



**Circuit-breaker, 3p, 630A 1000V**

**Part no. NZMH4-AE630-S1**  
**Catalog No. 290370**

Similar to illustration

## Delivery program

|                                             |             |   |                                                                                                    |
|---------------------------------------------|-------------|---|----------------------------------------------------------------------------------------------------|
| Product range                               |             |   | Circuit-breaker                                                                                    |
| Protective function                         |             |   | System and cable protection                                                                        |
| Standard/Approval                           |             |   | IEC                                                                                                |
| Installation type                           |             |   | Fixed                                                                                              |
| Release system                              |             |   | Electronic release                                                                                 |
| Construction size                           |             |   | NZM4                                                                                               |
| Description                                 |             |   | R.m.s. value measurement and "thermal memory"<br>NZM...S1 terminal type: NZM...XKSA cover required |
| Number of poles                             |             |   | 3 pole                                                                                             |
| Standard equipment                          |             |   | Screw connection                                                                                   |
| Rated current = rated uninterrupted current | $I_n = I_u$ | A | 630                                                                                                |

## Switching capacity

|                 |          |    |    |
|-----------------|----------|----|----|
| 1000 V 50/60 Hz | $I_{cu}$ | kA | 20 |
|-----------------|----------|----|----|

## Setting range

|                                                                                     |                          |   |           |
|-------------------------------------------------------------------------------------|--------------------------|---|-----------|
| Overload trip                                                                       |                          |   |           |
|  | $I_r$                    | A | 315 - 630 |
| Short-circuit releases                                                              |                          |   |           |
|  |                          |   |           |
| Non-delayed                                                                         | $I_i = I_n \times \dots$ |   | 2 - 12    |
|  |                          |   |           |

## Technical data

### Circuit-breakers

|                                             |             |      |             |
|---------------------------------------------|-------------|------|-------------|
| Rated surge voltage invariability           | $U_{imp}$   |      |             |
| Main contacts                               |             | V    | 8000        |
| Auxiliary contacts                          |             | V    | 6000        |
| Rated operational voltage                   | $U_e$       | V AC | 1000        |
| Rated current = rated uninterrupted current | $I_n = I_u$ | A    | 630         |
| Overvoltage category/pollution degree       |             |      | III/3       |
| Rated insulation voltage                    | $U_i$       | V    | 1000        |
| Utilization category                        |             |      | A           |
| Ambient temperature                         |             |      |             |
| Ambient temperature, storage                |             | °C   | - 40 - + 70 |
| Operation                                   |             | °C   | -25 - +70   |

### Rated short-circuit making capacity

|                    |          |    |     |
|--------------------|----------|----|-----|
| 240 V 50/60 Hz     | $I_{cm}$ | kA | 275 |
| 400/415 V 50/60 Hz | $I_{cm}$ | kA | 187 |
| 440 V 50/60 Hz     | $I_{cm}$ | kA | 187 |
| 525 V 50/60 Hz     | $I_{cm}$ | kA | 143 |

