



Switch-disconnector 4p 160A 1000VDC

Part no. N2-4-160-S1-DC
Catalog No. 127732
EL-Nummer (Norway) 0004356070



Similar to illustration

Delivery program

| | | | |
|---|-------------|------|---|
| Product range | | | Switch-disconnectors |
| Protective function | | | Disconnectors/main switches Photovoltaic applications |
| Product range | | | DC switch-disconnectors |
| Application field | | | Utility buildings Open areas |
| Part no. | | | N...DC |
| Standard/Approval | | | IEC |
| Rated operational voltage | | | 1000 |
| Installation type | | | Fixed |
| Construction size | | | N2 |
| Description | | | IEC/EN 60947-3 CCC China Compulsory Certificate Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. Isolating characteristics to IEC/EN 60947-3 and VDE 0660. N switch-disconnectors can, in addition, be combined with NZM...-XU, NZM...-XA shunt releases and auxiliary contacts as well as with NZM...-XR... remote operator. For DC switching, all 4 contacts must be connected in series. Refer to the information on jumper kit accessories. Supplied as standard: Screw connection; box terminal optional. When working with ungrounded systems (e.g., IT), the installation must ensure that a double ground fault will be impossible. Switch can not be combined with plug-in/withdrawable units and/or connection on rear. N4-4...-S15-DC feeder unit and outgoer from the bottom only. |
| Connection options | | | |
| Number of poles | | | 4-pole basic device, usable in a 1-pole or 2-pole configuration depending on the type of connection |
| Standard equipment | | | Screw connection |
| Switch positions | | | I, +, 0 |
| Rated current = rated uninterrupted current | $I_n = I_u$ | A | 160 |
| Short-circuit protective device max. fuse gR-characteristic | | A gR | 200 |
| Remotely control / trip | | | Remote operation with shunt releases / remote operator |

| | | |
|---------------------------|--|----|
| Rated operating frequency | | DC |
|---------------------------|--|----|

Technical data

Switch-disconnectors

| | | | |
|---|----------------|------|--|
| Rated operational voltage, max. | U _e | V DC | 1000 |
| Rated uninterrupted current with terminal jumpers | | | |
| at 40° | | | 160 |
| at 65° | | | 160 |
| | | | Values for rated uninterrupted current at 65 °C include jumpers. |
| Utilization category | | | DC-22A |
| Rated operational current | I _e | A | |
| DC 22-A | I _e | A | 160 |
| Overvoltage category/pollution degree | | | III/3 |
| Rated insulation voltage | U _i | V | 1250 |
| Ambient temperature | | | |
| Ambient temperature, storage | | °C | - 40 - + 70 |
| Operation | | °C | -25 - +70 |

Rated short-time withstand current

| | | | |
|---------|-----------------|----|-----|
| t = 1 s | I _{cw} | kA | 3.6 |
|---------|-----------------|----|-----|

Rated conditional short-circuit current

| | | | |
|-------------------|--|------|-----|
| 1000 V | | kA | 15 |
| With back-up fuse | | A gR | 200 |

Lifespan, mechanical

| | | | |
|--------------------------|------------|-------|---|
| Max. operating frequency | | Ops/h | 120 |
| Lifespan, mechanical | Operations | | 20000 |
| | | | Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release |

Terminal capacity

| | | | |
|---|------|-----------------|--------------------------------------|
| Standard equipment | | | Screw connection |
| Round copper conductor | | | |
| Box terminal | | | |
| Solid | | mm ² | 1 x (4 - 16) 2 x (4 - 16) |
| Stranded | | mm ² | 1 x (25 - 185) 2 x (25 - 70) |
| Tunnel terminal | | | |
| Solid | | mm ² | 1 x 16 |
| Stranded | | | |
| Stranded | | mm ² | 1 x (25 - 185) |
| Bolt terminals | | | |
| Direct on the switch | | | |
| Solid | | mm ² | 1 x (10 - 16) 2 x (4 - 16) |
| Stranded | | mm ² | 1 x (25 - 185) 2 x (25 - 70) |
| Al conductors, Cu cable | | | |
| Tunnel terminal | | | |
| Solid | | mm ² | 1 x 16 |
| Stranded | | | |
| Stranded | | mm ² | 1 x (25 - 185) |
| 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 |
| 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 (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

