



Circuit-breaker, 3p, 250A, plug-in module

Part no.                      **NZMH2-A250-SVE**  
Catalog No.                **113336**

EL-Nummer  
(Norway)                    **4357032**

Similar to illustration

Delivery program

|                     |  |  |                             |
|---------------------|--|--|-----------------------------|
| Product range       |  |  | Circuit-breaker             |
| Protective function |  |  | System and cable protection |
| Standard/Approval   |  |  | IEC                         |
| Installation type   |  |  | Plug-in units               |
| Release system      |  |  | Thermomagnetic release      |
| Construction size   |  |  | NZM2                        |
| Number of poles     |  |  | 3 pole                      |
| Standard equipment  |  |  | Screw connection            |

Switching capacity

|                 |          |    |     |
|-----------------|----------|----|-----|
| 400/415 V 50 Hz | $I_{cu}$ | kA | 150 |
|-----------------|----------|----|-----|

Rated current = rated uninterrupted current

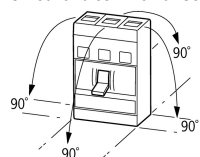
|                                             |             |   |     |
|---------------------------------------------|-------------|---|-----|
| Rated current = rated uninterrupted current | $I_n = I_u$ | A | 250 |
|---------------------------------------------|-------------|---|-----|

Setting range

|                                                                                     |                          |   |           |
|-------------------------------------------------------------------------------------|--------------------------|---|-----------|
| Overload trip                                                                       |                          |   |           |
|  | $I_r$                    | A | 200 - 250 |
| Short-circuit releases                                                              |                          |   |           |
|  |                          |   |           |
| Non-delayed                                                                         | $I_i = I_n \times \dots$ |   | 6 - 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                                                          |  | °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<br><br>With XFI earth-fault release:<br>- NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in unit<br>- NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit:<br>- NZM3, N3: vertical, 90° right/left |

|                                                                             |             |      |                                                                                                                                                 |
|-----------------------------------------------------------------------------|-------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                             |             |      | - NZM4, N4: vertical with remote operator:<br>- 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)                                      |             |      | Temperature dependency, Derating                                                                                                                |
| <b>Circuit-breakers</b>                                                     |             |      |                                                                                                                                                 |
| Rated current = rated uninterrupted current                                 | $I_n = I_u$ | A    | 250                                                                                                                                             |
| 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 unearthed supply systems                                             |             | V    | ≤ 690                                                                                                                                           |
| <b>Switching capacity</b>                                                   |             |      |                                                                                                                                                 |
| Rated short-circuit making capacity                                         | $I_{cm}$    |      |                                                                                                                                                 |
| 240 V                                                                       | $I_{cm}$    | kA   | 330                                                                                                                                             |
| 400/415 V                                                                   | $I_{cm}$    | kA   | 330                                                                                                                                             |
| 440 V 50/60 Hz                                                              | $I_{cm}$    | kA   | 286                                                                                                                                             |
| 525 V 50/60 Hz                                                              | $I_{cm}$    | kA   | 105                                                                                                                                             |
| 690 V 50/60 H                                                               | $I_c$       | kA   | 40                                                                                                                                              |
| Rated short-circuit breaking capacity $I_{cn}$                              | $I_{cn}$    |      |                                                                                                                                                 |
| $I_{cu}$ to IEC/EN 60947 test cycle O-t-CO                                  | $I_{cu}$    | kA   |                                                                                                                                                 |
| 240 V 50/60 Hz                                                              | $I_{cu}$    | kA   | 150                                                                                                                                             |
| 400/415 V 50/60 Hz                                                          | $I_{cu}$    | kA   | 150                                                                                                                                             |
| 440 V 50/60 Hz                                                              | $I_{cu}$    | kA   | 130                                                                                                                                             |
| 525 V 50/60 Hz                                                              | $I_{cu}$    | kA   | 50                                                                                                                                              |
| 690 V 50/60 Hz                                                              | $I_{cu}$    | kA   | 20                                                                                                                                              |
| $I_{cs}$ to IEC/EN 60947 test cycle O-t-CO-t-CO                             | $I_{cs}$    | kA   |                                                                                                                                                 |
| 240 V 50/60 Hz                                                              | $I_{cs}$    | kA   | 150                                                                                                                                             |
| 400/415 V 50/60 Hz                                                          | $I_{cs}$    | kA   | 150                                                                                                                                             |
| 440 V 50/60 Hz                                                              | $I_{cs}$    | kA   | 130                                                                                                                                             |
| 525 V 50/60 Hz                                                              | $I_{cs}$    | kA   | 37.5                                                                                                                                            |
| 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                                          |             |      |                                                                                                                                                 |
| $t = 0.3\text{ s}$                                                          | $I_{cw}$    | kA   | 1.9                                                                                                                                             |
| $t = 1\text{ s}$                                                            | $I_{cw}$    | kA   | 1.9                                                                                                                                             |
| Utilization category to IEC/EN 60947-2                                      |             |      | A                                                                                                                                               |
| Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release) | Operations  |      | 20000                                                                                                                                           |
| Lifespan, electrical                                                        |             |      |                                                                                                                                                 |
| AC-1                                                                        |             |      |                                                                                                                                                 |
| 400 V 50/60 Hz                                                              | Operations  |      | 10000                                                                                                                                           |
| 415 V 50/60 Hz                                                              | Operations  |      | 10000                                                                                                                                           |
| 690 V 50/60 Hz                                                              | Operations  |      | 7500                                                                                                                                            |
| AC--3                                                                       |             |      |                                                                                                                                                 |
| 400 V 50/60 Hz                                                              | Operations  |      | 6500                                                                                                                                            |
| 415 V 50/60 Hz                                                              | Operations  |      | 6500                                                                                                                                            |

