





Circuit-breaker, 3p, 80A, plug-in module

Part no. **NZMB1-S80-SVE**  
 Catalog No. **112727**

Similar to illustration

## Delivery program

|   |                          |    |  |  |
|---|--------------------------|----|--|--|
| Product range   |                          |    |  | Circuit-breaker  |
| Protective function   |                          |    |  | Short-circuit protection   |
| Standard/Approval   |                          |    |  | IEC  |
| Installation type   |                          |    |  | Plug-in units  |
| Release system  |                          |    |  | Thermomagnetic release   |
| Construction size   |                          |    |  | NZM1   |
| Description   |                          |    |  | Motor protection in conjunction with overload relay<br>With short-circuit release<br>Without overload release I <sub>r</sub><br>IEC/EN 60947-4-1, IEC/EN 60947-2<br><br>The circuit-breaker fulfills all requirements for AC-3 switching category. |
| Number of poles   |                          |    |  | 3 pole   |
| Standard equipment  |                          |    |  | Box terminal   |
| Rated current = rated uninterrupted current   | $I_n = I_u$              | A  |  | 80   |
| <b>Switching capacity</b>   |                          |    |  |  |
| 400/415 V 50 Hz   | $I_{cu}$                 | kA |  | 25   |
| <b>Setting range</b>  |                          |    |  |  |
| Short-circuit releases  |                          |    |  |  |
|  |                          |    |  |  |
| Non-delayed   | $I_i = I_n \times \dots$ |    |  | 8 - 14   |
|  |                          |    |  |  |
| <b>Motor rating AC-3 at 400 V 50/60 Hz</b>  |                          |    |  |  |
| 380 V 400 V   | P                        | kW |  | 37   |
| <b>Rated operational current AC-3 at 400 V 50/60 Hz</b>                             |                          |    |  |  |
| 400 V   | $I_e$                    | A  |  | 68   |

## 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) |  | Temperature dependency, Derating   |

### Circuit-breakers

|   |             |      |       |
|---|-------------|------|-------|
| Rated current = rated uninterrupted current | $I_n = I_u$ | A    | 80    |
| Rated surge voltage invariability           | $U_{imp}$   |      |       |
| Main contacts                               |             | V    | 6000  |
| Auxiliary contacts                          |             | V    | 6000  |
| Rated operational voltage                   | $U_e$       | V AC | 440   |
| Overtoltage category/pollution degree       |             |      | III/3 |
| Rated insulation voltage                    | $U_i$       | V    | 690   |
| Use in unearthed supply systems             |             | V    | ≤ 440 |

### Switching capacity

|  |            |       |       |
|--|------------|-------|-------|
| Rated short-circuit making capacity  | $I_{cm}$   |       |       |
| 240 V  | $I_{cm}$   | kA    | 63    |
| 400/415 V  | $I_{cm}$   | kA    | 53    |
| 440 V 50/60 Hz   | $I_{cm}$   | kA    | 53    |
| 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    | 30    |
| 400/415 V 50/60 Hz   | $I_{cu}$   | kA    | 25    |
| 440 V 50/60 Hz   | $I_{cu}$   | kA    | 25    |
| $I_{cs}$ to IEC/EN 60947 test cycle O-t-CO-t-CO                              | $I_{cs}$   | kA    |       |
| 240 V 50/60 Hz   | $I_{cs}$   | kA    | 30    |
| 400/415 V 50/60 Hz   | $I_{cs}$   | kA    | 25    |
| 440 V 50/60 Hz   | $I_{cs}$   | kA    | 18.5  |
| 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 |       | 7500  |
| 415 V 50/60 Hz   | Operations |       | 7500  |
| Max. operating frequency   |            | Ops/h | 120   |
| Total break time at short-circuit  |            | ms    | < 10  |

### Terminal capacity

|                        |  |   |
|------------------------|--|---|
| Standard equipment     |  | Box terminal  |
| Accessories required   |  | NZM1-XSVS   |
| Optional accessories   |  | Screw connection<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 (10 - 70) <sup>3)</sup><br>2 x (6-25)  |
|   |      |                 | <sup>3)</sup> Up to 95 mm <sup>2</sup> can be connected depending on the cable manufacturer. |
| Tunnel terminal   |      |                 |  |
| Solid   |      | mm <sup>2</sup> | 1 x 16   |
| Stranded  |      |                 |  |
| 1-hole  |      | mm <sup>2</sup> | 1 x (25 - 95)  |
| 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 (10 - 70) <sup>3)</sup><br>2 x 25  |
|   |      |                 | <sup>3)</sup> Up to 95 mm <sup>2</sup> can be connected depending on the cable manufacturer. |
| Al circular conductor                                     |      |                 |  |
| Tunnel terminal   |      |                 |  |
| Solid   |      | mm <sup>2</sup> | 1 x 16   |
| Stranded  |      |                 |  |
| Stranded  |      | mm <sup>2</sup> | 1 x (25 - 95)  |
| Bolt terminal and rear-side connection                    |      |                 |  |
| Direct on the switch                                      |      |                 |  |
| Solid   |      | mm <sup>2</sup> | 1 x (10 - 16)<br>2 x (10 - 16)   |
| Stranded  |      | mm <sup>2</sup> | 1 x (25 - 35)<br>2 x (25 - 35)   |
| Cu strip (number of segments x width x segment thickness) |      |                 |  |
| Box terminal  |      |                 |  |
|   | min. | mm              | 2 x 9 x 0.8  |
|   | max. | mm              | 9 x 9 x 0.8  |
| Copper busbar (width x thickness)                         |      | mm              |  |
| Bolt terminal and rear-side connection                    |      |                 |  |
| Screw connection  |      |                 | M6   |
| Direct on the switch                                      |      |                 |  |
|   | min. | mm              | 12 x 5   |
|   | max. | mm              | 16 x 5   |
| 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

