



NZM3 PXR10 circuit breaker, 400A, 3p, box terminal

Part no. **NZMN3-AX400-BT**  
 Catalog No. **191586**

**Delivery program**

|                     |  |  |  |   |
|---------------------|--|--|--|---|
| Product range       |  |  |  | Circuit-breaker   |
| Protective function |  |  |  | System and cable protection   |
| Standard/Approval   |  |  |  | IEC   |
| Installation type   |  |  |  | Fixed   |
| Release system      |  |  |  | Electronic release  |
| Construction size   |  |  |  | NZM3  |
| Description         |  |  |  | Overload and short-circuit protection LI<br>R.m.s. value measurement and "thermal memory"<br>USB interface for configuration and test function with Power Xpert Protection Manager software |
| Number of poles     |  |  |  | 3 pole  |
| Standard equipment  |  |  |  | Box terminal  |




**Switching capacity**

|                 |          |    |    |
|-----------------|----------|----|----|
| 400/415 V 50 Hz | $I_{cu}$ | kA | 50 |
|-----------------|----------|----|----|

**Rated current = rated uninterrupted current**

|   |             |   |     |
|---|-------------|---|-----|
| Rated current = rated uninterrupted current | $I_n = I_u$ | A | 400 |
|---|-------------|---|-----|

**Setting range**

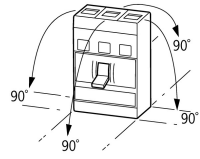
|   |                          |   |           |  |
|---|--------------------------|---|-----------|--|
| Overload trip   |                          |   |           |  |
|  | $I_r$                    | A | 160 - 400 |  |
| Short-circuit releases  |                          |   |           |  |
|  |                          |   |           |  |
| Non-delayed   | $I_i = I_n \times \dots$ |   | 2 - 11    |  |
|  |                          |   |           |  |

**Technical data**

**General**

|   |  |      |                                  |  |
|---|--|------|----------------------------------|--|
| Standards   |  |      |                                  | IEC/EN 60947   |
| Protection against direct contact   |  |      |                                  | Finger and back of hand proof to VDE 0106 Part 100                             |
| Climatic proofing   |  |      |                                  | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature   |  |      |                                  |  |
| Ambient temperature, storage  |  | °C   | - 40 - + 70                      |  |
| Operation   |  | °C   | -25 - +70                        |  |
| Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27 |  | g    | 20 (half-sinusoidal shock 20 ms) |  |
| Safe isolation to EN 61140  |  |      |                                  |  |
| Between auxiliary contacts and main contacts  |  | V AC | 500                              |  |
| between the auxiliary contacts  |  | V AC | 300                              |  |

|                   |  |  |  |                                    |
|-------------------|--|--|--|------------------------------------|
| Mounting position |  |  |  | Vertical and 90° in all directions |
|-------------------|--|--|--|------------------------------------|



With XFI earth-fault release:

- NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in unit
- NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit:
- NZM3, N3: vertical, 90° right/left

- NZM4, N4: vertical  
with remote operator:  
- NZM2, N(S)2, NZM3, N(S)3,  
NZM4, N(S)4: vertical and 90° in all  
directions

|  |  |  |
|--|--|--|
| Direction of incoming supply           |  | as required  |
| Degree of protection                   |  |  |
| Device                                 |  | In the operating controls area: IP20 (basic degree of protection)        |
| Enclosures                             |  | With insulating surround: IP40<br>With door coupling rotary handle: IP66 |
| Terminations                           |  | Tunnel terminal: IP10<br>Phase isolator and strip terminal: IP00         |
| Other technical data (sheet catalogue) |  | Weight<br>Temperature dependency, Derating<br>Effective power loss       |

