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Type: **NZMN1-A100**Article No.: **259085**Sales text **Circuit-breaker3p systems/cable prot.**

Ordering information

| | | | | |
|---|-------|----|--|--|
| Number of poles | | | | 3-pole |
| Description | | | | Terminals standard, terminal screws as accessories |
| Rated current = rated uninterrupted current | I_u | A | | 100 |
| Setting range | | | | |
| Overload releases | I_r | A | | 80...100 |
| Switching capacity | | | | |
| Switching capacity | | kA | | 50 |
| Release system | | | | Thermomagnetic release |
| Frame size | | | | NZM1 |

Notes concerning the product group

IEC/EN 60947-2

Adjustable overload release I_r

- 0.8 ... 1 × I_n (ex-works 0.8 × I_n)

Adjustable short-circuit release I_i

- 6 ... 10 × I_n

- (ex-works $6 \times I_n$)
-)
- NZM...-A40: $8 \dots 10 \times I_n$ (ex-works $8 \times I_n$)

Fixed short-circuit release I_i

- 350 A at $I_n = 20 \dots 32$ A
- 1280 A at $I_n = 160$ A (NZM1)

Notes concerning the product group

Notes for terminals → [260015](#)

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 Damp heat, cyclical to IEC 60068-2-30 |
| Ambient temperature | | |
| Ambient temperature, Storage | °C | ... 25...+70 |
| Operation | °C | ... 25...+70 |
| 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 | | |
| Between auxiliary contacts and main contacts | V AC | 500 |
| between the auxiliary contacts | V AC | 300 |
| Dimensions | | |
| Weight | | |
| Weight | kg | 1,046 |
| 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 Phase isolator and strip terminal: IP00 |
| Lifespan | | |
| Releases | | |
| Electrical lifespan at 8 A/230 V AC/70 °C | Operations | 10000 |
| Circuit-breakers | | |
| Rated impulse withstand voltage U_{imp} | | |
| Main contacts | V | 6000 |
| Auxiliary contacts | V | 6000 |
| Rated operational voltage | U_e | V AC 690 |
| Overvoltage category/pollution degree | | III/3 |
| Rated insulation voltage | U_i | V 690 |
| For use in IT electrical power networks | V | 690 |
| 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 40 |
| 690 V | I_{cm} | kA 17 |
| 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 |
| 415 V AC | I_{cu} | kA | 50 |
| 440 V 50/60 Hz | I_{cu} | kA | 35 |
| 525 V 50/60 Hz | I_{cu} | kA | 20 |
| 690 V 50/60 Hz | I_{cu} | kA | 10 |
| 500 V DC | I_{cu} | kA | 15 |
| I_{cs} 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 |
| 415 V AC | I_{cs} | kA | 50 |
| up to 440 V 50/60 Hz | I_{cs} | kA | 35 |
| 525 V 50/60 Hz | I_{cs} | kA | 10 |
| up to 690 V 50/60 Hz | I_{cs} | kA | 7,5 |
| 690 V AC | I_{cs} | kA | 7 |
| Maximum low-voltage h.b.c. fuse | A gG/gL | NZM.1-...20...100: 200 NZM.1-...125, 160: 315 | |
| 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 |
| Utilization category to IEC/EN 60947-2 | | | A |
| 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 |
| 415 V | Operations | | 10000 |
| 690 V 50/60 Hz | Operations | | 7500 |
| AC-3 | | | |
| 400/415 V 50/60 Hz | Operations | | 7500 |
| 415 V | Operations | | 7500 |
| 690 V 50/60 Hz | Operations | | 5000 |
| DC --1 | | | |
| 500 V DC | Operations | | 10000 |
| DC - 3 | | | |
| 500 V DC | Operations | | 5000 |
| Current heat loss per pole at I_u | | W | 16.7 |
| Current heat loss (3-pole) at I_u | | W | 13 |
| Overload releases | | | |
| to IEC/EN 60947, VDE 0660 | | | |
| Temperature compensation to IEC/EN 60947 Residual error in the range -25 °C/+70 °C (reference temperature 3 0 °C) | | %/K | 0,7 |
| Frequency range | | ms | < 10 |
| Terminal capacities | | | |
| Standard equipment | | | Box terminal |
| Accessories | | | Screw connection Tunnel terminal Connection on rear |
| Rated power of coil | | | |
| Box terminal | | | |
| Solid | mm ² | | 1 × (10 – 16) 2 × (6 – 16) |
| Stranded | mm ² | | 1 × (25 – 70) 2 × 25 |
| Tunnel terminal | | | |
| Solid | mm ² | | 1 × (16 – 95) |