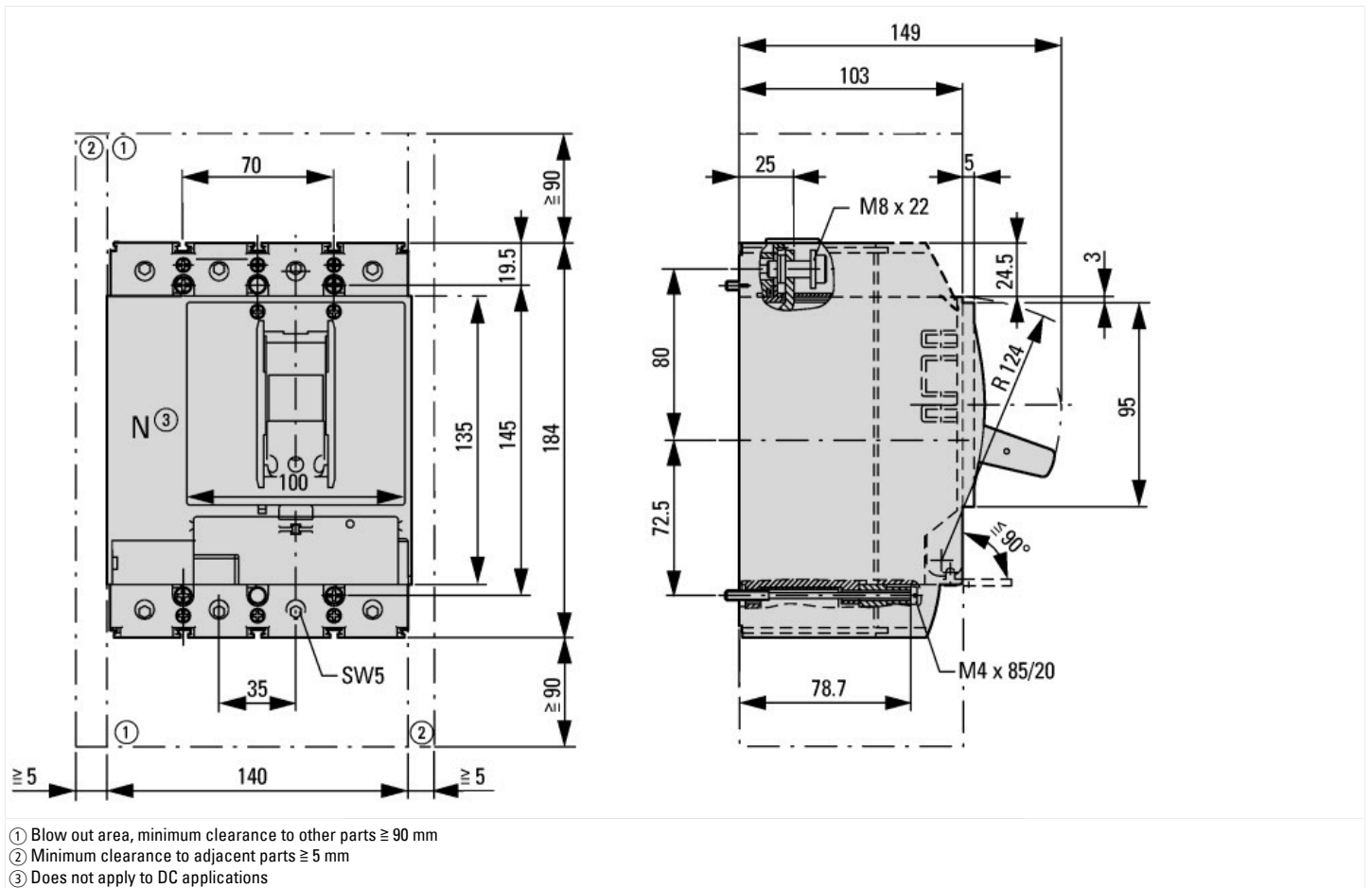
| | | | |
|--|-----------|----|--|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | I_n | A | 160 |
| Equipment heat dissipation, current-dependent | P_{vid} | W | 27 |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient 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. |