### Circuit-breakers

|   |             |      |       |
|---|-------------|------|-------|
| Rated current = rated uninterrupted current | $I_n = I_u$ | A    | 400   |
| Rated surge voltage invariability           | $U_{imp}$   |      |       |
| Main contacts                               |             | V    | 8000  |
| Auxiliary contacts                          |             | V    | 6000  |
| Rated operational voltage                   | $U_e$       | V AC | 690   |
| Overvoltage category/pollution degree       |             |      | III/3 |
| Rated insulation voltage                    | $U_i$       | V    | 690   |
| Use in unearthed supply systems             |             | V    | ≤ 690 |

### Switching capacity

|  |            |       |   |
|--|------------|-------|---|
| Rated short-circuit making capacity  | $I_{cm}$   |       |   |
| 240 V  | $I_{cm}$   | kA    | 187   |
| 400/415 V  | $I_{cm}$   | kA    | 110   |
| 440 V 50/60 Hz   | $I_{cm}$   | kA    | 77  |
| 525 V 50/60 Hz   | $I_{cm}$   | kA    | 55  |
| 690 V 50/60 Hz   | $I_c$      | kA    | 40  |
| Rated short-circuit breaking capacity $I_{cn}$                               | $I_{cn}$   |       |   |
| $I_{cu}$ to IEC/EN 60947 test cycle 0-t-CO                                   | $I_{cu}$   | kA    |   |
| 240 V 50/60 Hz   | $I_{cu}$   | kA    | 85  |
| 400/415 V 50/60 Hz   | $I_{cu}$   | kA    | 50  |
| 440 V 50/60 Hz   | $I_{cu}$   | kA    | 35  |
| 525 V 50/60 Hz   | $I_{cu}$   | kA    | 25  |
| 690 V 50/60 Hz   | $I_{cu}$   | kA    | 20  |
| $I_{cs}$ to IEC/EN 60947 test cycle 0-t-CO-t-CO                              | $I_{cs}$   | kA    |   |
| 240 V 50/60 Hz   | $I_{cs}$   | kA    | 85  |
| 400/415 V 50/60 Hz   | $I_{cs}$   | kA    | 50  |
| 440 V 50/60 Hz   | $I_{cs}$   | kA    | 35  |
| 525 V 50/60 Hz   | $I_{cs}$   | kA    | 13  |
| 690 V 50/60 Hz   | $I_{cs}$   | kA    | 5   |
|  |            |       | Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker. |
| Rated short-time withstand current   |            |       |   |
| $t = 0.3$ s  | $I_{cw}$   | kA    | 3.3   |
| $t = 1$ s  | $I_{cw}$   | kA    | 3.3   |
| Utilization category to IEC/EN 60947-2                                       |            |       | A   |
| Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release) | Operations |       | 15000   |
| Lifespan, electrical   |            |       |   |
| AC-1   |            |       |   |
| 400 V 50/60 Hz   | Operations |       | 5000  |
| 415 V 50/60 Hz   | Operations |       | 5000  |
| 690 V 50/60 Hz   | Operations |       | 3000  |
| Max. operating frequency   |            | Ops/h | 60  |

