



**Switch-disconnector 3p 250A +pull out**

**Part no.** N2-250-SVE  
**Catalog No.** 113735

**EL-Nummer (Norway)** 0004357994

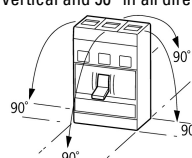
Similar to illustration

**Delivery program**

|                                                      |             |      |                                                                                                                                                                                      |
|------------------------------------------------------|-------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product range                                        |             |      | Switch-disconnectors                                                                                                                                                                 |
| Protective function                                  |             |      | Disconnectors/main switches                                                                                                                                                          |
| Standard/Approval                                    |             |      | IEC                                                                                                                                                                                  |
| Installation type                                    |             |      | Plug-in units                                                                                                                                                                        |
| Construction size                                    |             |      | N2                                                                                                                                                                                   |
| Description                                          |             |      | Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. Isolating characteristics to IEC/EN 60947-3 and VDE 0660. Busbar tag shroud to VDE 0160 Part 100. |
| Number of poles                                      |             |      | 3 pole                                                                                                                                                                               |
| Switch positions                                     |             |      | I, +, 0                                                                                                                                                                              |
| Rated current = rated uninterrupted current          | $I_n = I_u$ | A    | 250                                                                                                                                                                                  |
| Short-circuit protection max. fuse gL-characteristic |             | A gL | 250                                                                                                                                                                                  |

**Technical data**

**General**

|                                                                                       |  |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------|--|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                                                                             |  |      | IEC/EN 60947                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Protection against direct contact                                                     |  |      | Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 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                                                                     |  |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Mounting position                                                                     |  |      | <p>Vertical and 90° in all directions</p>  <p>With residual-current release XFI:<br/>                     - NZM1, N1, NZM2, N2: vertical and 90° in all directions<br/>                     with plug-in adapter elements<br/>                     - NZM1, N1, NZM2, N2: vertical, 90° right/left<br/>                     with withdrawable unit:<br/>                     - NZM3, N3: vertical, 90° 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 area of the HMI devices: IP20 (basic protection type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Enclosures                                                                            |  |      | With insulating surround: IP40<br>With door coupling rotary handle: IP66                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Terminations                                                                          |  |      | Tunnel terminal: IP10<br>Phase isolator and band terminal: IP00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## Switch-disconnectors

|                                             |             |      |                                                                    |
|---------------------------------------------|-------------|------|--------------------------------------------------------------------|
| Rated surge voltage invariability           | $U_{imp}$   |      |                                                                    |
| Main contacts                               |             | V    | 8000                                                               |
| Auxiliary contacts                          |             | V    | 6000                                                               |
| Rated operational voltage                   | $U_e$       | V AC | 690                                                                |
| Rated operating frequency                   | f           | Hz   | 50/60                                                              |
| Rated current = rated uninterrupted current | $I_n = I_u$ | A    | 250                                                                |
| Overvoltage category/pollution degree       |             |      | III/3                                                              |
| Rated insulation voltage                    | $U_i$       | V    | 690                                                                |
| Use in unearthed supply systems             |             | V    | ≤ 690                                                              |
| Other technical data (sheet catalogue)      |             |      | Weight<br>Temperature dependency, Derating<br>Effective power loss |

## Rated short-circuit making capacity

|               |       |    |     |
|---------------|-------|----|-----|
| 690 V 50/60 H | $I_c$ | kA | 5.5 |
|---------------|-------|----|-----|

## Rated short-time withstand current

|           |          |    |                                                                                                                           |
|-----------|----------|----|---------------------------------------------------------------------------------------------------------------------------|
| t = 0.3 s | $I_{cw}$ | kA | 3.5                                                                                                                       |
| t = 1 s   | $I_{cw}$ | kA | 3.5                                                                                                                       |
|           |          |    | The rated short-time withstand current for PN2/N2 in conjunction with earth-fault release NZM2-4-XFI... $I_{cw} = 1.5$ kA |

## Rated conditional short-circuit current

|                      |  |         |                        |
|----------------------|--|---------|------------------------|
| With back-up fuse    |  | A gG/gL | PN2(N2)-160...250: 250 |
| 400 ... 415 V        |  | kA      | 100                    |
| 690 V                |  | kA      | 80                     |
| With downstream fuse |  | A gG/gL | PN2(N2)-160...250: 250 |
| 400 ... 415 V        |  | kA      | 100                    |
| 690 V                |  | kA      | 80                     |

## Rated making and breaking capacity

|                           |            |       |       |
|---------------------------|------------|-------|-------|
| Rated operational current | $I_e$      | A     |       |
| AC-22/23A                 |            |       |       |
| 415 V                     | $I_e$      | A     | 250   |
| 690 V                     | $I_e$      | A     | 250   |
| Lifespan, mechanical      | Operations |       | 20000 |
| Max. operating frequency  |            | Ops/h | 120   |

