



## NZM4 PXR20 circuit breaker, 1600A, 4p, withdrawable unit

Part no. **NZMN4-4-VX1600-AVE**  
 Catalog No. **193336**



Powering Business Worldwide™

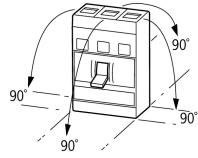
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## Delivery program

|  |  |    |            |
|--|--|----|------------|
| Product range                                      | Circuit-breaker  |    |            |
| Protective function                                | Systems, cable, selectivity and generator protection   |    |            |
| Standard/Approval                                  | IEC  |    |            |
| Installation type                                  | Withdrawable   |    |            |
| Release system                                     | Electronic release   |    |            |
| Construction size                                  | NZM4   |    |            |
| Description  | LSI overload protection and delayed and non-delayed short-circuit protective device<br>R.m.s. value measurement and "thermal memory"<br>USB interface for configuration and test function with Power Xpert Protection Manager software<br>Optionally communication-capable with interface module and internal Modbus RTU module or CAM |    |            |
| Number of poles                                    | 4 pole   |    |            |
| Standard equipment                                 | Screw connection   |    |            |
| <b>Switching capacity</b>                          |  |    |            |
| 400/415 V 50 Hz                                    | $I_{cu}$   | kA | 50         |
| <b>Rated current = rated uninterrupted current</b> |  |    |            |
| Rated current = rated uninterrupted current        | $I_n = I_u$  | A  | 1600       |
| Neutral conductor                                  | % of phase conductor   | %  | 100        |
| <b>Setting range</b>                               |  |    |            |
| Overload trip                                      | $I_r$  | A  | 640 - 1600 |
|  |  |    |            |
| Short-circuit releases                             |  |    |            |
|  |  |    |            |
| Non-delayed  | $I_i = I_n \times \dots$   |    | 2 - 12     |
|  |  |    |            |
| Delayed  | $I_{sd} = I_r \times \dots$  |    | 2 - 10     |
|  |  |    |            |

## 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  | $^{\circ}\text{C}$   | - 40 - + 70                      |  |
| Operation   | $^{\circ}\text{C}$   | - 25 - + 70                      |  |
| Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27 | g  | 15 (half-sinusoidal shock 11 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<br> |
| 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    | 1600  |
| 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 unearthing supply systems            |             | V    | ≤ 525 |

### Switching capacity

|  |          |    |   |
|--|----------|----|---|
| Rated short-circuit making capacity            | $I_{cm}$ |    |   |
| 240 V  | $I_{cm}$ | kA | 105   |
| 400/415 V                                      | $I_{cm}$ | kA | 105   |
| 440 V 50/60 Hz                                 | $I_{cm}$ | kA | 74  |
| 525 V 50/60 Hz                                 | $I_{cm}$ | kA | 53  |
| 690 V 50/60 Hz                                 | $I_c$    | kA | 40  |
| Rated short-circuit breaking capacity $I_{cn}$ | $I_{cn}$ |    |   |
| Icu to IEC/EN 60947 test cycle 0-t-CO          | $I_{cu}$ | kA |   |
| 240 V 50/60 Hz                                 | $I_{cu}$ | kA | 50  |
| 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  |
| Ics to IEC/EN 60947 test cycle 0-t-CO-t-CO     | $I_{cs}$ | kA |   |
| 240 V 50/60 Hz                                 | $I_{cs}$ | kA | 37  |
| 400/415 V 50/60 Hz                             | $I_{cs}$ | kA | 37  |
| 440 V 50/60 Hz                                 | $I_{cs}$ | kA | 26  |
| 525 V 50/60 Hz                                 | $I_{cs}$ | kA | 19  |
| 690 V 50/60 Hz                                 | $I_{cs}$ | kA | 15  |
|  |          |    | 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             |          |    |   |
| $t = 0.3 \text{ s}$                            | $I_{cw}$ | kA | 19.2  |
| $t = 1 \text{ s}$                              | $I_{cw}$ | kA | 19.2  |
| Utilization category to IEC/EN 60947-2         |          |    | B (2000A: A)  |