|  |      |                 |   |
|--|------|-----------------|---|
| Total break time at short-circuit                                |      | ms              | < 10  |
| <b>Terminal capacity</b>   |      |                 |   |
| Standard equipment   |      |                 | Box terminal  |
| Optional accessories   |      |                 | Screw connection<br>Tunnel terminal<br>connection on rear                                     |
| <b>Round copper conductor</b>                                    |      |                 |   |
| Box terminal   |      |                 |   |
| Solid  |      | mm <sup>2</sup> | 2 x 16  |
| Stranded   |      | mm <sup>2</sup> | 1 x (35 - 240)<br>2 x (25-120)  |
| <b>Tunnel terminal</b>   |      |                 |   |
| Solid  |      | mm <sup>2</sup> | 1 x 16  |
| Stranded   |      |                 |   |
| 1-hole   |      | mm <sup>2</sup> | 1 x (16 - 185)  |
| <b>Bolt terminal and rear-side connection</b>                    |      |                 |   |
| <b>Direct on the switch</b>                                      |      |                 |   |
| Solid  |      | mm <sup>2</sup> | 1 x 16<br>2 x 16  |
| Stranded   |      | mm <sup>2</sup> | 1 x (25 - 240)<br>2 x (25 - 240)  |
| <b>Connection width extension</b>                                |      |                 |   |
| Connection width extension                                       |      | mm <sup>2</sup> |   |
| Connection width extension                                       |      | mm <sup>2</sup> | 2 x 300   |
| <b>Al circular conductor</b>                                     |      |                 |   |
| <b>Tunnel terminal</b>   |      |                 |   |
| Solid  |      | mm <sup>2</sup> | 1 x 16  |
| Stranded   |      |                 |   |
| Stranded   |      | mm <sup>2</sup> | 1 x (25 - 185) <sup>2)</sup>  |
| Double hole  |      | mm <sup>2</sup> | 1 x (50 - 240)<br>2 x (50 - 240)  |
|  |      |                 | <sup>2)</sup> Up to 240 mm <sup>2</sup> can be connected depending on the cable manufacturer. |
| <b>Cu strip (number of segments x width x segment thickness)</b> |      |                 |   |
| <b>Box terminal</b>  |      |                 |   |
|  | min. | mm              | 6 x 16 x 0.8  |
|  | max. | mm              | 10 x 24 x 1.0<br>+ 5 x 24 x 1.0<br>(2 x) 8 x 24 x 1.0   |
| <b>Bolt terminal and rear-side connection</b>                    |      |                 |   |
| Flat copper strip, with holes                                    | min. | mm              | 6 x 16 x 0.8  |
| Flat copper strip, with holes                                    | max. | mm              | 10 x 32 x 1.0 + 5 x 32 x 1.0  |
| Connection width extension                                       |      | mm              | (2 x) 10 x 50 x 1.0   |
| <b>Copper busbar (width x thickness)</b>                         |      |                 |   |
| <b>Bolt terminal and rear-side connection</b>                    |      |                 |   |
| Screw connection   |      |                 | M10   |
| Direct on the switch   |      |                 |   |
|  | min. | mm              | 20 x 5  |
|  | max. | mm              | 30 x 10<br>+ 30 x 5   |
| <b>Connection width extension</b>                                |      |                 |   |
| Connection width extension                                       |      | mm              |   |
| Connection width extension                                       | max. | mm              | 2 x (10 x 50)   |
| <b>Control cables</b>  |      |                 |   |
|  |      | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 1.5)  |