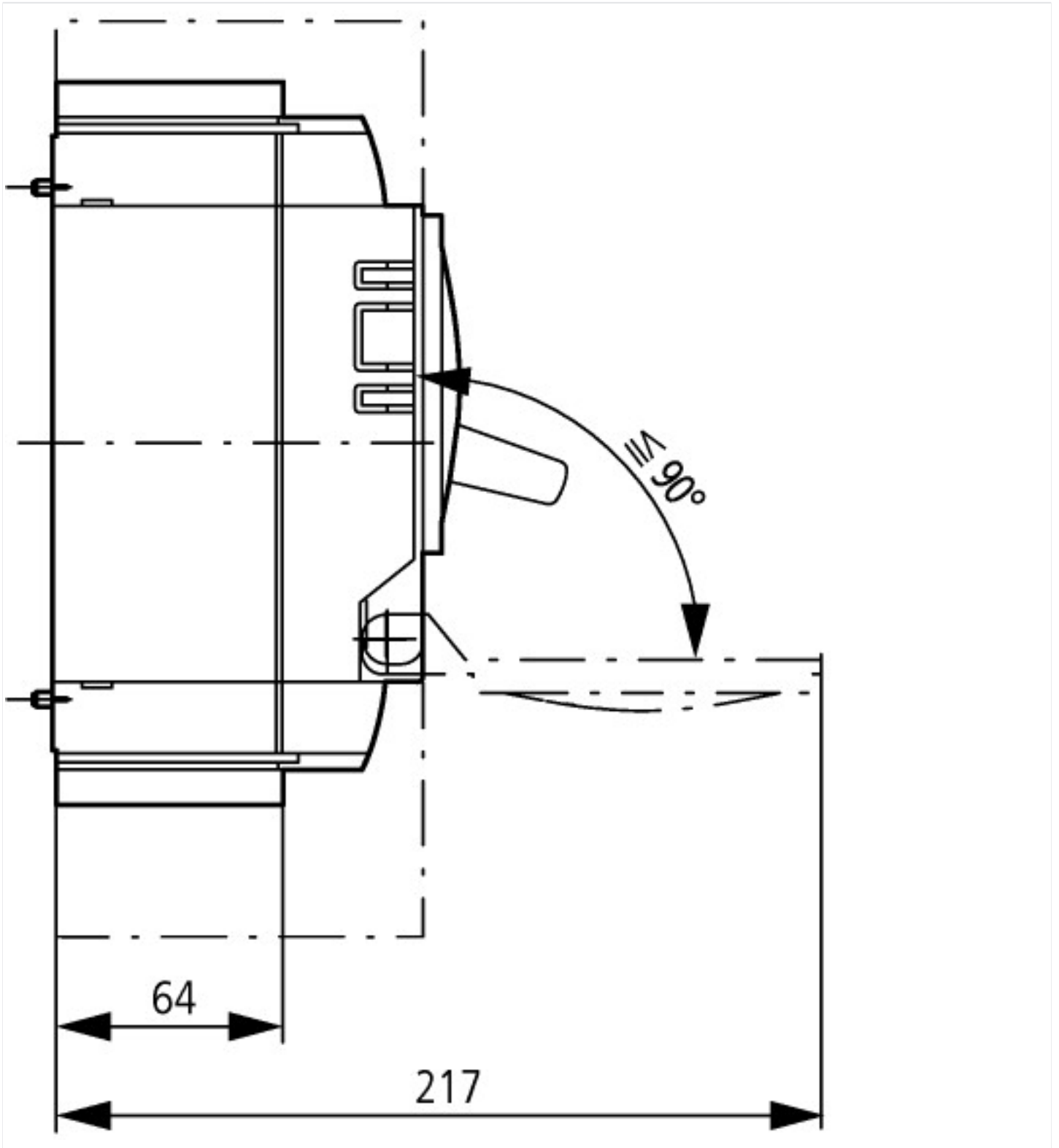
Technical data ETIM 7.0

| | | | |
|---|--|---|-----|
| 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 (ec!@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_e AC | | V | 0 |

| | | |
|---|----|--|
| Rated operating voltage | V | 1000 - 1000 |
| Rated permanent current I _u | A | 160 |
| 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 _{cw} | kA | 3.6 |
| Rated operation power at AC-23, 400 V | kW | 0 |
| Switching power at 400 V | kW | 0 |
| Conditioned rated short-circuit current I _q | kA | 0 |
| Number of poles | | 4 |
| 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 fixed built-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





Additional product information (links)

| | |
|--|---|
| CurveSelect characteristics program | http://www.eaton.eu/DE/Europe/Electrical/CustomersSupport/ConfigurationTools/CharacteristicsProgram/index.htm |
| Eaton configurator | http://www.eaton.eu/DE/Europe/Electrical/CustomersSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm |
| Additional technical data: Photovoltaics catalog (starting on page 35) | http://www.moeller.net/binary/pdf_kat/br01601001z_en.pdf |