|  |            |                            |
|--|------------|----------------------------|
| Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release) | Operations | 10000                      |
| Lifespan, electrical   |            |                            |
| AC-1   |            |                            |
| 400 V 50/60 Hz   | Operations | 3000                       |
| 415 V 50/60 Hz   | Operations | 3000                       |
| 690 V 50/60 Hz   | Operations | 2000                       |
| AC-3   |            |                            |
| 400 V 50/60 Hz   | Operations | 2000                       |
| 415 V 50/60 Hz   | Operations | 2000                       |
| 690 V 50/60 Hz   | Operations | 1000                       |
| Max. operating frequency   | Ops/h      | 60                         |
| Total break time at short-circuit  | ms         | < 25 ≤ 415 V; < 35 > 415 V |

### Terminal capacity

|   |                 |                                   |  |
|---|-----------------|-----------------------------------|--|
| Standard equipment  |                 |                                   | Screw connection                                     |
| Optional accessories                                      |                 |                                   | Tunnel terminal connection on rear<br>Strip terminal |
| Round copper conductor                                    |                 |                                   |  |
| Tunnel terminal   |                 |                                   |  |
| Stranded  |                 |                                   |  |
| 4-hole  | mm <sup>2</sup> | 4 x (50 - 240)                    |  |
| Bolt terminal and rear-side connection                    |                 |                                   |  |
| Direct on the switch                                      |                 |                                   |  |
| Stranded  | mm <sup>2</sup> | 1 x (120 - 185)<br>4 x (50 - 185) |  |
| Module plate  |                 |                                   |  |
| Single hole   | min.            | mm <sup>2</sup>                   | 1 x (120 - 300)                                      |
| Single hole   | max.            | mm <sup>2</sup>                   | 2 x (95 - 300)                                       |
| Module plate  |                 |                                   |  |
| Double hole   | min.            | mm <sup>2</sup>                   | 2 x (95 - 185)                                       |
| 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> | 4 x 300<br>6 x (95 - 240)         |  |
| Al circular conductor                                     |                 |                                   |  |
| 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                                   |                 |                                   |  |
| Flat conductor terminal                                   | min.            | mm                                | 6 x 16 x 0.8   |
| Flat conductor terminal                                   | 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                                | 5 x 25 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                                      |                 |                                   |  |
| Direct on the switch                                      | min.            | mm                                | 25 x 5   |
| Direct on the switch                                      | max.            | mm                                | 2 x (50 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