## Design verification as per IEC/EN 61439

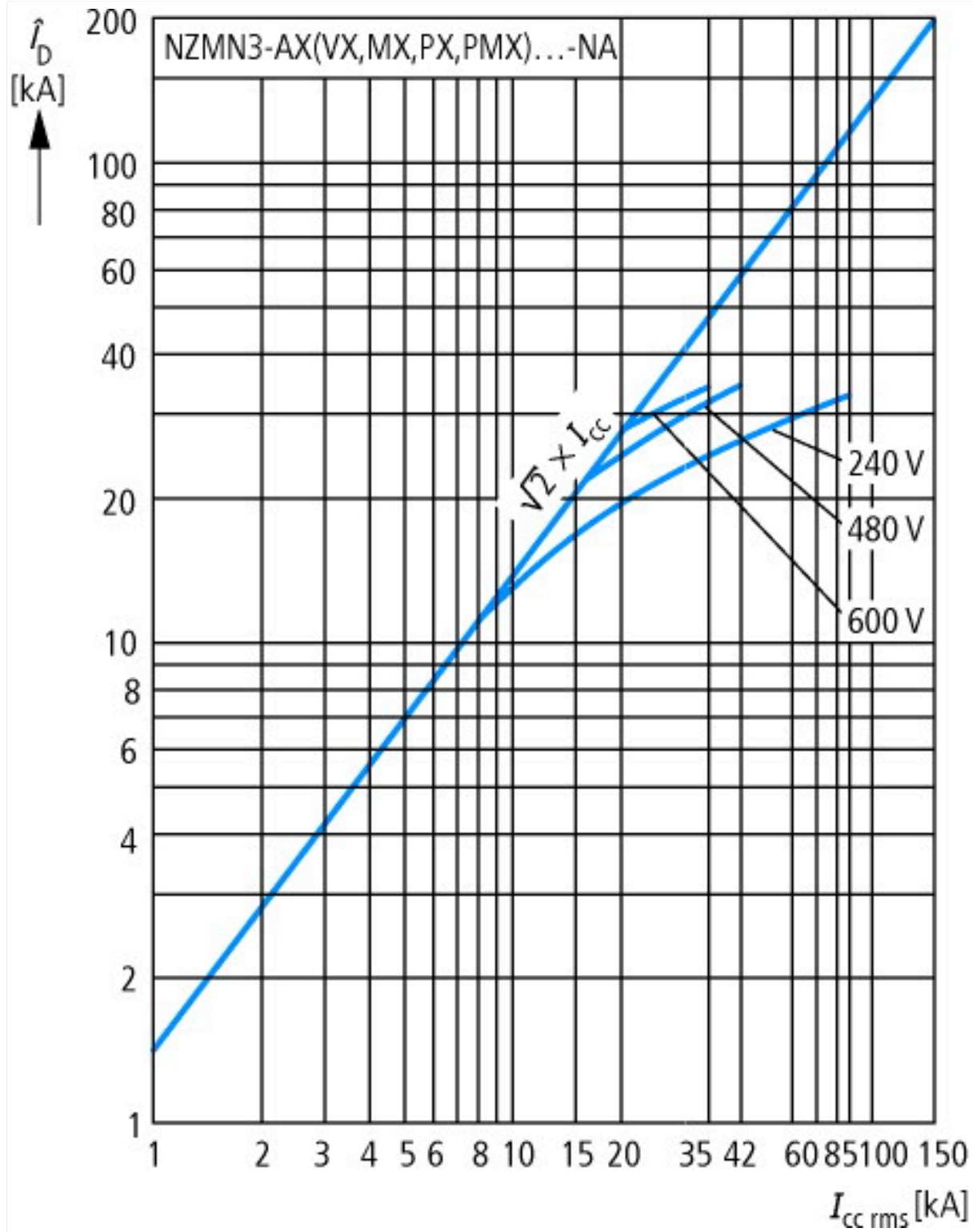
|  |                  |   |     |
|--|------------------|---|-----|
| <b>Technical data for design verification</b>            |                  |   |     |
| Rated operational current for specified heat dissipation | I <sub>n</sub>   | A | 400 |
| Equipment heat dissipation, current-dependent            | P <sub>vid</sub> | W | 48  |

|  |    |  |
|--|----|--|
| 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.                         |