| | | | |
|---|-----------------|--------------------------------|-------------|
| Stranded | | | |
| Single hole | mm ² | 1 × (25 – 95) | |
| Bolt terminal and rear-side connection | | | |
| Direct on the switch | | | |
| Solid | mm ² | 1 × (10 – 16) 2 × (6 – 16) | |
| Stranded | mm ² | 1 × (25 – 70) 2 × 25 | |
| AI conductors, Cu cable | | | |
| Tunnel terminal | | | |
| Solid | mm ² | 1 × 16 | |
| Stranded | | | |
| Single hole | mm ² | 1 × (25 – 95) | |
| Bolt terminal and rear-side connection | | | |
| Direct on the switch | | | |
| Solid | mm ² | 1 × (10 – 16) 2 × (10 – 16) | |
| Stranded | mm ² | 1 × (25 – 35) 2 × (25 – 35) | |
| Cu strip (number of segments x width x segment thickness) | | | |
| Box terminal | | | |
| | min. | mm ² | 2 × 9 × 0.8 |
| | max. | mm ² | 9 × 9 × 0.8 |
| Copper busbar (width x thickness) | | | |
| Bolt terminal and rear-side connection | | | |
| Screw connection | | | M8 |
| Direct on the switch | | | |
| | min. | mm ² | 12 × 5 |
| | max. | mm ² | 16 × 5 |

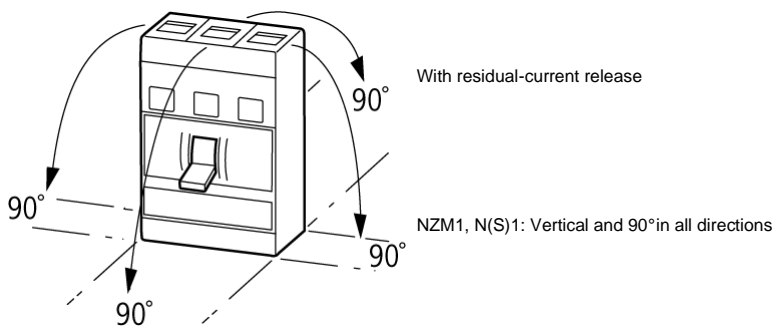
Notes

For rated operational voltage the following applies:
 DC voltage values on request
 For switching capacity of NA switches with NZM...1-...NA the following applies: 480Y/277 V from 60 A
 For rated operational current AC-3 at NZMB2, NZMN2, NZMH2, NZM4 the following applies: 400 V: max. 650 kW; 600 V: max. 600 kW
 For switching capacity of NA switches with NZML2 and NZML3 the following applies: current limiting switch to UL489
 For overload release temperature compensation NZM2 thermomagnetic the following applies: with NZM1...1-...160: 0.4
 For switching capacity of NA switches with NZML4 at 240 V 60 Hz the following applies: please enquire
 The current heat loss per pole ratings refer to the maximum current rating of the frame size.

Notes

Mounting position

Vertical and 90° in all directions



Overview

Basic equipment

| | | | | |
|------------------|---|---|---|---|
| Box terminal | ● | - | - | - |
| Screw connection | - | ● | ● | ● |

Accessories

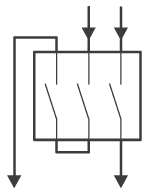
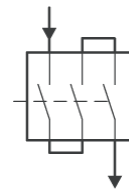
| | | | | |
|-------------------------|---|---|---|---|
| Box terminal | - | ● | ● | - |
| Screw connection | ● | - | - | ● |
| Tunnel terminal | ● | ● | ● | ● |
| Connection on rear | ● | ● | ● | ● |
| Flat conductor terminal | - | - | - | ● |

Notes

For rated operational voltage switching on 3 contacts the following applies: DC correction factor for instantaneous release response value NZM1: 1.25, NZM2: 1.35

Setting for I_t at DC = setting I_t AC/DC correction factor

Details apply for 3-pole system protection circuit-breaker with thermomagnetic release NZM(H)1(2)-A...

Switching of one pole via two series contacts**Switching of one pole via three series contacts**

For NA switch switching capacity with NZM...1-...(C)NA the following applies: 480 Y/277 V from 60 A

For AC-3 rated operational current with NZM4 the following applies: 400 V: max. 650 kW; 690 V: max. 600 kW

For NA switch switching capacity with NZML2 and NZML3 the following applies: Current Limiting switch to UL489

For 3-pole system protection circuit-breaker the AC-3 specification is not applicable

For NA switch switching capacity with NZML4 at 240 V 60 Hz the following applies: on request

For current heat loss per pole the specification refers to the maximum nominal current of the frame size.

For 3-pole system protection circuit-breaker the following applies: 690 V

For 3-pole system protection circuit-breaker the following applies: 400/415 V 7500 switching operations

Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.

