MOELLER

Type: **NZMN2–VE160**
Article No.: **259123**



| **Ordering information** | | | |
|---|---|---|---|
| Description | | | Terminal screws standard, terminals as accessories |
| Rated current = rated uninterrupted current | $I_u$ | A | 160 |
| Setting range | | | |
| Short–circuit releases Non–delayed | | A | 1920 |
| Short–circuit releases Delayed | $I_{rmv}$ | × $I_r$ | 160 – 1600 |
| Switching capacity Switching capacity | | kA | 50 |
| Release system | | | Electronic release |
| Pole | | | 3 |

**Notes concerning the product group**

IEC/EN 61131–2

Adjustable overload release $I_r$

- 0.5 – 1 × $I_n$ (ex–factory0.8 × $I_n$)

R.m.s. value measurement and “thermal memory”

Adjustable time delay setting to overcome current peaks $t_r$

- 2 – 20 s with 6 × $I_r$ as well as infinity (without overload release) (ex–factory 10 s)

Adjustable delayed short−circuit releases $I_{sd}$

- 2 – 10 × $I_r$ (ex−factory 6 × $I_r$)

– NZM...3−VE630: 1.5 – 7 × $I_r$ (ex−factory 6 × $I_r$)

Adjustable delay time $t_{sd}$

- Steps: 0, 20, 60, 100, 200, 300, 500, 750, 1000 ms (ex−factory 0 ms)

Adjustable non−delayed short−circuit releases $I_i$

- NZM...4−VE...: 2 – 12 × $I_n$ (ex−factory 12 × $I_n$)
- NZM2 fixed 12 × $I_n$
- NZM...3−VE250/400: 2 – 11 × $I_n$ (ex−factory 6 × $I_n$)
- NZM...3−VE630: 2 – 8 × $I_n$ (ex−factory 6 × $I_n$)

$i^2t$ constant function

- NZM2 fixed OFF
- NZM3, NZM4 switched (ex−factory OFF)

For limiter switching capacity with NZM...4−VE the following applies: 100 kA

**Notes concerning the product group**

Notes for terminals → 260042

| 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, according to IEC 60068−2−78<br>Damp heat, cyclical to IEC 60068−2−30 |
| Mechanical shock resistance (IEC/EN 60068−2−27) | | | |
| Shock resistance | | g | 20 (half−sinusoidal shock 20 ms) |
| Safe isolation to VDE 0106 Part 101 and Part 101/A1 | | | |
| | | V AC | 500 |

| | | | |
|---|---|---|---|
| Between auxiliary contacts and main contacts | | | |
| between the auxiliary contacts | | V AC | 300 |
| Dimensions | | | |
| Weight | | | |
| Weight | | kg | 2,345 |
| Mounting position | | | |
| 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, with door coupling rotary handle: IP66 |
| Terminations | | | Tunnel terminal: IP10<br>Phase isolator and strip terminal: IP00 |
| **Circuit–breakers** | | | |
| Rated impulse withstand voltage $U_{imp}$ | | | |
| 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 |
| **Switching capacity** | | | |
| Rated short–circuit making capacity | | | |
| 240 V | $I_{cm}$ | kA | 187 |
| 400/415 V | $I_{cm}$ | kA | 105 |
| 440 V | $I_{cm}$ | kA | 74 |
| 525 V | $I_{cm}$ | kA | 53 |
| 690 V | $I_{cm}$ | kA | 40 |
| Rated short–circuit breaking capacity $I_{cn}$ | | | |
| $I_{cu}$ to IEC/EN 60947 operating sequence O–t–CO | | | |
| 240 V 50/60 Hz | $I_{cu}$ | kA | 85 |
| 400/415 V 50/60 Hz | $I_{cu}$ | kA | 50 |
| 440 V 50/60 Hz | $I_{cu}$ | kA | 35 |
| 525 V 50/60 Hz | $I_{cu}$ | kA | 25 |