|                                                             |                 |                 |                                                                             |
|-------------------------------------------------------------|-----------------|-----------------|-----------------------------------------------------------------------------|
| 690 V 50/60 H                                               | I <sub>c</sub>  | kA              | 100                                                                         |
| 1000 V 50/60 Hz                                             | I <sub>cm</sub> | kA              | 40                                                                          |
| <b>Rated short-circuit breaking capacity I<sub>cn</sub></b> |                 |                 |                                                                             |
| I <sub>cu</sub> to IEC/EN 60947 test cycle O-t-CO           | I <sub>cu</sub> | kA              |                                                                             |
| 240 V 50/60 Hz                                              | I <sub>cu</sub> | kA              | 125                                                                         |
| 400/415 V 50 Hz                                             | I <sub>cu</sub> | kA              | 85                                                                          |
| 440 V 50/60 Hz                                              | I <sub>cu</sub> | kA              | 85                                                                          |
| 525 V 50/60 Hz                                              | I <sub>cu</sub> | kA              | 65                                                                          |
| 690 V 50/60 Hz                                              | I <sub>cu</sub> | kA              | 50                                                                          |
| 1000 V 50/60 Hz                                             | I <sub>cu</sub> | kA              | 20                                                                          |
| I <sub>cs</sub> to IEC/EN 60947 test cycle O-t-CO-t-CO      | I <sub>cs</sub> | kA              |                                                                             |
| 230 V 50/60 Hz                                              | I <sub>cs</sub> | kA              | 63                                                                          |
| 400/415 V 50/60 Hz                                          | I <sub>cs</sub> | kA              | 50                                                                          |
| 440 V 50/60 Hz                                              | I <sub>cs</sub> | kA              | 50                                                                          |
| 525 V 50/60 Hz                                              | I <sub>cs</sub> | kA              | 50                                                                          |
| 690 V 50/60 Hz                                              | I <sub>cs</sub> | kA              | 37                                                                          |
| 1000 V AC                                                   | I <sub>cs</sub> | kA              | 15                                                                          |
| <b>Rated short-time withstand current</b>                   |                 |                 |                                                                             |
| t = 0.3 s                                                   | I <sub>cw</sub> | kA              | 19.2                                                                        |
| t = 1 s                                                     | I <sub>cw</sub> | kA              | 19.2                                                                        |
| Lifespan, mechanical                                        | Operations      |                 | 10000                                                                       |
| Max. operating frequency                                    |                 | Ops/h           | 60                                                                          |
|                                                             |                 |                 | Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release |
| <b>Lifespan, electrical</b>                                 |                 |                 |                                                                             |
| 1000 V 50/60 Hz                                             | Operations      |                 | 500                                                                         |
| <b>Terminal capacity</b>                                    |                 |                 |                                                                             |
| Standard equipment                                          |                 |                 | Screw connection                                                            |
| Round copper conductor                                      |                 |                 |                                                                             |
| Tunnel terminal                                             |                 |                 |                                                                             |
| Stranded                                                    |                 |                 |                                                                             |
| 4-hole                                                      |                 | mm <sup>2</sup> | 4 x (50 - 240)                                                              |
| Bolt terminal and rear-side connection                      |                 |                 |                                                                             |
| Module plate                                                |                 |                 |                                                                             |
| Single hole                                                 | min.            | mm <sup>2</sup> | 1 x (185 - 240)                                                             |
| Single hole                                                 | max.            | mm <sup>2</sup> | 2 x (70 - 185)                                                              |
| Module plate                                                |                 |                 |                                                                             |
| Double hole                                                 | min.            | mm <sup>2</sup> | 4 x 50                                                                      |
| Double hole                                                 | max.            | mm <sup>2</sup> | 4 x (35 - 185)                                                              |
| Connection width extension                                  |                 | mm <sup>2</sup> |                                                                             |
| Connection width extension                                  |                 | mm <sup>2</sup> | 2 x 240<br>6 x (70 - 240)                                                   |
| Al conductors, Cu cable                                     |                 |                 |                                                                             |
| Tunnel terminal                                             |                 |                 |                                                                             |
| Stranded                                                    |                 |                 |                                                                             |
| 4-hole                                                      |                 | mm <sup>2</sup> | 4 x (50 - 240)                                                              |
| Cu strip (number of segments x width x segment thickness)   |                 |                 |                                                                             |
| Flat conductor terminal                                     |                 |                 |                                                                             |
|                                                             | min.            | mm              | 6 x 16 x 0.8                                                                |
|                                                             | max.            | mm              | (2 x) 10 x 32 x 1.0                                                         |
| Module plate                                                |                 |                 |                                                                             |
| Single hole                                                 |                 | mm              | (2 x) 10 x 50 x 1.0                                                         |
| Bolt terminal and rear-side connection                      |                 |                 |                                                                             |
| Flat copper strip, with holes                               | min.            | mm              | (2 x) 10 x 50 x 1.0                                                         |
| Flat copper strip, with holes                               | max.            | mm              | (2 x) 10 x 50 x 1.0                                                         |