|                                                           |            |                 |                                                       |
|-----------------------------------------------------------|------------|-----------------|-------------------------------------------------------|
| 690 V 50/60 Hz                                            | Operations |                 | 5000                                                  |
| Max. operating frequency                                  |            | Ops/h           | 120                                                   |
| Total break time at short-circuit                         |            | ms              | < 10                                                  |
| <b>Terminal capacity</b>                                  |            |                 |                                                       |
| Standard equipment                                        |            |                 | Screw connection                                      |
| Accessories required                                      |            |                 | NZM2-XSVS                                             |
| Optional accessories                                      |            |                 | Box terminal<br>Tunnel terminal<br>connection on rear |
| Round copper conductor                                    |            |                 |                                                       |
| Box terminal                                              |            |                 |                                                       |
| Solid                                                     |            | mm <sup>2</sup> | 1 x (10 - 16)<br>2 x (6 - 16)                         |
| Stranded                                                  |            | mm <sup>2</sup> | 1 x (25 - 185)<br>2 x (25 - 70)                       |
| Tunnel terminal                                           |            |                 |                                                       |
| Solid                                                     |            | mm <sup>2</sup> | 1 x 16                                                |
| Stranded                                                  |            |                 |                                                       |
| 1-hole                                                    |            | mm <sup>2</sup> | 1 x (25 - 185)                                        |
| Bolt terminal and rear-side connection                    |            |                 |                                                       |
| Direct on the switch                                      |            |                 |                                                       |
| Solid                                                     |            | mm <sup>2</sup> | 1 x (10 - 16)<br>2 x (6 - 16)                         |
| Stranded                                                  |            | mm <sup>2</sup> | 1 x (25 - 185)<br>2 x (25 - 70)                       |
| Al circular conductor                                     |            |                 |                                                       |
| Tunnel terminal                                           |            |                 |                                                       |
| Solid                                                     |            | mm <sup>2</sup> | 1 x 16                                                |
| Stranded                                                  |            |                 |                                                       |
| Stranded                                                  |            | mm <sup>2</sup> | 1 x (25 - 185)                                        |
| Cu strip (number of segments x width x segment thickness) |            |                 |                                                       |
| Box terminal                                              |            |                 |                                                       |
|                                                           | min.       | mm              | 2 x 9 x 0.8                                           |
|                                                           | max.       | mm              | 10 x 16 x 0.8<br>(2x) 8 x 15.5 x 0,8                  |
| Bolt terminal and rear-side connection                    |            |                 |                                                       |
| Flat copper strip, with holes                             | min.       | mm              | 2 x 16 x 0.8                                          |
| Flat copper strip, with holes                             | max.       | mm              | 10 x 24 x 0.8                                         |
| Copper busbar (width x thickness)                         | mm         |                 |                                                       |
| Bolt terminal and rear-side connection                    |            |                 |                                                       |
| Screw connection                                          |            |                 | M8                                                    |
| Direct on the switch                                      |            |                 |                                                       |
|                                                           | min.       | mm              | 16 x 5                                                |
|                                                           | max.       | mm              | 24 x 8                                                |
| 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