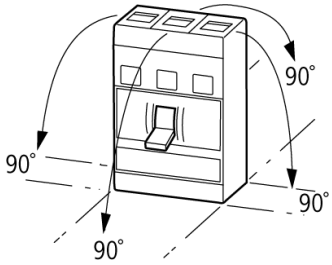
| | | | |
|---|---|---|---|
| 690 V 50/60 Hz | $I_{cu}$ | kA | 20 |
| $I_{cu}$ to IEC/EN 60947 operating sequence O–t–CO–t–CO | | | |
| 240 V 50/60 Hz | $I_{cs}$ | kA | 85 |
| 400/415 V 50/60 Hz | $I_{cs}$ | kA | 50 |
| 440 V 50/60 Hz | $I_{cs}$ | kA | 35 |
| 525 V 50/60 Hz | $I_{cs}$ | kA | 25 |
| 690 V 50/60 Hz | $I_{cs}$ | kA | 10 |
| **Technical data, divergent from the products for the IEC market** switching capacity NA switches (UL489, CSA 22.2 No. 5.1) | | | |
| 240 V 60 Hz | | kA | 85 |
| 480V 60Hz | | kA | 35 |
| 600 V 60 Hz | | kA | 25 |
| Utilization category to IEC/EN 60947–2 | | | A |
| Rated short–time withstand current | | | |
| t = 0.3 s | $I_{cw}$ | kA | 1,9 |
| t = 1 s | $I_{cw}$ | kA | 1,9 |
| Lifespan, mechanical | Operations | | 20000 |
| Maximum operating frequency | | | |
| Max. operating frequency | | Ops/h | 120 |
| Lifespan, electrical | | | |
| AC–1 | | | |
| 400/415 V 50/60 Hz | Operations | | 10000 |
| 690 V 50/60 Hz | Operations | | 7500 |
| AC––3 | | | |
| 400/415 V 50/60 Hz | Operations | | 6500 |
| 690 V 50/60 Hz | Operations | | 5000 |
| Current heat loss per pole at $I_u$ | | W | 19 |
| Overload releases | | | |
| Temperature compensation for NZM2 to IEC/EN 60947, residual error in the range –25 °C/+70 °C (reference temperature 40 °C) | | | |
| Electronic | | | 0 |
| Total opening delay at short–circuit | | ms | < 10 |
| **Terminal capacities** | | | |
| Standard equipment | | | Screw terminal |

| | | | |
|---|---|---|---|
| Accessories | | | Box terminal<br>Tunnel terminal<br>Connection on rear |
| Cu conductors, Cu cable | | | |
| Box terminal | | | |
| Solid | | $mm^2$ | 1 × (4 – 16)<br>2 × (4 – 16) |
| Stranded | | $mm^2$ | 1 × (25 – 185)<br>2 × (25 – 70) |
| Tunnel terminal | | | |
| Solid | | $mm^2$ | 1 × (16 – 185) |
| Stranded | | | |
| Single hole | | $mm^2$ | 1 × (25 – 185) |
| Bolt terminal and rear−side connection | | | |
| Direct on the switch | | | |
| Solid | | $mm^2$ | 1 × (4 – 16)<br>2 × (4 – 16) |
| Stranded | | $mm^2$ | 1 × (25 – 185)<br>2 × (25 – 70) |
| Al conductors, Cu cable | | | |
| Tunnel terminal | | | |
| Solid | | $mm^2$ | 1 × 16 |
| Stranded | | | |
| Single hole | | $mm^2$ | 1 × (25 – 185)<br>je nach Kabelhersteller bis zu 240 $mm^2$ anschließbar |
| Bolt terminal and rear−side connection | | | |
| Direct on the switch | | | |
| Solid | | $mm^2$ | 1 × (10 – 16)<br>2 × (10 – 16) |
| Stranded | | $mm^2$ | 1 × (25 – 50)<br>2 × (25 – 50) |
| Cu strip (number of segments x width x segment thickness) | | | |
| Box terminal | | | |
| | min. | $mm^2$ | 2 × 9 × 0.8 |
| | max. | $mm^2$ | 10 × 16 × 0.8 |
| Bolt terminal and rear−side connection | | | |
| Flat copper strip, with holes | min. | mm | 2 × 16 × 0.8 |

| | | | |
|---|---|---|---|
| Flat copper strip, with holes | max. | mm | 10 × 16 × 0.8 |
| Copper busbar (width × thickness) | | | |
| Bolt terminal and rear−side connection | | | |
| Screw connection | | | M8 |
| Direct on the switch | | | |
| | min. | $mm^2$ | 16 × 5 |
| | max. | $mm^2$ | 20 × 5 |
| **Dimensions** | | | |
| | | | Blow out area, minimum clearance to other parts 60 mm |
| Explaination | | | Systems, cable, selectivity and generator protection |
| Explaination | | | 1 half−shaft |