|                                        |      |                 |                                      |
|----------------------------------------|------|-----------------|--------------------------------------|
| Connection width extension             |      | mm              | (2 x) 10 x 80 x 1.0                  |
| Copper busbar (width x thickness)      | mm   |                 |                                      |
| Bolt terminal and rear-side connection |      |                 |                                      |
| Screw connection                       |      |                 | M10                                  |
| Direct on the switch                   |      |                 |                                      |
|                                        | min. | mm              | 25 x 5                               |
|                                        | max. | mm              | 2 x (50 x 10)<br>2 x (80 x 10)       |
| Module plate                           |      |                 |                                      |
| Single hole                            | min. | mm              | 25 x 5                               |
| Single hole                            | max. | mm              | 2 x (50 x 10)                        |
| Module plate                           |      |                 |                                      |
| Double hole                            |      | mm              | 2 x (50 x 10)                        |
| Connection width extension             |      | mm              |                                      |
| Connection width extension             | min. | mm              | 60 x 10                              |
| Connection width extension             | max. | mm              | 2 x (80 x 10)                        |
| Control cables                         |      |                 |                                      |
|                                        |      | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 1.5) |

## Design verification as per IEC/EN 61439

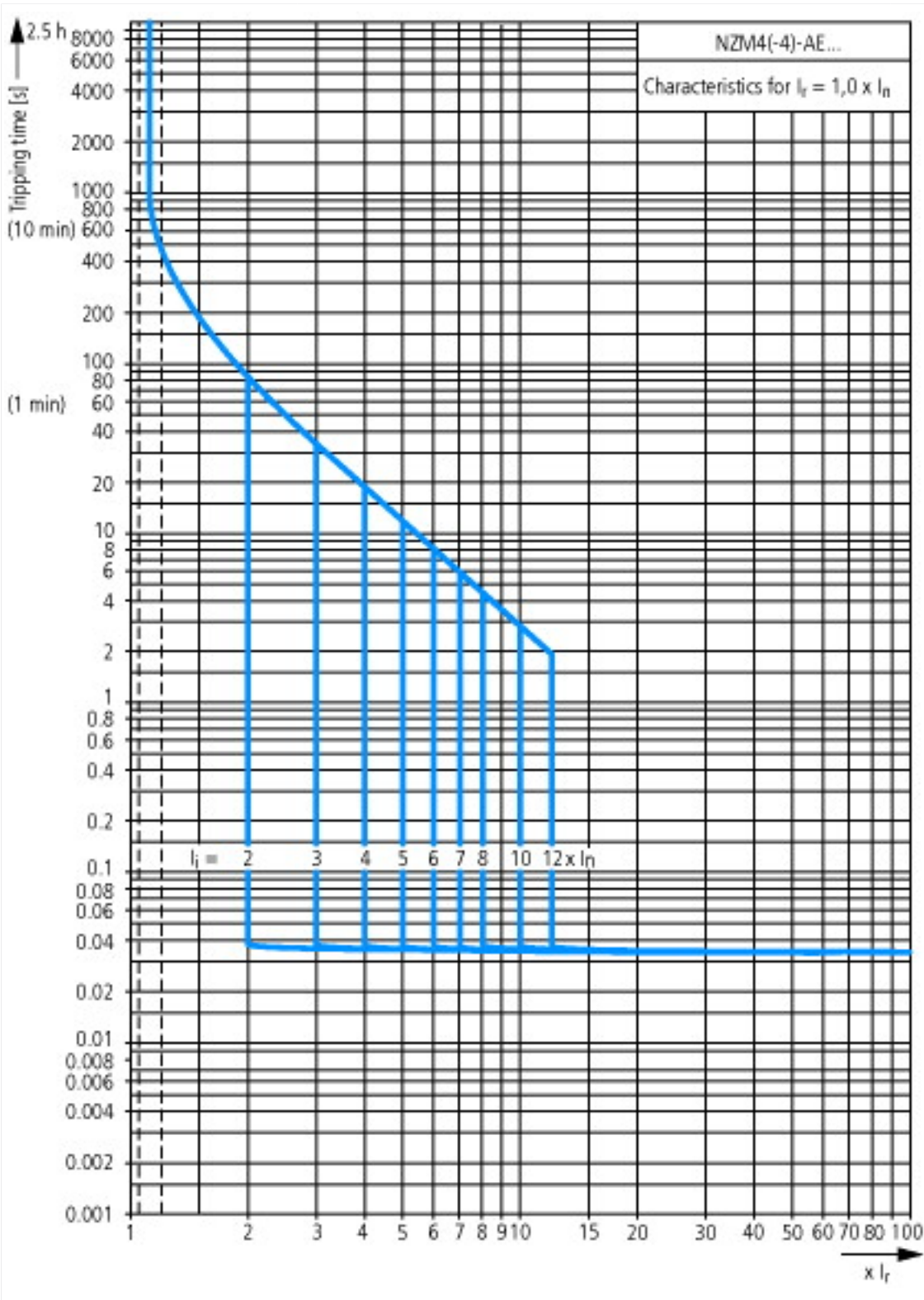
|                                                                                                                        |                  |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                  |    |                                                                                                                                  |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>   | A  | 630                                                                                                                              |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub> | W  | 49                                                                                                                               |
| Operating ambient temperature min.                                                                                     |                  | °C | -25                                                                                                                              |
| Operating ambient temperature max.                                                                                     |                  | °C | 70                                                                                                                               |
| 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