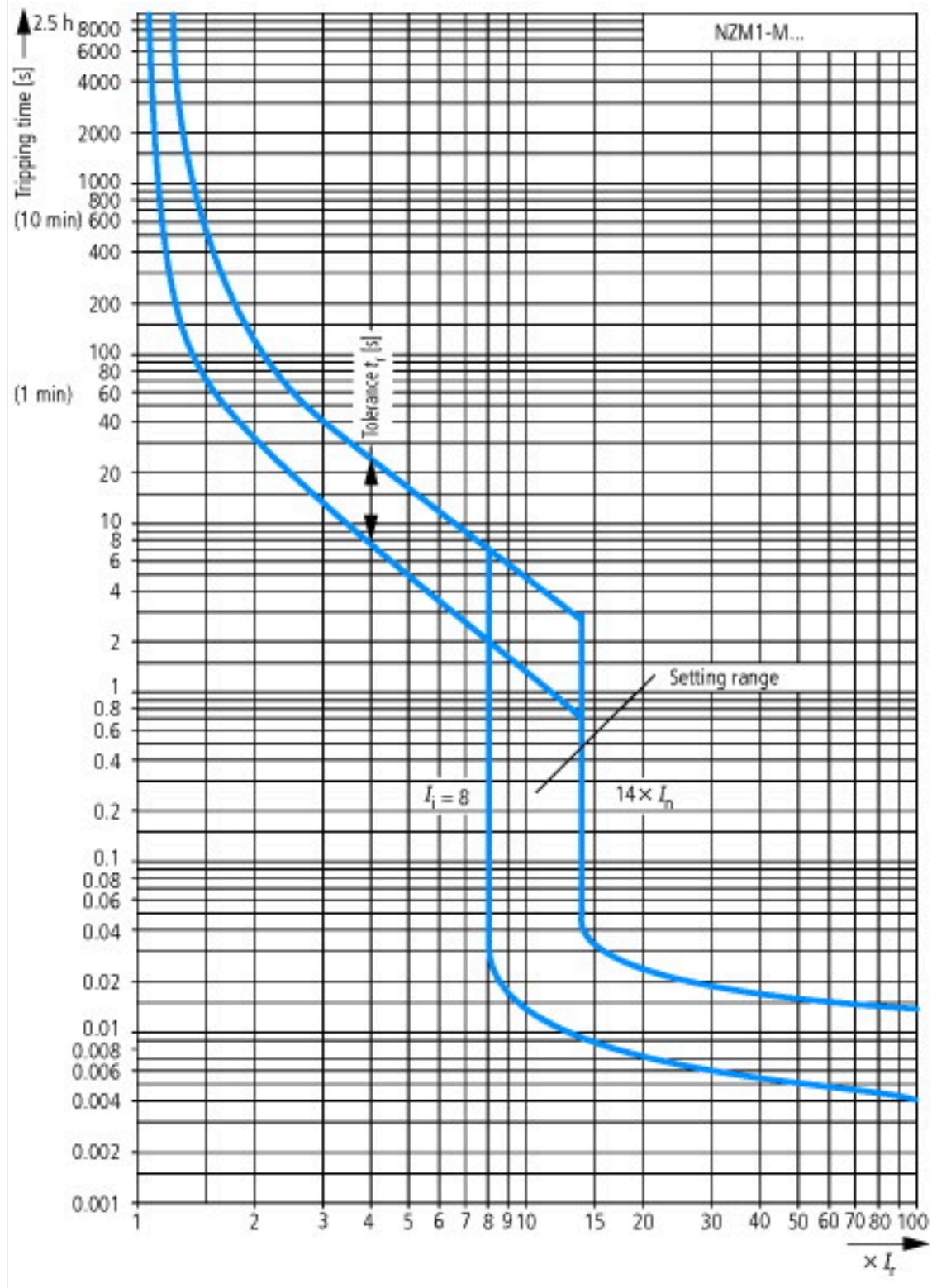
|  |                  |    |  |
|--|------------------|----|--|
| Technical data for design verification   |                  |    |  |
| Rated operational current for specified heat dissipation   | I <sub>n</sub>   | A  | 80   |
| Equipment heat dissipation, current-dependent  | P <sub>vid</sub> | W  | 16.32  |
| 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  |                  |    |  |
| 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) / Motor protection circuit-breaker (EC000074)  |    |                                   |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016]) |    |                                   |
| Overload release current setting  | A  | 0 - 0                             |
| Adjustment range undelayed short-circuit release  | A  | 8 - 14                            |
| With thermal protection   |    | No                                |
| Phase failure sensitive   |    | No                                |
| Switch off technique  |    | Magnetic                          |
| Rated operating voltage   | V  | 440 - 440                         |
| Rated permanent current I <sub>u</sub>  | A  | 80                                |
| Rated operation power at AC-3, 230 V  | kW | 22                                |
| Rated operation power at AC-3, 400 V  | kW | 45                                |
| Type of electrical connection of main circuit   |    | Other                             |
| Type of control element   |    | Rocker lever                      |
| Device construction   |    | Built-in device plug-in technique |
| With integrated auxiliary switch  |    | No                                |
| With integrated under voltage release   |    | No                                |
| Number of poles   |    | 3                                 |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, AC  | kA | 25                                |
| Degree of protection (IP)   |    | IP20                              |
| Height  | mm | 201                               |
| Width   | mm | 95                                |
| Depth   | mm | 90                                |

# Characteristics







## Dimensions



① Blow out area, 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>         |
| Eaton configurator                                    | <a href="http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm">http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm</a> |
| additional technical information for NZM power switch | <a href="https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf">https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf</a>   |