## Mounting position

Vertical and 90° in all directions



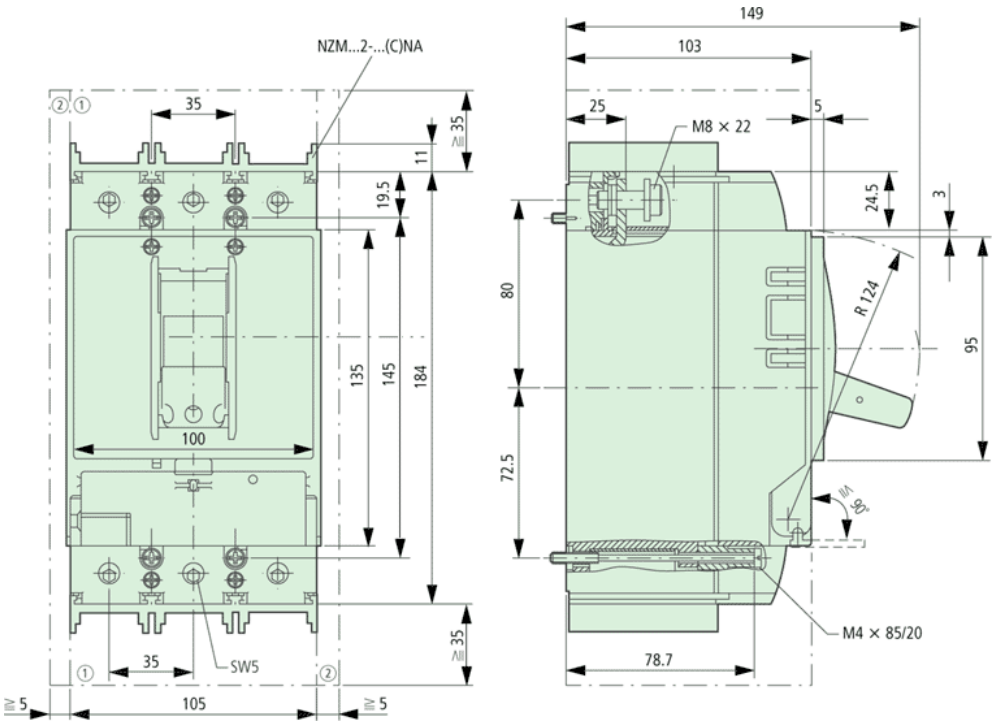

With plug−in adapter NZM2: vertical, 90° right/left

With withdrawable unit NZM3: vertical, 90° left NZM4: verticalwith remote operator: NZM2, NZM3, NZM4: vertical and 90° in all directions