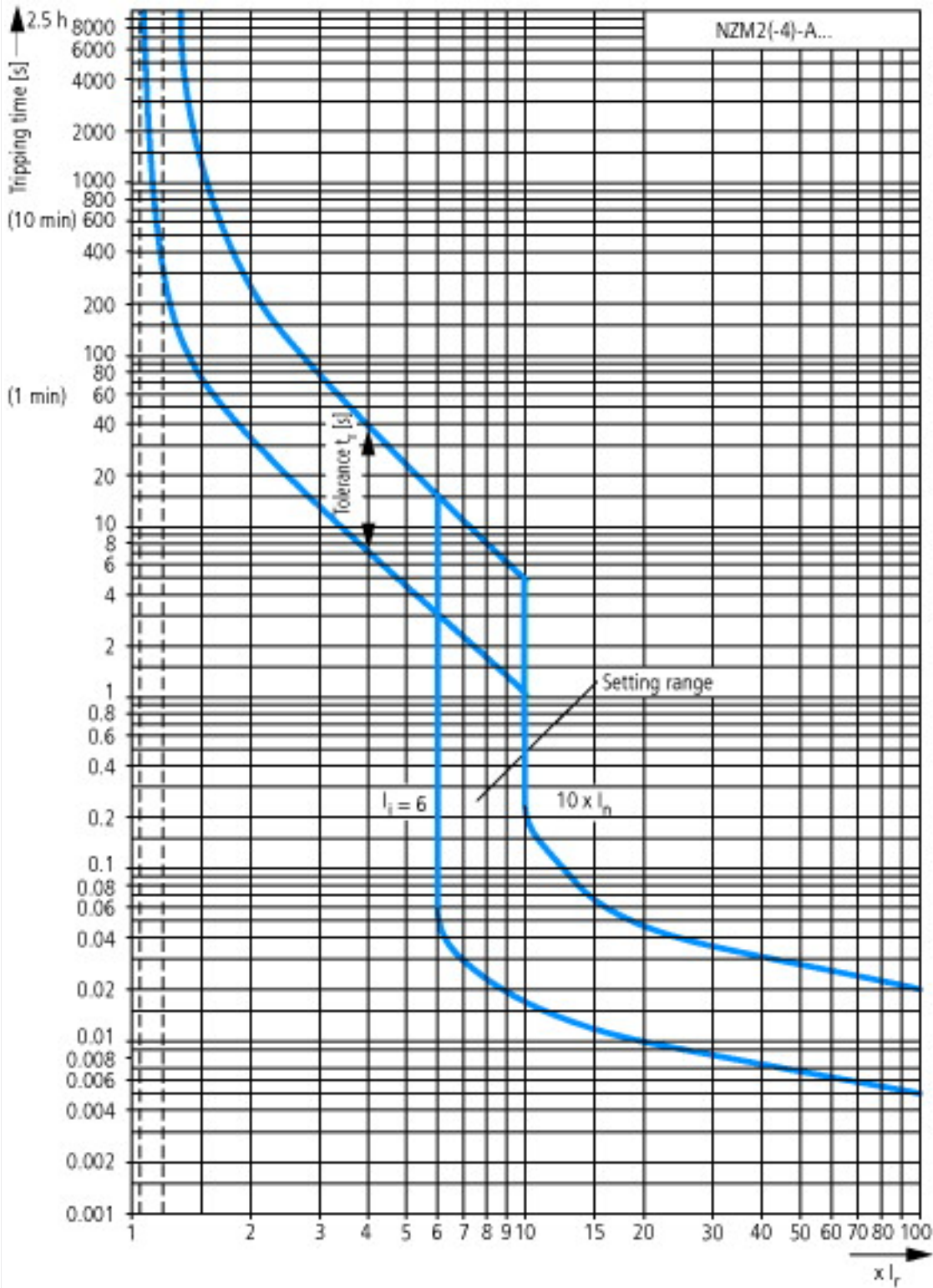
|                                                          |                  |    |                                            |
|----------------------------------------------------------|------------------|----|--------------------------------------------|
| Technical data for design verification                   |                  |    |                                            |
| Rated operational current for specified heat dissipation | I <sub>n</sub>   | A  | 250                                        |
| Equipment heat dissipation, current-dependent            | P <sub>vid</sub> | W  | 58.13                                      |
| 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