≦ 1600 A

Higher switching capacity on request

Notes

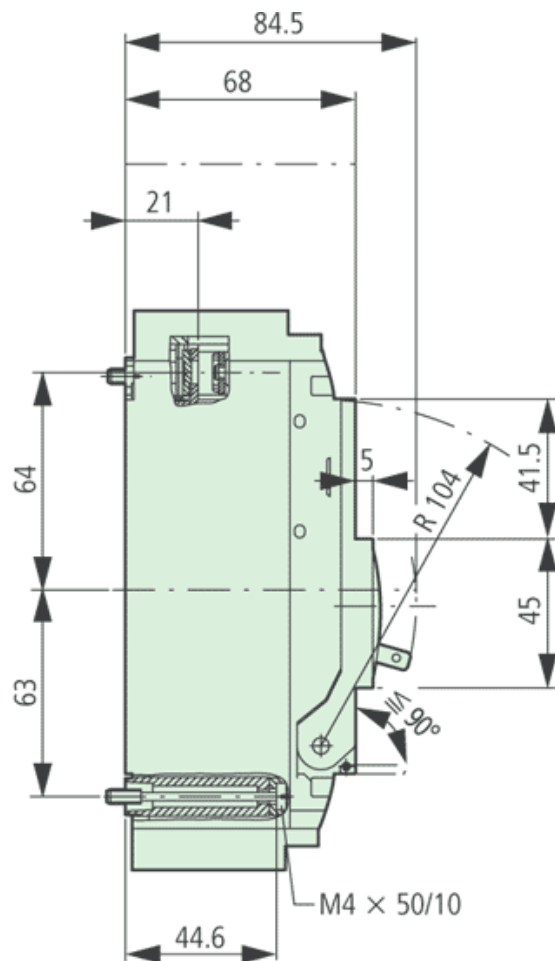
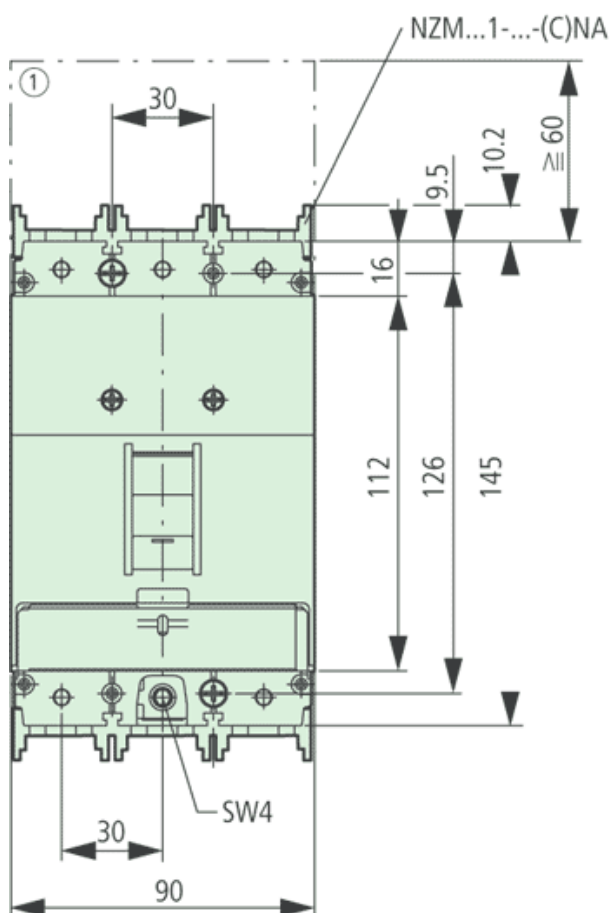
XSV = plug-in unit

