CATEGORY</b>                                              | III                 |
| <b>POLLUTION DEGREE</b>                                                  | 2                   |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>                            | 4 kV                |
| <b>RATED INSULATION VOLTAGE (UI)</b>                                     | 440 V               |
| <b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b>                              | 230 V               |
| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY (IEC 60947-2)- ICU AT 230 V</b> | 10 kA               |
| <b>RATED SHORT-CIRCUIT BREAKING CAPACITY (IEC 60947-2)- ICU AT 400 V</b> | 10 kA               |
| <b>RATED SWITCHING CAPACITY (IEC/EN 60947-2)</b>                         | 10 kA               |
| <b>SELECTIVITY CLASS</b>                                                 | 3                   |
| <b>VOLTAGE RATING</b>                                                    | 240 V AC / 415 V AC |
| <b>VOLTAGE RATING (UL CSA 13)</b>                                        | 277 V AC; 48 V DC   |
| <b>VOLTAGE RATING AT DC</b>                                              | 60 V DC (per pole)  |
| <b>VOLTAGE TYPE</b>                                                      | AC                  |

## Technical data - mechanical

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

## Resources

### CATALOGUES

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

### CHARACTERISTIC CURVE

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

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

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

[eaton-xeffect-faz-mcb-characteristic-curve-003.jpg](#)

[eaton-mcb-characteristic-xeffect-faz-characteristic-curve-003.eps](#)

[eaton-xeffect-faz-mcb-characteristic-curve-004.jpg](#)

[eaton-mcb-characteristic-xeffect-faz-characteristic-curve-006.eps](#)

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

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

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

### DECLARATIONS OF CONFORMITY

[eaton-mcb-declaration-of-conformity-uk251434en.pdf](#)

[eaton-mcb-declaration-of-conformity-eu251404en.pdf](#)

### DRAWINGS

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

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

[eaton-xeffect-faz-mcb-3d-drawing-005.jpg](#)

[eaton-xeffect-faz-mcb-3d-drawing-014.jpg](#)

|                           |                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| ECAD MODEL                | <a href="#">DA-CE-ETN.FAZ-S20_1</a>                                                                                         |
| INSTALLATION INSTRUCTIONS | <a href="#">eaton-mcb-rccb-rcbo-g9-il019140zu.pdf</a>                                                                       |
| MCAD MODEL                | <a href="#">eaton-non-selective-universal-mcb-mcad-3d-models-faz-xxx-1p.stp</a>                                             |
| PEP ECO-PASSPORT          | <a href="#">eaton-non-selective-universal-mcb-pep-eato-00047-v0101-en.pdf</a>                                               |
| WIRING DIAGRAMS           | <a href="#">eaton-xpole-mmc4-6-m-mcb-wiring-diagram-002.jpg</a><br><a href="#">eaton-mcb-xeffect-faz-wiring-diagram.eps</a> |

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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