## 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 |  | 7500  |
| 415 V 50/60 Hz | Operations |  | 7500  |
| 690 V 50/60 Hz | Operations |  | 5000  |

## Terminal capacity

|                                        |  |                 |                                 |
|----------------------------------------|--|-----------------|---------------------------------|
| Accessories required                   |  |                 | NZM2-XSVS socket base           |
| Copper conductors and cables           |  |                 |                                 |
| 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)                   |

|                                                           |      |                 |                                      |
|-----------------------------------------------------------|------|-----------------|--------------------------------------|
|                                                           |      |                 | 2 x (6 - 16)                         |
| Stranded                                                  |      | mm <sup>2</sup> | 1 x (25 - 185)<br>2 x (25 - 70)      |
| Al conductors, Al cable                                   |      |                 |                                      |
| 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 (10 - 16)       |
| Stranded                                                  |      | mm <sup>2</sup> | 1 x (25 - 185)<br>2 x (25 - 70)      |
| 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                               |

## 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  | 48                                                                 |
| Operating ambient temperature min.                                                                                     |                  | °C | -25                                                                |
| Operating ambient temperature max.                                                                                     |                  | °C | 70                                                                 |
| IEC/EN 61439 design verification                                                                                       |                  |    |                                                                    |
| 10.2 Strength of materials and parts                                                                                   |                  |    |                                                                    |
| 10.2.2 Corrosion resistance                                                                                            |                  |    | Meets the product standard's requirements.                         |
| 10.2.3.1 Verification of thermal stability of enclosures                                                               |                  |    | Meets the product standard's requirements.                         |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat                                             |                  |    | Meets the product standard's requirements.                         |
| 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects |                  |    | Meets the product standard's requirements.                         |
| 10.2.4 Resistance to ultra-violet (UV) radiation                                                                       |                  |    | Meets the product standard's requirements.                         |
| 10.2.5 Lifting                                                                                                         |                  |    | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.2.6 Mechanical impact                                                                                               |                  |    | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.2.7 Inscriptions                                                                                                    |                  |    | Meets the product standard's requirements.                         |
| 10.3 Degree of protection of ASSEMBLIES                                                                                |                  |    | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.4 Clearances and creepage distances                                                                                 |                  |    | Meets the product standard's requirements.                         |
| 10.5 Protection against electric shock                                                                                 |                  |    | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.6 Incorporation of switching devices and components                                                                 |                  |    | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.7 Internal electrical circuits and connections                                                                      |                  |    | Is the panel builder's responsibility.                             |
| 10.8 Connections for external conductors                                                                               |                  |    | Is the panel builder's responsibility.                             |
| 10.9 Insulation properties                                                                                             |                  |    |                                                                    |
| 10.9.2 Power-frequency electric strength                                                                               |                  |    | Is the panel builder's responsibility.                             |
| 10.9.3 Impulse withstand voltage                                                                                       |                  |    | Is the panel builder's responsibility.                             |
| 10.9.4 Testing of enclosures made of insulating material                                                               |                  |    | Is the panel builder's responsibility.                             |

|                                     |  |                                                                                                                                  |
|-------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------|
| 10.10 Temperature rise              |  | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| 10.11 Short-circuit rating          |  | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.12 Electromagnetic compatibility |  | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.13 Mechanical function           |  | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |