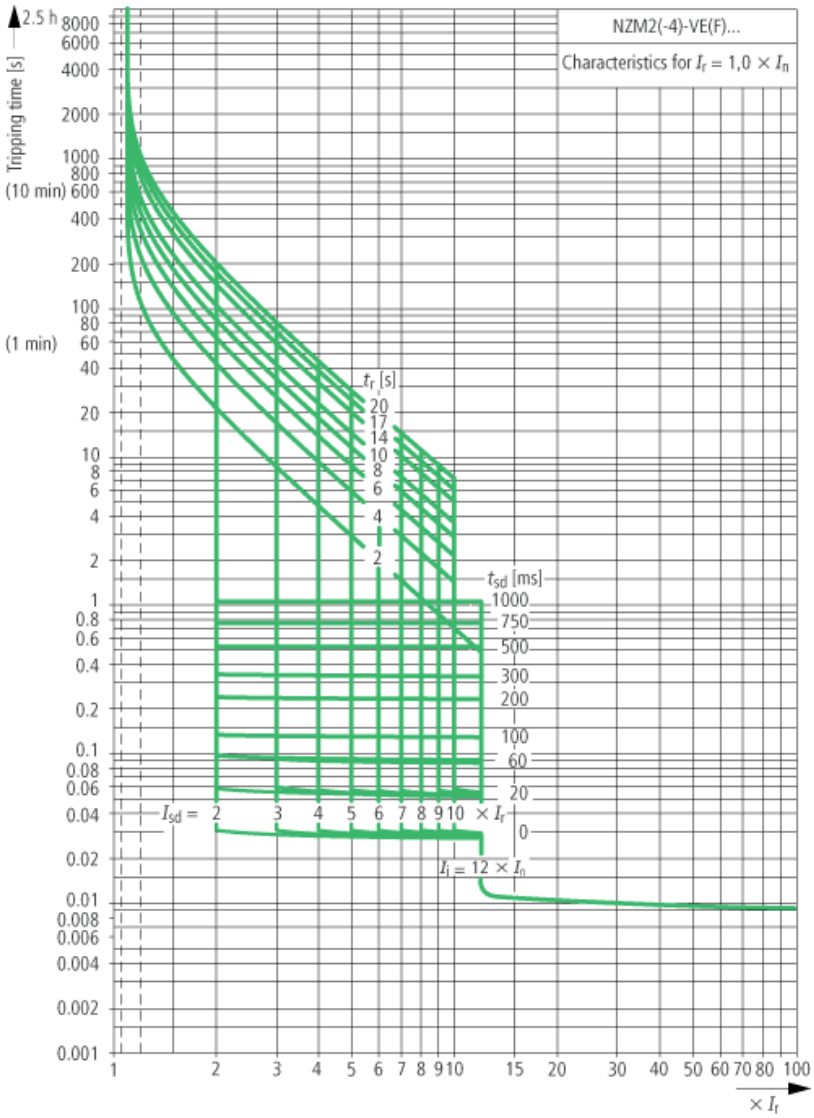
## Overview

| | | | | |
|---|---|---|---|---|
| Basic equipment | | | | |
| Box terminal | ● | – | – | – |
| Screw connection | – | ● | ● | ● |
| Accessories | | | | |
| Box terminal | – | ● | ● | – |
| Screw connection | ● | – | – | ● |
| Tunnel terminal | ● | ● | ● | ● |
| Connection on rear | ● | ● | ● | ● |
| Flat conductor terminal | – | – | – | ● |