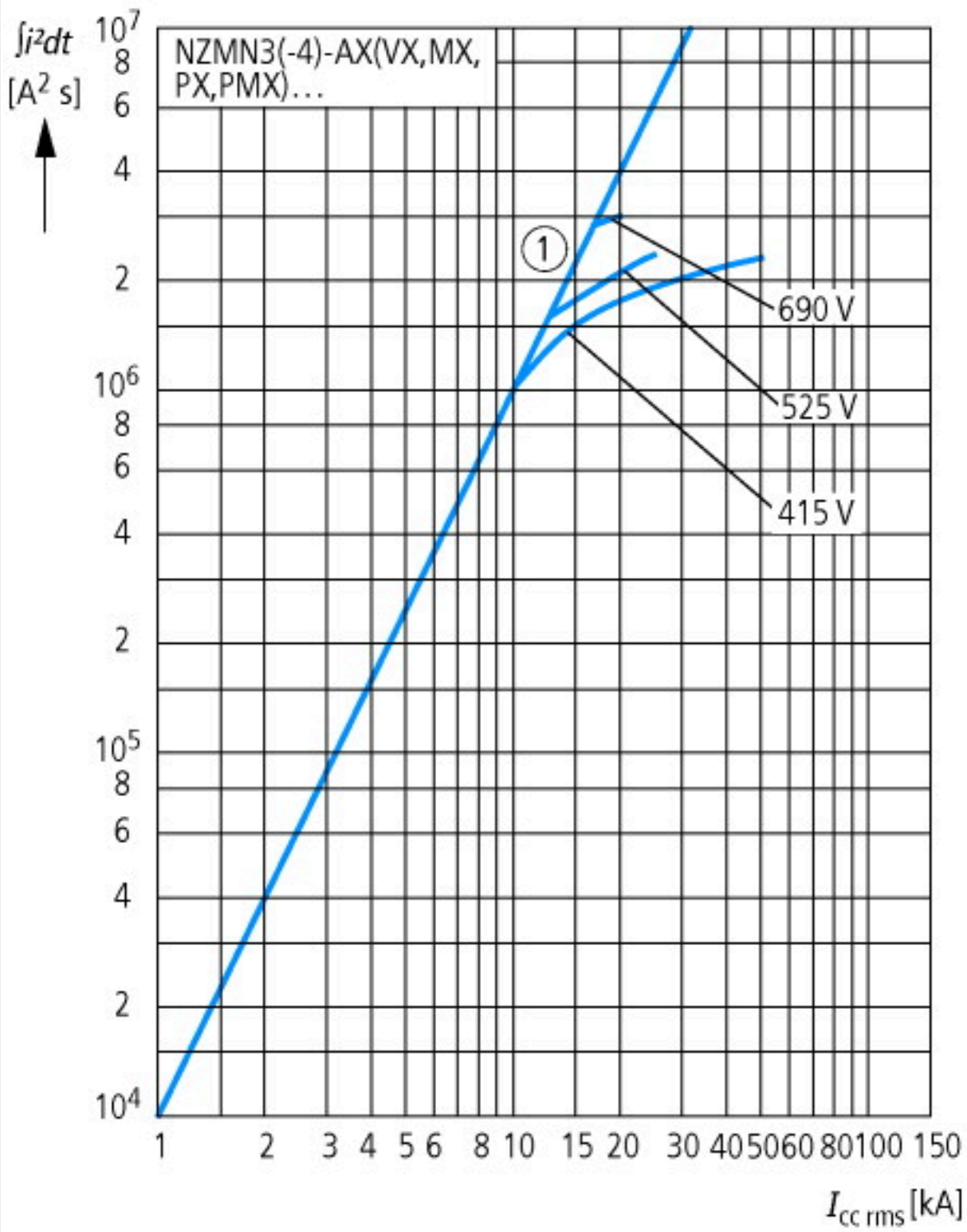
## Technical data ETIM 7.0

|   |    |  |
|---|----|--|
| 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  | 400                                      |
| Rated voltage   | V  | 690 - 690                                |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz   | kA | 50                                       |
| Overload release current setting  | A  | 160 - 400                                |
| Adjustment range short-term delayed short-circuit release   | A  | 0 - 0                                    |
| Adjustment range undelayed short-circuit release  | A  | 2 - 11                                   |
| Integrated earth fault protection   |    | No                                       |
| Type of electrical connection of main circuit   |    | Frame clamp                              |
| 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 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                                      |