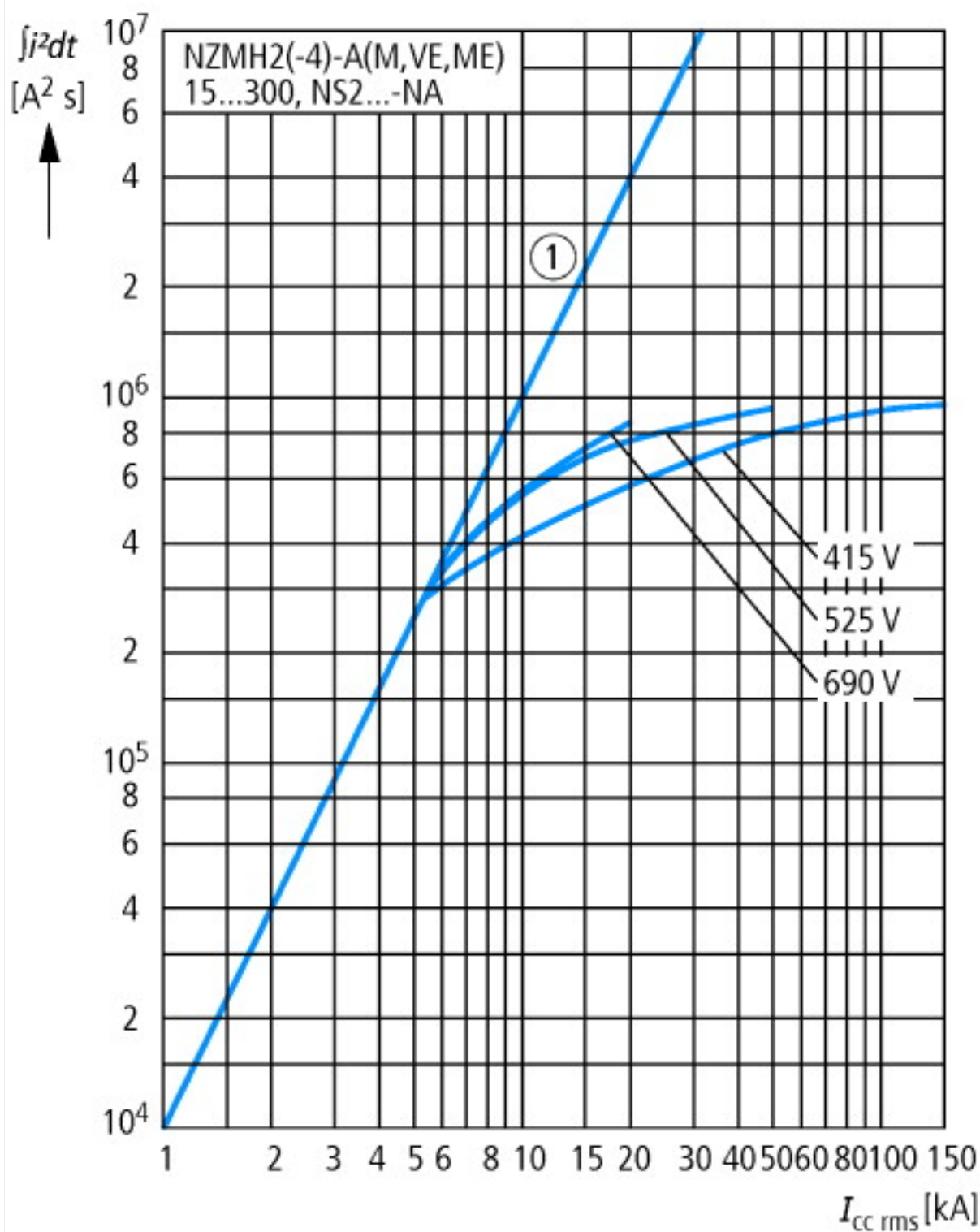
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------|--|
| 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  | 250                               |  |
| Rated voltage                                                                                                                                                                                                                               | V  | 690 - 690                         |  |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz                                                                                                                                                                       | kA | 150                               |  |
| Overload release current setting                                                                                                                                                                                                            | A  | 200 - 250                         |  |
| Adjustment range short-term delayed short-circuit release                                                                                                                                                                                   | A  | 0 - 0                             |  |
| Adjustment range undelayed short-circuit release                                                                                                                                                                                            | A  | 1500 - 2500                       |  |
| Integrated earth fault protection                                                                                                                                                                                                           |    | No                                |  |
| Type of electrical connection of main circuit                                                                                                                                                                                               |    | Screw connection                  |  |
| Device construction                                                                                                                                                                                                                         |    | Built-in device plug-in technique |  |
| Suitable for DIN rail (top hat rail) mounting                                                                                                                                                                                               |    | No                                |  |
| DIN rail (top hat rail) mounting optional                                                                                                                                                                                                   |    | Yes                               |  |
| 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                               |  |
| Degree of protection (IP)                                                                                                                                                                                                                   |    | IP20                              |  |

