

## Miniature circuit breaker (MCB), 20 A, 1p+N, characteristic: B

**Part no.** FAZ-B20/1N  
**Catalog No.** 278649  
**Alternate Catalog No.** FAZ-B20/1N  
**EL-Nummer (Norway)** 1695144

Similar to illustration

## Delivery program

|                                                 |                 |    |                                                                |
|-------------------------------------------------|-----------------|----|----------------------------------------------------------------|
| Basic function                                  |                 |    | Miniature circuit-breakers                                     |
| Number of poles                                 |                 |    | 1 pole+N                                                       |
| Tripping characteristic                         |                 |    | B                                                              |
| Application                                     |                 |    | Switchgear for industrial and advanced commercial applications |
| Rated current                                   | I <sub>n</sub>  | A  | 20                                                             |
| Rated switching capacity acc. to IEC/EN 60947-2 | I <sub>cu</sub> | kA | 15                                                             |
| Product range                                   |                 |    | FAZ                                                            |

## Technical data

## Electrical

|                                                                                                     |                 |         |                       |
|-----------------------------------------------------------------------------------------------------|-----------------|---------|-----------------------|
| Standards                                                                                           |                 |         | EN 45545-2; IEC 61373 |
| Rated operational voltage                                                                           | U <sub>e</sub>  | V       |                       |
|                                                                                                     | U <sub>e</sub>  | V AC    | 240/415               |
|                                                                                                     |                 | V DC    | 60 (per pole)         |
| Rated voltage according to UL                                                                       | U <sub>n</sub>  | V AC    | 277                   |
| Rated switching capacity acc. to IEC/EN 60947-2                                                     | I <sub>cu</sub> | kA      | 15                    |
| Breaking capacity according to UL                                                                   |                 | kA      | 10 (UL1077)           |
| Max operational voltage according to IEC/EN 60947-2                                                 |                 | V AC    | 254                   |
| Rated switching capacity according to IEC/EN 60947-2 (max operational voltage)                      | I <sub>cu</sub> | kA      | 10                    |
| Rated service short-circuit breaking capacity according to IEC/EN 60947-2 (max operational voltage) | I <sub>cs</sub> |         | 7,5 kA                |
| Rated voltage according to IEC/EN 60898-1                                                           | U <sub>n</sub>  | V AC    | 240                   |
| Rated switching capacity according to IEC/EN 60898-1                                                | I <sub>cn</sub> | kA      | 10                    |
| Rated service short-circuit breaking capacity according to IEC/EN 60898-1                           | I <sub>cs</sub> |         | 7,5 kA                |
| Operational switching capacity                                                                      |                 | kA      | 7.5                   |
| Characteristic                                                                                      |                 |         | B, C, D, K, S, Z      |
| Max. back-up fuse                                                                                   |                 | A gL/gG | 125                   |
| Selectivity Class                                                                                   |                 |         | 3                     |
| lifespan                                                                                            |                 |         |                       |
| Lifespan                                                                                            | Operations      |         | > 10000               |
| Direction of incoming supply                                                                        |                 |         | as required           |

## Mechanical

|                          |  |                 |                                         |
|--------------------------|--|-----------------|-----------------------------------------|
| Standard front dimension |  | mm              | 45                                      |
| Enclosure height         |  | mm              | 80                                      |
| Mounting width per pole  |  | mm              | 17.5                                    |
| Mounting                 |  |                 | IEC/EN 60715 top-hat rail               |
| Degree of Protection     |  |                 | IP20, IP40 (when fitted)                |
| Terminals top and bottom |  |                 | Twin-purpose terminals                  |
| Terminal protection      |  |                 | Finger and back-of-hand proof to BGV A2 |
| Terminal capacities      |  | mm <sup>2</sup> |                                         |
|                          |  | mm <sup>2</sup> | 1 x 25                                  |
|                          |  | mm <sup>2</sup> | 2 x 10                                  |

|                              |  |    |             |
|------------------------------|--|----|-------------|
| Thickness of busbar material |  | mm | 0.8 ... 2   |
| Mounting position            |  |    | As required |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                   |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                   |    |                                                                                                                                  |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>    | A  | 20                                                                                                                               |
| Heat dissipation per pole, current-dependent                                                                           | P <sub>vid</sub>  | W  | 0                                                                                                                                |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub>  | W  | 3.6                                                                                                                              |
| Static heat dissipation, non-current-dependent                                                                         | P <sub>vs</sub>   | W  | 0                                                                                                                                |
| Heat dissipation capacity                                                                                              | P <sub>diss</sub> | W  | 0                                                                                                                                |
| Operating ambient temperature min.                                                                                     |                   | °C | -40                                                                                                                              |
| Operating ambient temperature max.                                                                                     |                   | °C | 75                                                                                                                               |
|                                                                                                                        |                   |    | linear, per +1 °C, results in a 0.5% reduction of current carrying capacity                                                      |
| IEC/EN 61439 design verification                                                                                       |                   |    |                                                                                                                                  |
| 10.2 Strength of materials and parts                                                                                   |                   |    |                                                                                                                                  |
| 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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties                                                                                             |                   |    |                                                                                                                                  |
| 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 insulating material                                                               |                   |    | Is the panel builder's responsibility.                                                                                           |
| 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.                         |

## Technical data ETIM 8.0

|                                                                                                                                                                                                                   |  |    |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|------|
| Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)                                                                                                                                |  |    |      |
| Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ecl@ss10.0.1-27-14-19-01 [AAB905014]) |  |    |      |
| Built-in depth                                                                                                                                                                                                    |  | mm | 70.5 |
| Release characteristic                                                                                                                                                                                            |  |    | C    |
| Number of poles (total)                                                                                                                                                                                           |  |    | 4    |
| Number of protected poles                                                                                                                                                                                         |  |    | 4    |
| Rated current                                                                                                                                                                                                     |  | A  | 20   |
| Rated voltage                                                                                                                                                                                                     |  | V  | 230  |
| Rated insulation voltage U <sub>i</sub>                                                                                                                                                                           |  | V  | 440  |
| Rated impulse withstand voltage U <sub>imp</sub>                                                                                                                                                                  |  | kV | 4    |
| Rated short-circuit breaking capacity I <sub>cn</sub> according to EN 60898 at 230 V                                                                                                                              |  | kA | 6    |
| Voltage type                                                                                                                                                                                                      |  |    | AC   |

|                                                                             |                 |          |
|-----------------------------------------------------------------------------|-----------------|----------|
| Rated short-circuit breaking capacity Icn according to EN 60898 at 400 V    | kA              | 6        |
| Rated short-circuit breaking capacity Icu according to IEC 60947-2 at 230 V | kA              | 0        |
| Rated short-circuit breaking capacity Icu according to IEC 60947-2 at 400 V | kA              | 0        |
| Frequency                                                                   | Hz              | 50 - 60  |
| Current limiting class                                                      |                 | 3        |
| Flush-mounted installation                                                  |                 | No       |
| Concurrently switching neutral conductor                                    |                 | Yes      |
| Over voltage category                                                       |                 | 3        |
| Pollution degree                                                            |                 | 2        |
| Additional equipment possible                                               |                 | Yes      |
| Width in number of modular spacings                                         |                 | 4        |
| Degree of protection (IP)                                                   |                 | IP20     |
| Ambient temperature during operating                                        | °C              | -25 - 75 |
| Connectable conductor cross section multi-wired                             | mm <sup>2</sup> | 1 - 25   |
| Connectable conductor cross section solid-core                              | mm <sup>2</sup> | 1 - 25   |
| Explosion-proof                                                             |                 | No       |