## Characteristics

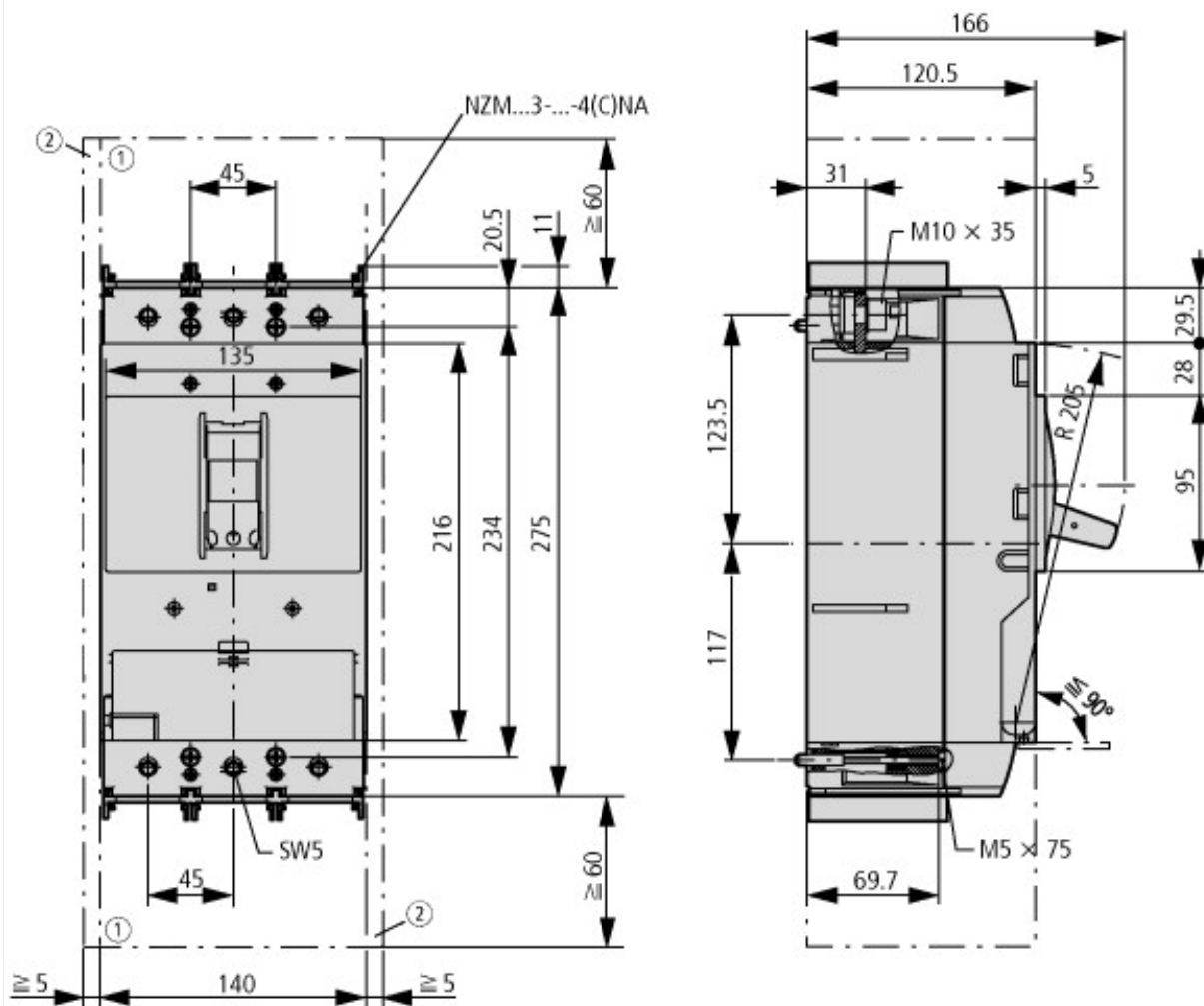


Let-through current



Let-through energy

## Dimensions



- ① Blow out area, minimum clearance to adjacent parts
- ② Minimum clearance to adjacent parts



### Additional product information (links)

|   |   |
|---|---|
| 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> |
| additional technical information for NZM power switch | <a href="https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf">https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf</a>   |