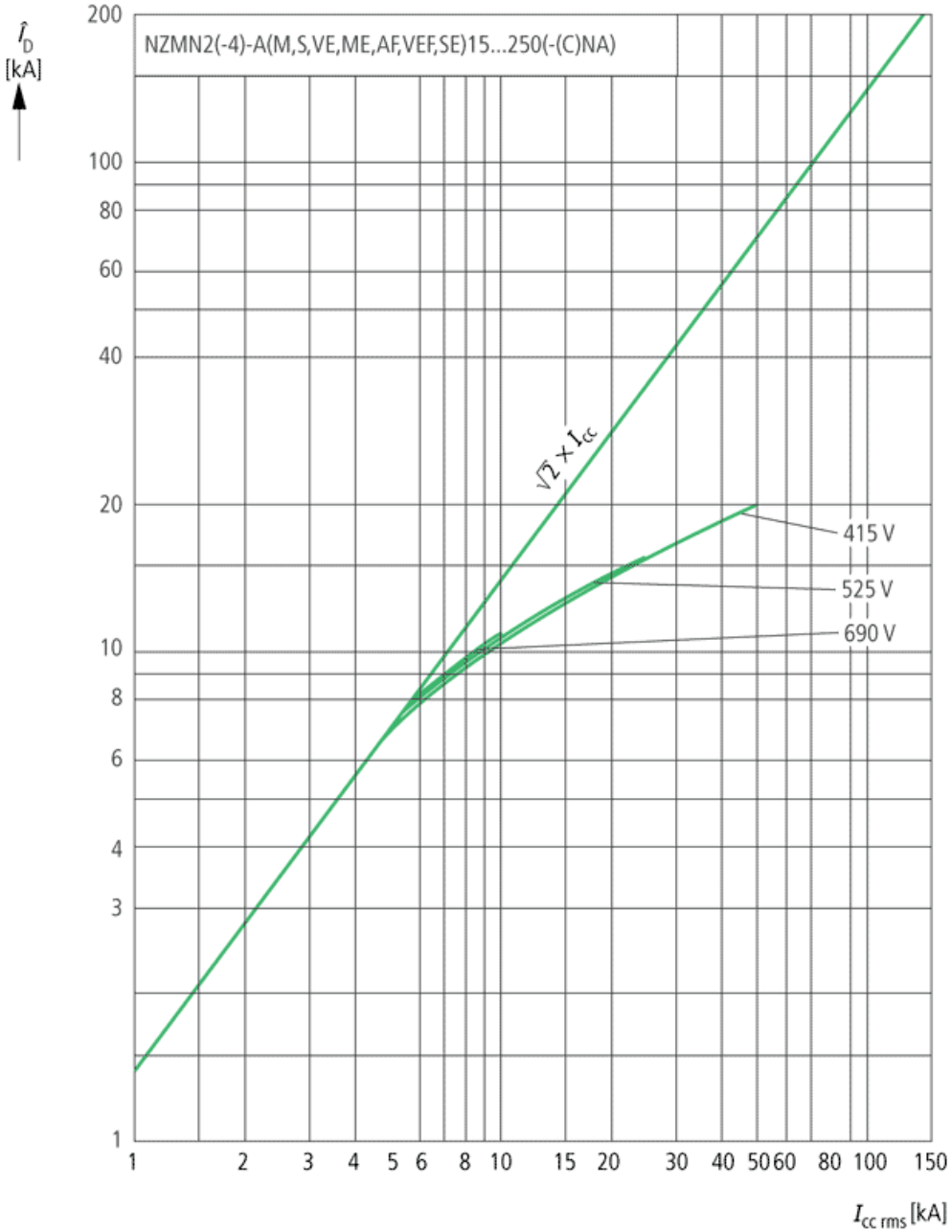
## Dimensions



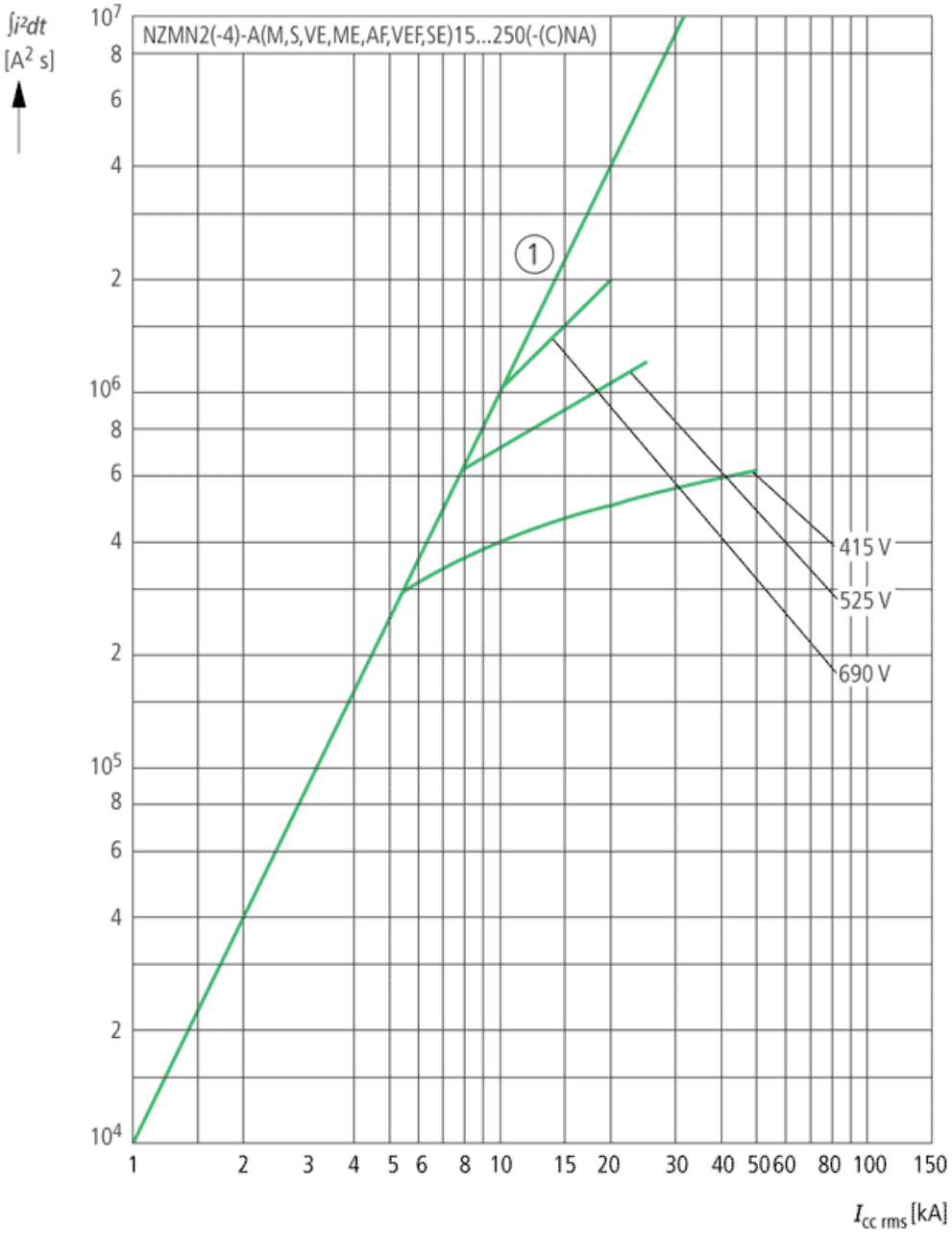

## Characteristic curve




## Characteristic curve




## Characteristic curve




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