Characteristics



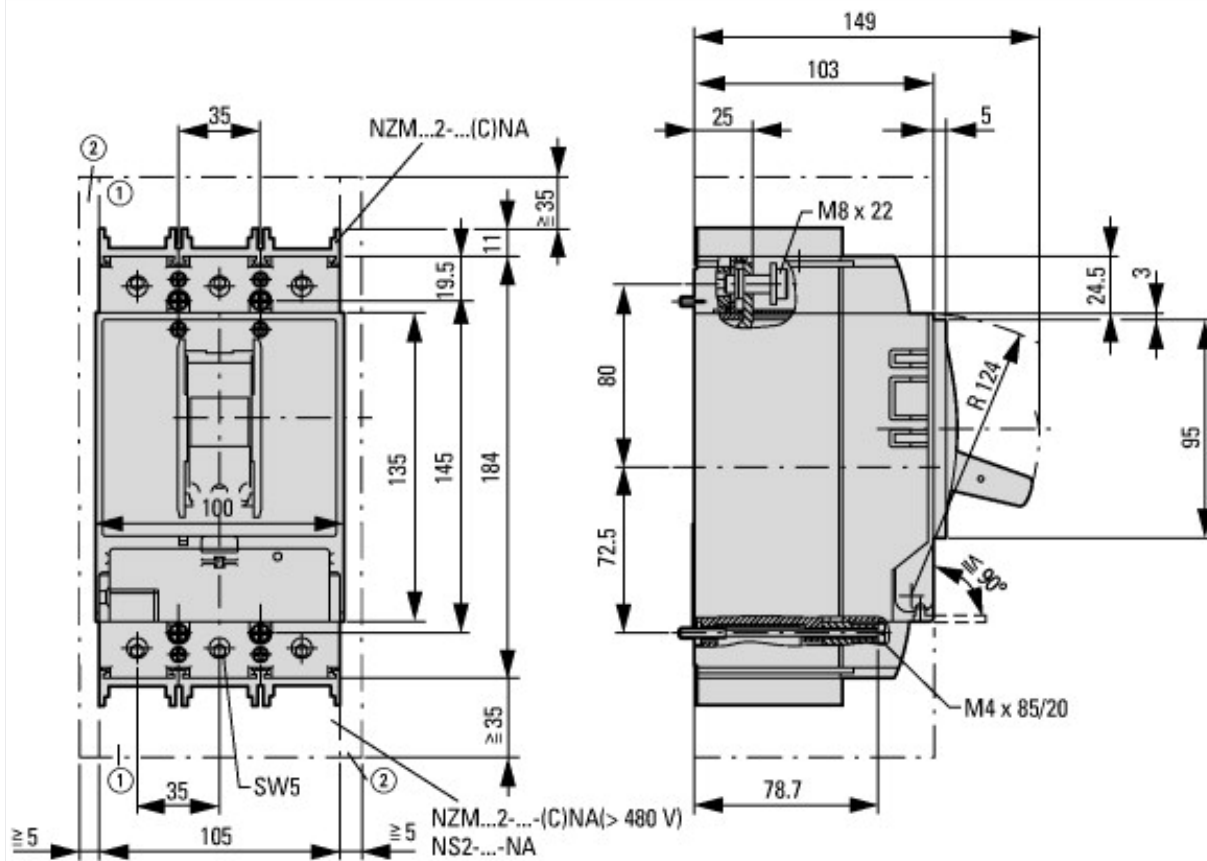


Let-through current

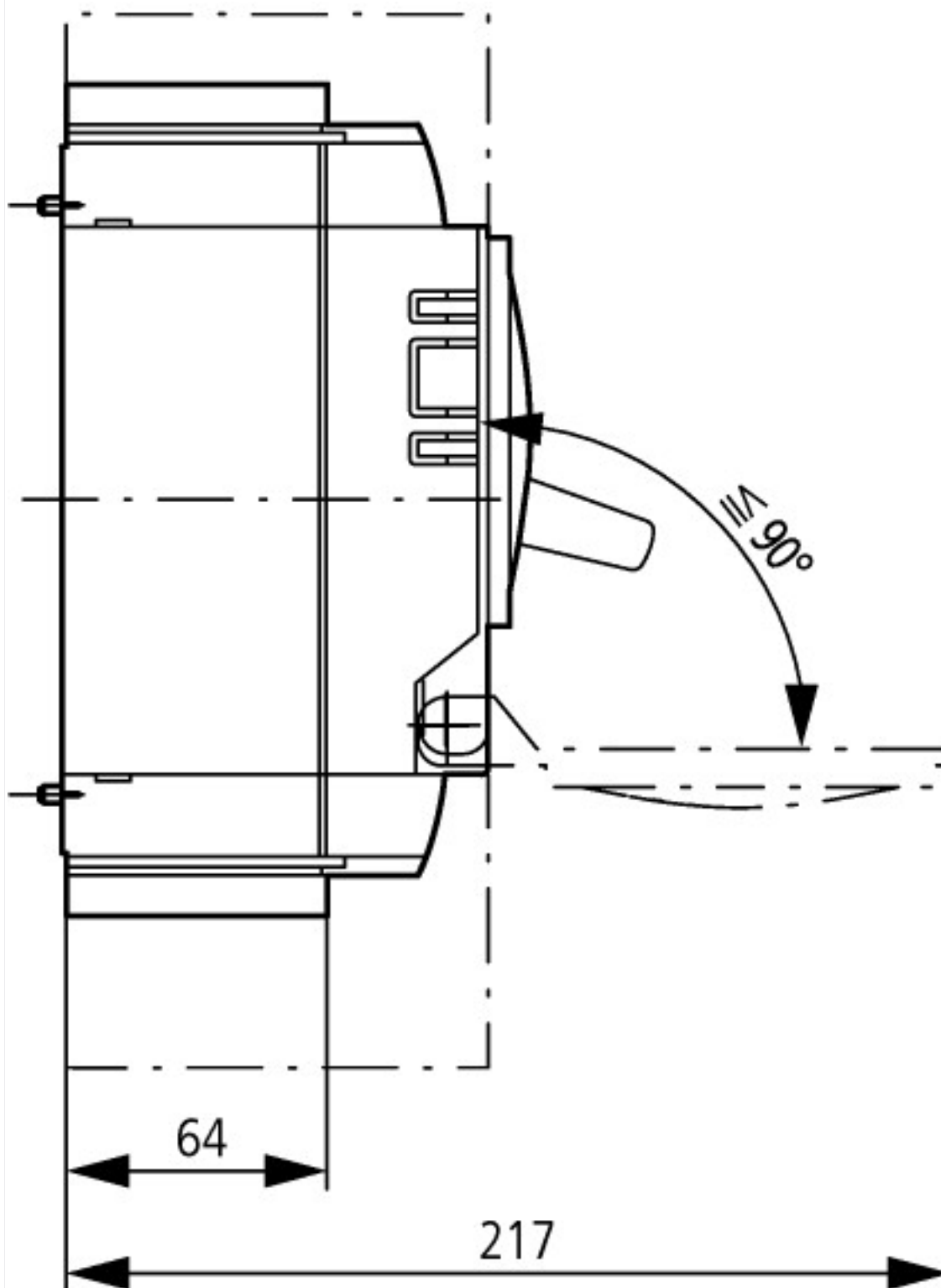


Let-through energy

## Dimensions



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



### Additional product information (links)

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