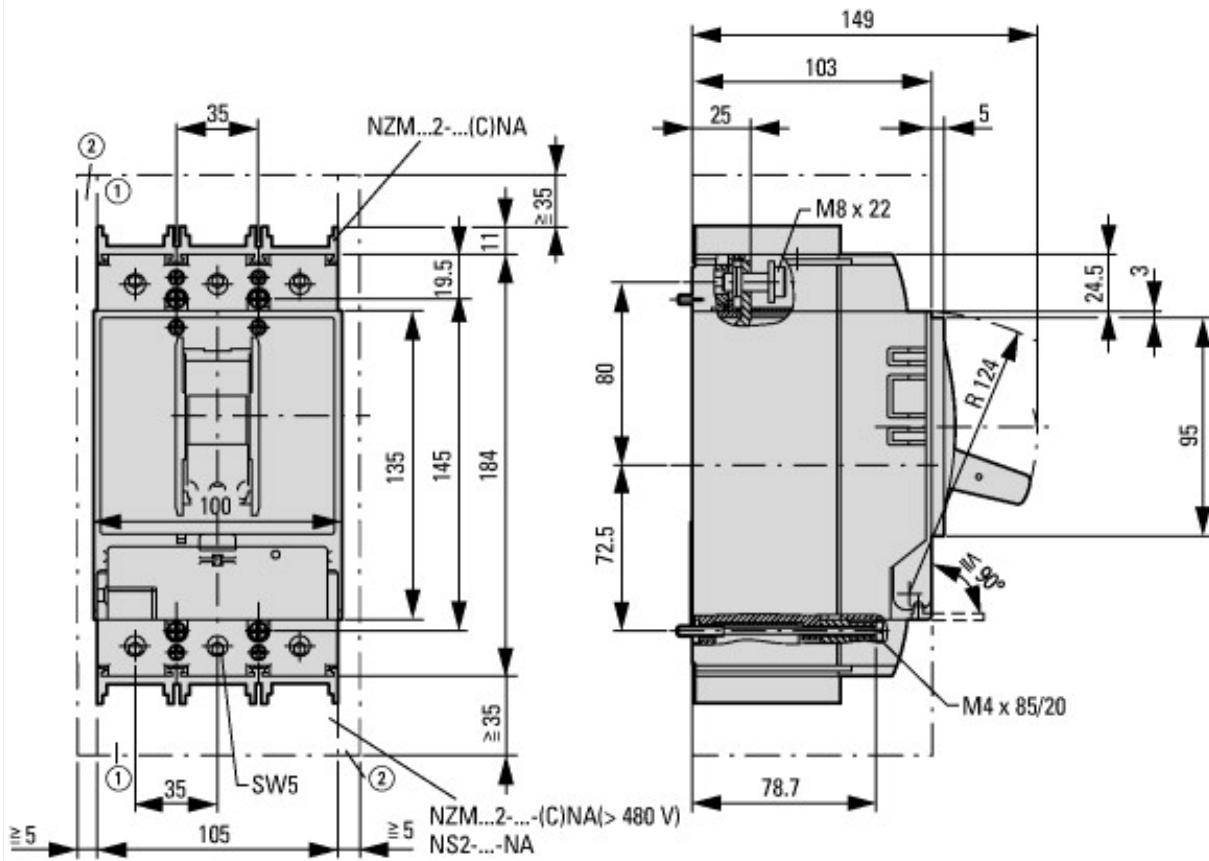
## Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Switch disconnecter (EC000216)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Switch disconnecter (ecl@ss10.0.1-27-37-14-03 [AKF060013])

|                                                         |    |                                   |
|---------------------------------------------------------|----|-----------------------------------|
| Version as main switch                                  |    | Yes                               |
| Version as maintenance-/service switch                  |    | Yes                               |
| Version as safety switch                                |    | No                                |
| Version as emergency stop installation                  |    | Yes                               |
| Version as reversing switch                             |    | No                                |
| Number of switches                                      |    | 1                                 |
| Max. rated operation voltage U <sub>e</sub> AC          | V  | 690                               |
| Rated operating voltage                                 | V  | 690 - 690                         |
| Rated permanent current I <sub>u</sub>                  | A  | 250                               |
| Rated permanent current at AC-23, 400 V                 | A  | 0                                 |
| Rated permanent current at AC-21, 400 V                 | A  | 0                                 |
| Rated operation power at AC-3, 400 V                    | kW | 0                                 |
| Rated short-time withstand current I <sub>cw</sub>      | kA | 3.5                               |
| Rated operation power at AC-23, 400 V                   | kW | 132                               |
| Switching power at 400 V                                | kW | 0                                 |
| Conditioned rated short-circuit current I <sub>q</sub>  | kA | 0                                 |
| Number of poles                                         |    | 3                                 |
| 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                                 |
| Motor drive optional                                    |    | Yes                               |
| Motor drive integrated                                  |    | No                                |
| Voltage release optional                                |    | Yes                               |
| Device construction                                     |    | Built-in device plug-in technique |
| Suitable for ground mounting                            |    | Yes                               |
| Suitable for front mounting 4-hole                      |    | No                                |
| Suitable for front mounting centre                      |    | No                                |
| Suitable for distribution board installation            |    | Yes                               |
| Suitable for intermediate mounting                      |    | Yes                               |
| Colour control element                                  |    | Black                             |
| Type of control element                                 |    | Rocker lever                      |
| Interlockable                                           |    | Yes                               |
| Type of electrical connection of main circuit           |    | Screw connection                  |
| Degree of protection (IP), front side                   |    | IP20                              |
| Degree of protection (NEMA)                             |    |                                   |

## Dimensions



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



### Additional product information (links)

|                                                       |                                                                                                                                                                                                                                                 |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight                                                | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171</a>                                                                                         |
| Temperature dependency, Derating                      | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172</a>                                                                                         |
| Effective power loss                                  | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174</a>                                                                                         |
| 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>                                                                                           |