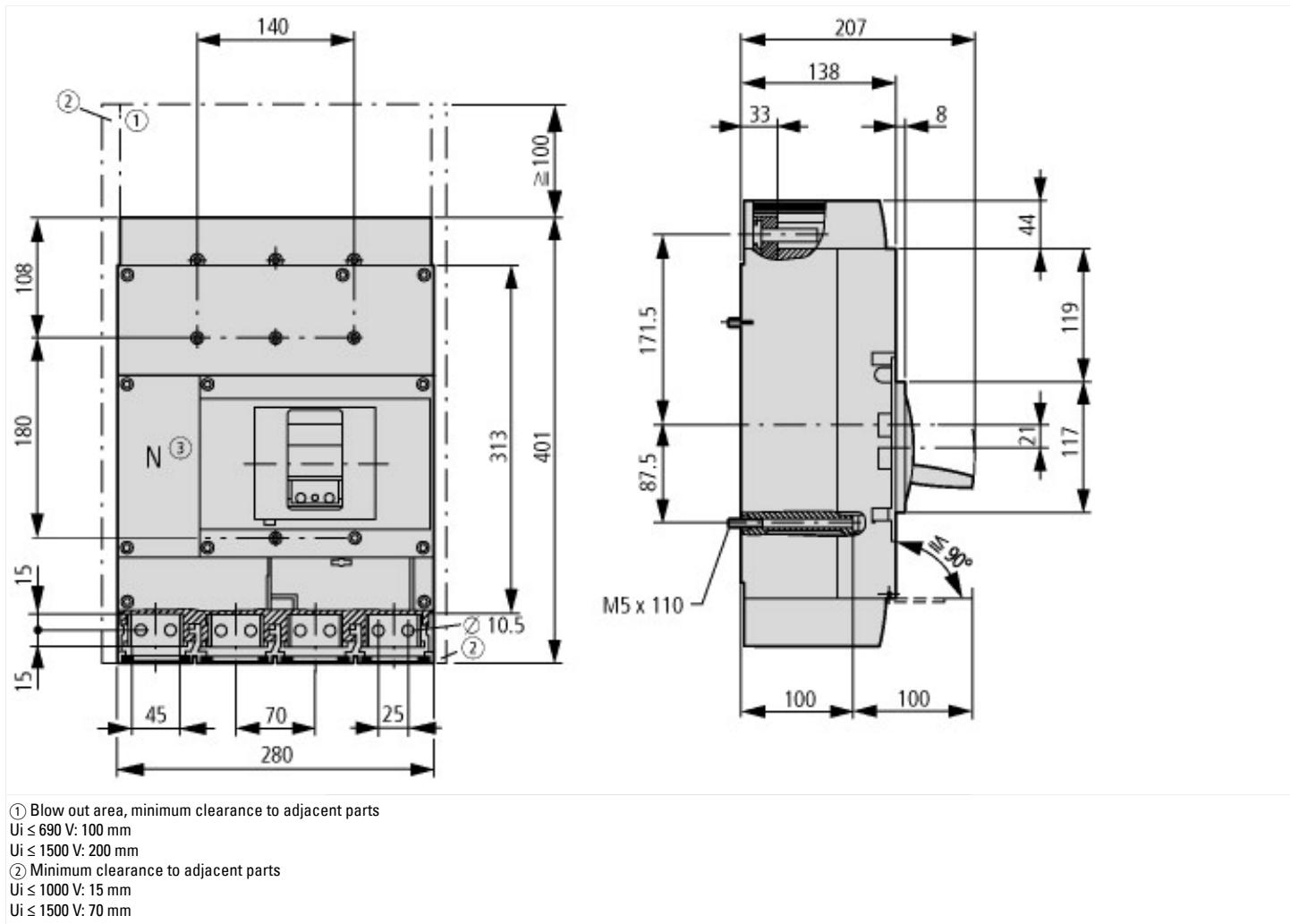
|  |                  |    |  |
|--|------------------|----|--|
| Technical data for design verification   |                  |    |  |
| Rated operational current for specified heat dissipation   | I <sub>n</sub>   | A  | 1600   |
| Equipment heat dissipation, current-dependent  | P <sub>vid</sub> | W  | 284  |
| 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>n</sub>  |  | A  | 1600             |
| Rated voltage   |  | V  | 690 - 690        |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz   |  | kA | 37               |
| Overload release current setting  |  | A  | 640 - 1600       |
| Adjustment range short-term delayed short-circuit release   |  | A  | 2 - 10           |
| Adjustment range undelayed short-circuit release  |  | A  | 3200 - 38400     |
| 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   | 4  |
| 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                                     |

## Dimensions



## Additional product information (links)

### IL012101ZU NZM4-PXR circuit-breaker, basic device, NZM4-PXR Circuit-Breaker, basic unit

|   |   |
|---|---|
| IL012101ZU NZM4-PXR circuit-breaker, basic device, NZM4-PXR Circuit-Breaker, basic unit | <a href="https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL012101ZU2022_01.pdf">https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL012101ZU2022_01.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>                         |
| 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>                           |