



**NZM4 PXR25 circuit breaker - integrated energy measurement class 1, 1600A, 3p, Screw terminal, earth-fault protection, ARMS and zone selectivity**

**Part no.** **NZMN4-PX1600-TAZ**  
**Catalog No.** **189615**

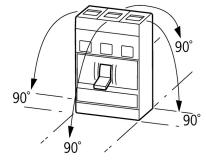
## Delivery program

|   |   |    |            |
|---|---|----|------------|
| Product range   | Circuit-breaker   |    |            |
| Protective function   | Systems, cable, selectivity and generator protection<br>Earth-fault protection<br>Zone selectivity<br>ARMS maintenance mode   |    |            |
| Standard/Approval   | IEC   |    |            |
| Installation type   | Fixed   |    |            |
| Release system  | Electronic release  |    |            |
| Construction size   | NZM4  |    |            |
| Description   | LSIG overload protection and delayed and non-delayed short-circuit protective device, earth-fault protection<br>Class 1 energy measurement, r.m.s. value measurement, and "thermal memory"<br>USB interface for configuration and test function with Power Xpert Protection Manager software<br>Zone selectivity ZSI<br>Maintenance Mode ARMS<br>Interface module in equipment supplied.<br>Optionally communication-capable with internal Modbus RTU module or CAM |    |            |
| Number of poles   | 3 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       |
| <b>Setting range</b>  |   |    |            |
| Overload trip   | $I_r$   | A  | 640 - 1600 |
|  |   |    |            |
| Short-circuit releases  | $I_i = I_n \times \dots$  |    | 2 - 12     |
|  |   |    |            |
| Non-delayed   | $I_{sd} = I_r \times \dots$   |    | 2 - 10     |
|  |   |    |            |
| Delayed   | $I_{sd} = I_r \times \dots$   |    | 2 - 10     |
|  |   |    |            |
| Setting range of earth fault release min.   | $I_g = I_n \times \dots$  |    | 320        |
| Setting range of earth fault release max.   | $I_g = I_n \times \dots$  |    | 1600       |

## 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    | 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   |      | <p>Vertical and 90° in all directions</p>  <p>With XFI earth-fault release:<br/> - NZM1, N1, NZM2, N2: vertical and 90° in all directions<br/> with plug-in unit<br/> - NZM1, N1, NZM2, N2: vertical, 90° right/left<br/> with withdrawable unit:<br/> - NZM3, N3: vertical, 90° right/left<br/> - NZM4, N4: vertical<br/> with remote operator:<br/> - NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions</p> |
| 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    | 1000       |
| Use in unearthing supply systems            |             | V    | $\leq 525$ |

### 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 s  | I <sub>cw</sub> | kA    | 19.2                       |
| t = 1 s  | I <sub>cw</sub> | kA    | 19.2                       |
| Utilization category to IEC/EN 60947-2                                       |                 |       | B                          |
| 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                       |
| 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<br>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                                   |      |                 |   |
|   | 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              | 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                                      |      |                 |   |
|   | min. | mm              | 25 x 5  |
|   | 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

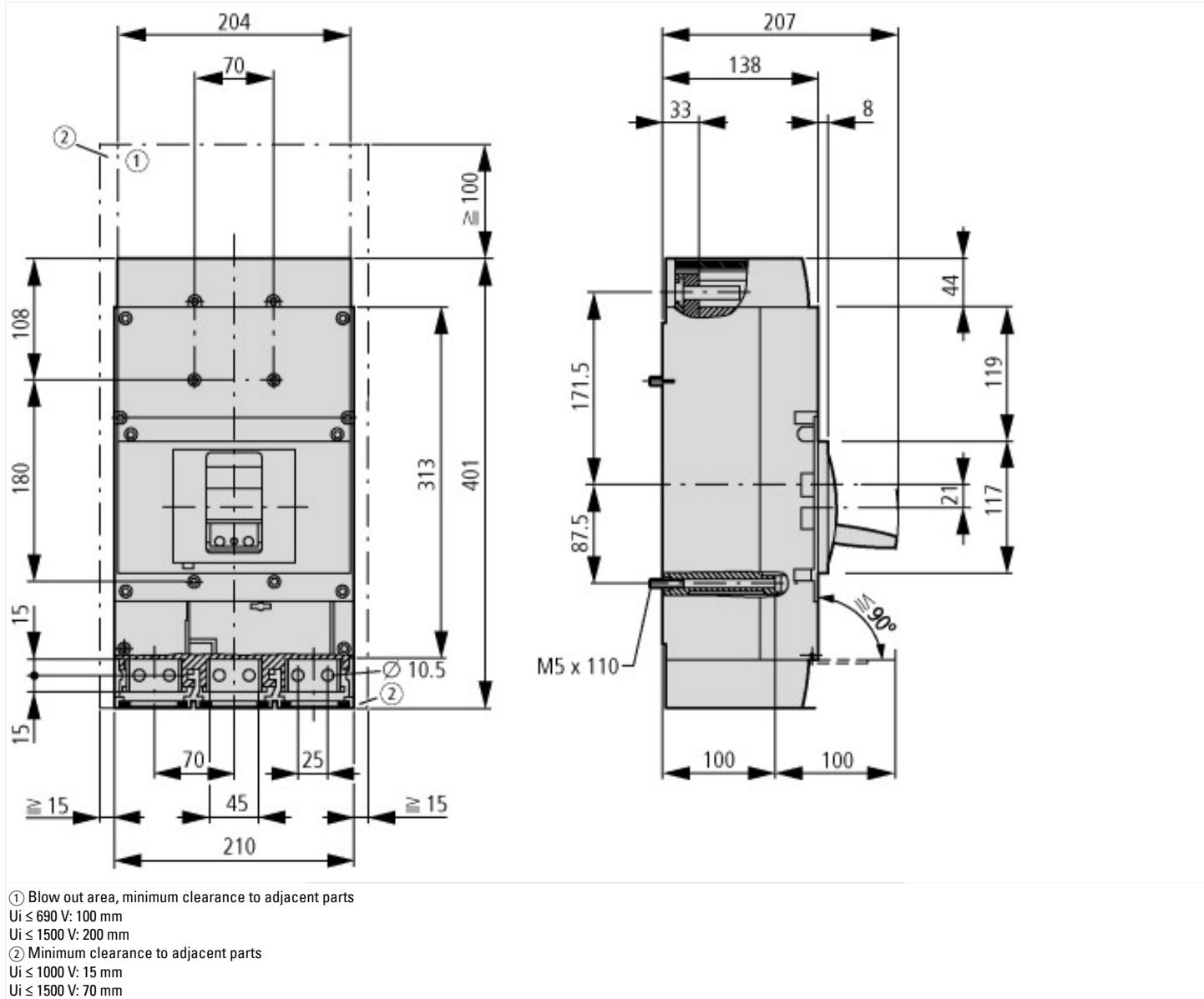
|  |                  |    |  |
|--|------------------|----|--|
| Technical data for design verification   |                  |    |  |
| Rated operational current for specified heat dissipation   | I <sub>n</sub>   | A  | 1600   |
| Equipment heat dissipation, current-dependent  | P <sub>vid</sub> | 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 Icu 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   |    | Yes                                      |  |
| 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         |

## 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 [https://es-assets.eaton.com/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL012101ZU2022\\_01.pdf](https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL012101ZU2022_01.pdf)

Weight <http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.171>

Temperature dependency, Derating <http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172>

Effective power loss <http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.174>