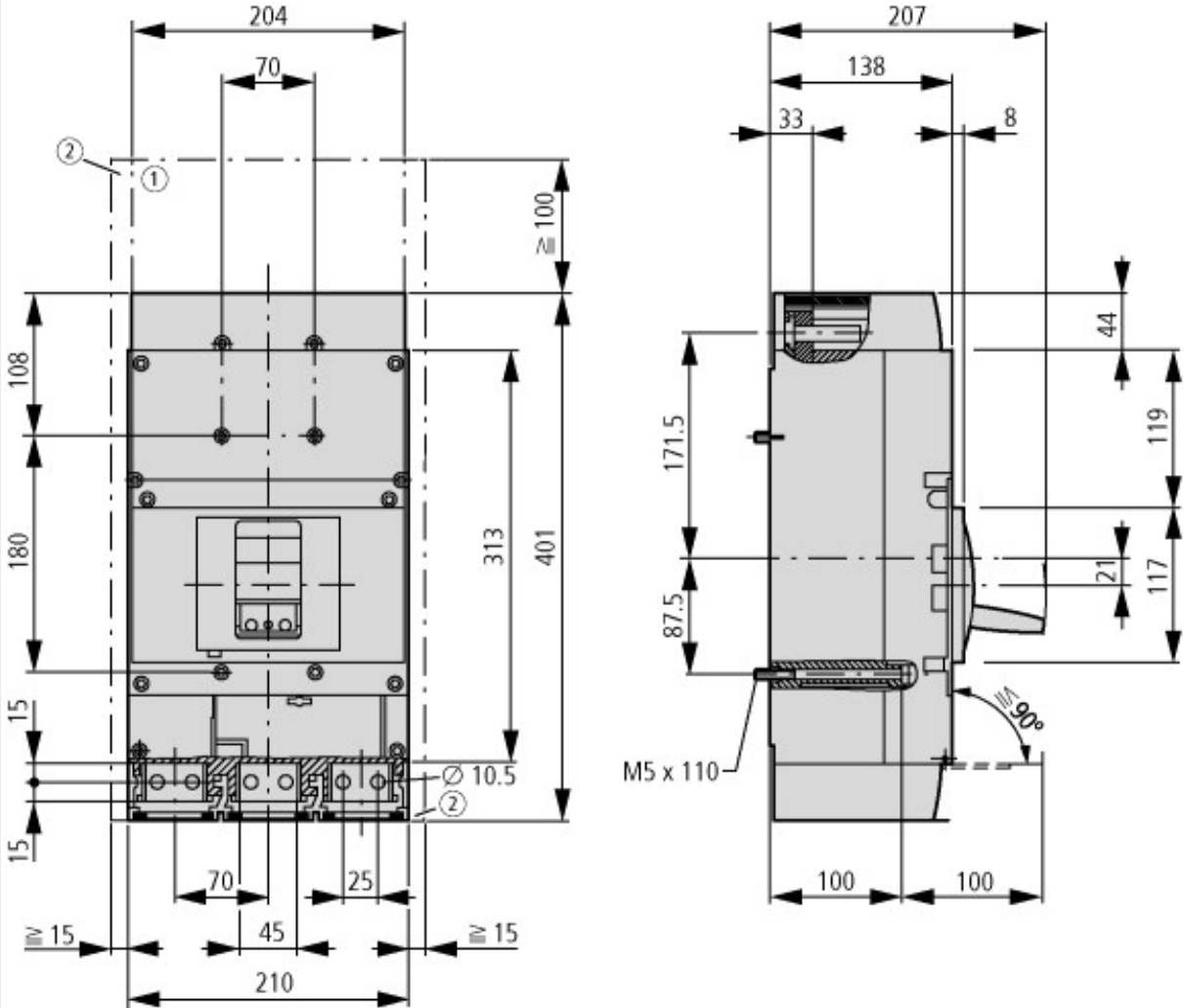
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

|                                                                                                                                                                                                                                             |    |                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------|
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013]) |    |                                          |
| Rated permanent current I <sub>u</sub>                                                                                                                                                                                                      | A  | 630                                      |
| Rated voltage                                                                                                                                                                                                                               | V  | 1000 - 1000                              |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz                                                                                                                                                                       | kA | 50                                       |
| Overload release current setting                                                                                                                                                                                                            | A  | 315 - 630                                |
| Adjustment range short-term delayed short-circuit release                                                                                                                                                                                   | A  | 0 - 0                                    |
| Adjustment range undelayed short-circuit release                                                                                                                                                                                            | A  | 1260 - 7560                              |
| Integrated earth fault protection                                                                                                                                                                                                           |    | No                                       |
| Type of electrical connection of main circuit                                                                                                                                                                                               |    | Screw connection                         |
| Device construction                                                                                                                                                                                                                         |    | Built-in device fixed built-in technique |
| Suitable for DIN rail (top hat rail) mounting                                                                                                                                                                                               |    | No                                       |
| DIN rail (top hat rail) mounting optional                                                                                                                                                                                                   |    | No                                       |
| Number of auxiliary contacts as normally closed contact                                                                                                                                                                                     |    | 0                                        |
| Number of auxiliary contacts as normally open contact                                                                                                                                                                                       |    | 0                                        |
| Number of auxiliary contacts as change-over contact                                                                                                                                                                                         |    | 0                                        |
| With switched-off indicator                                                                                                                                                                                                                 |    | No                                       |
| With integrated under voltage release                                                                                                                                                                                                       |    | No                                       |
| Number of poles                                                                                                                                                                                                                             |    | 3                                        |
| Position of connection for main current circuit                                                                                                                                                                                             |    | Front side                               |
| Type of control element                                                                                                                                                                                                                     |    | Rocker lever                             |
| Complete device with protection unit                                                                                                                                                                                                        |    | Yes                                      |
| Motor drive integrated                                                                                                                                                                                                                      |    | No                                       |
| Motor drive optional                                                                                                                                                                                                                        |    | Yes                                      |
| Degree of protection (IP)                                                                                                                                                                                                                   |    | IP20                                     |

Characteristics



Dimensions



- ① Blow out area, minimum clearance to adjacent parts  
Ui ≤ 690 V: 100 mm  
Ui ≤ 1500 V: 200 mm
- ② Minimum clearance to adjacent parts  
Ui ≤ 1000 V: 15 mm  
Ui ≤ 1500 V: 70 mm

Additional product information (links)

IL01210010Z (AWA1230-2022) Circuit-Breaker, basic unit

|                                                                                                           |                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IL01210010Z (AWA1230-2022) Circuit-Breaker, basic unit                                                    | <a href="https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL01210010Z2018_11.pdf">https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL01210010Z2018_11.pdf</a>                                                               |
| Weight                                                                                                    | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171</a>                                                                                         |
| Temperature dependency, Derating                                                                          | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172</a>                                                                                         |
| Effective power loss                                                                                      | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174</a>                                                                                         |
| Selectivity, Back Up Protection and Coordination Guide                                                    | <a href="http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1198913.pdf">http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1198913.pdf</a>                                 |
| Setting-Specific Representation of Tripping Characteristics and Competent Assessment of their Interaction | <a href="http://www.moeller.net/binary/ver_techpapers/ver943en.pdf">http://www.moeller.net/binary/ver_techpapers/ver943en.pdf</a>                                                                                                               |
| Busbar Component Adapters for modern Industrial control panels                                            | <a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a>                                                                                                               |
| CurveSelect characteristics program                                                                       | <a href="http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm">http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm</a>         |
| Eaton configurator                                                                                        | <a href="http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm">http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm</a> |
| additional technical information for NZM power switch                                                     | <a href="https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_tech_de_en.pdf">https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_tech_de_en.pdf</a>                                                                                                 |