XAV = withdrawable unit

TM = thermomagnetic

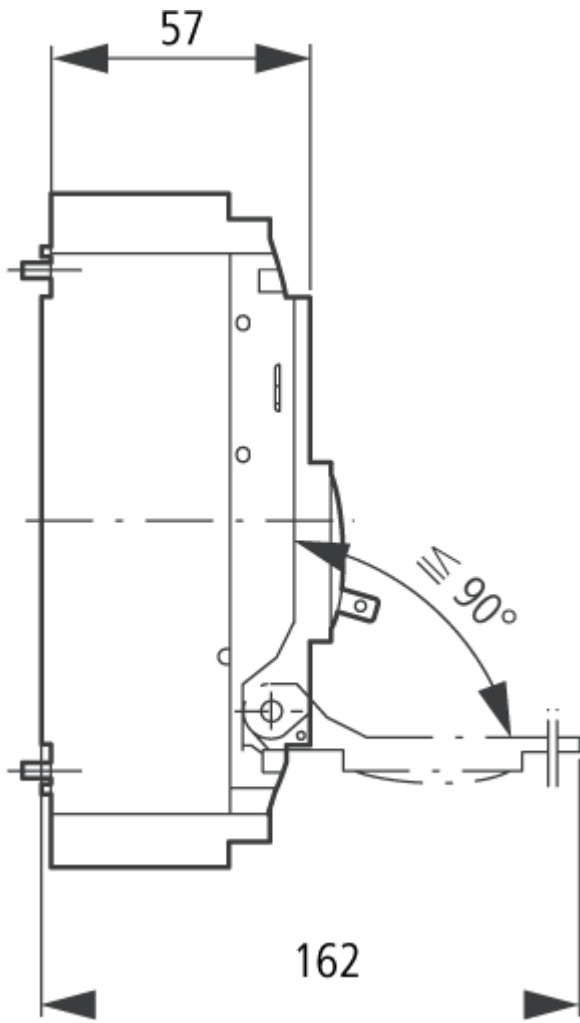
E = electronic

Dimensions

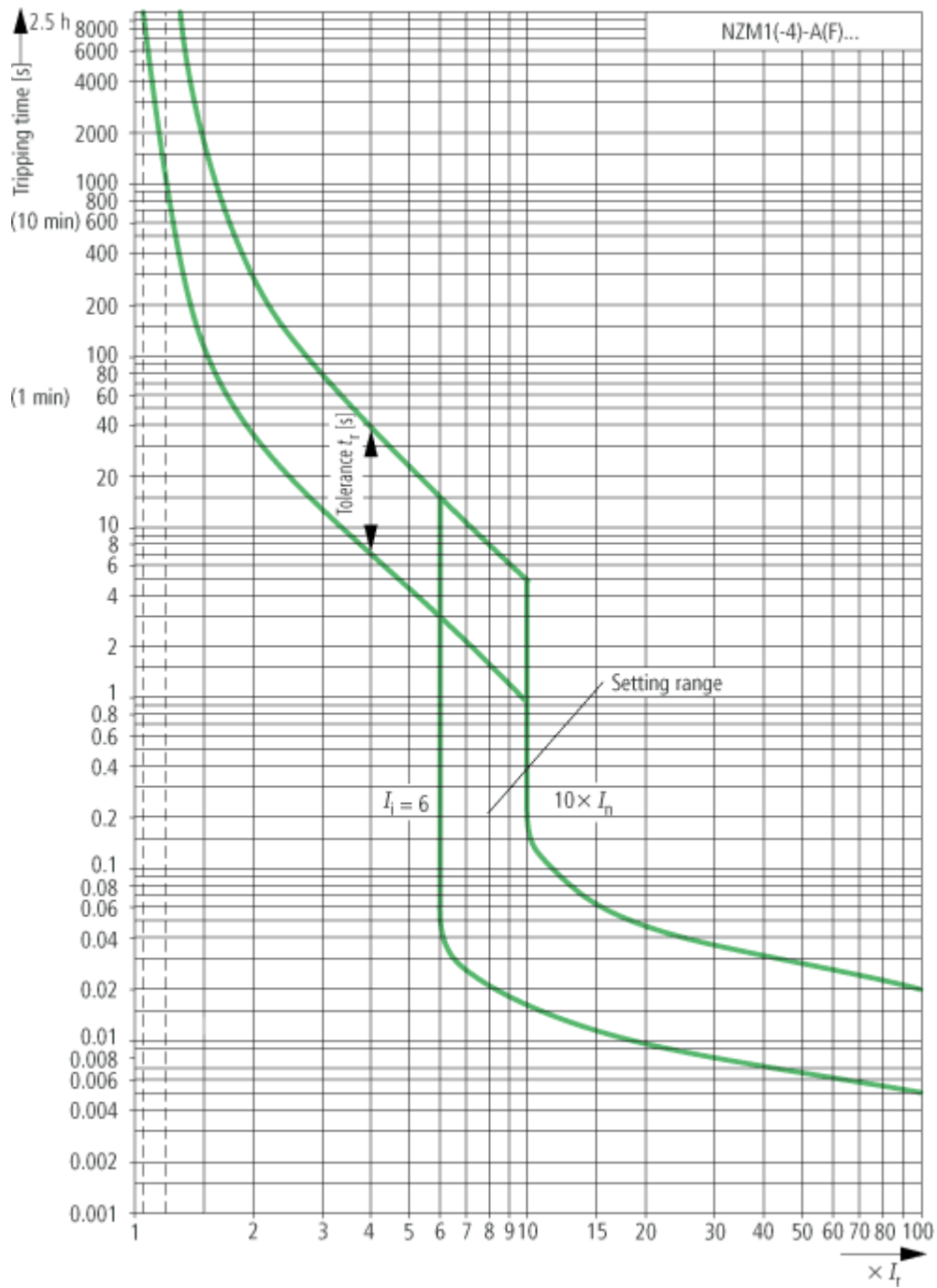


① Blow out area, minimum clearance to other parts ≥ 60 mm

Dimensions

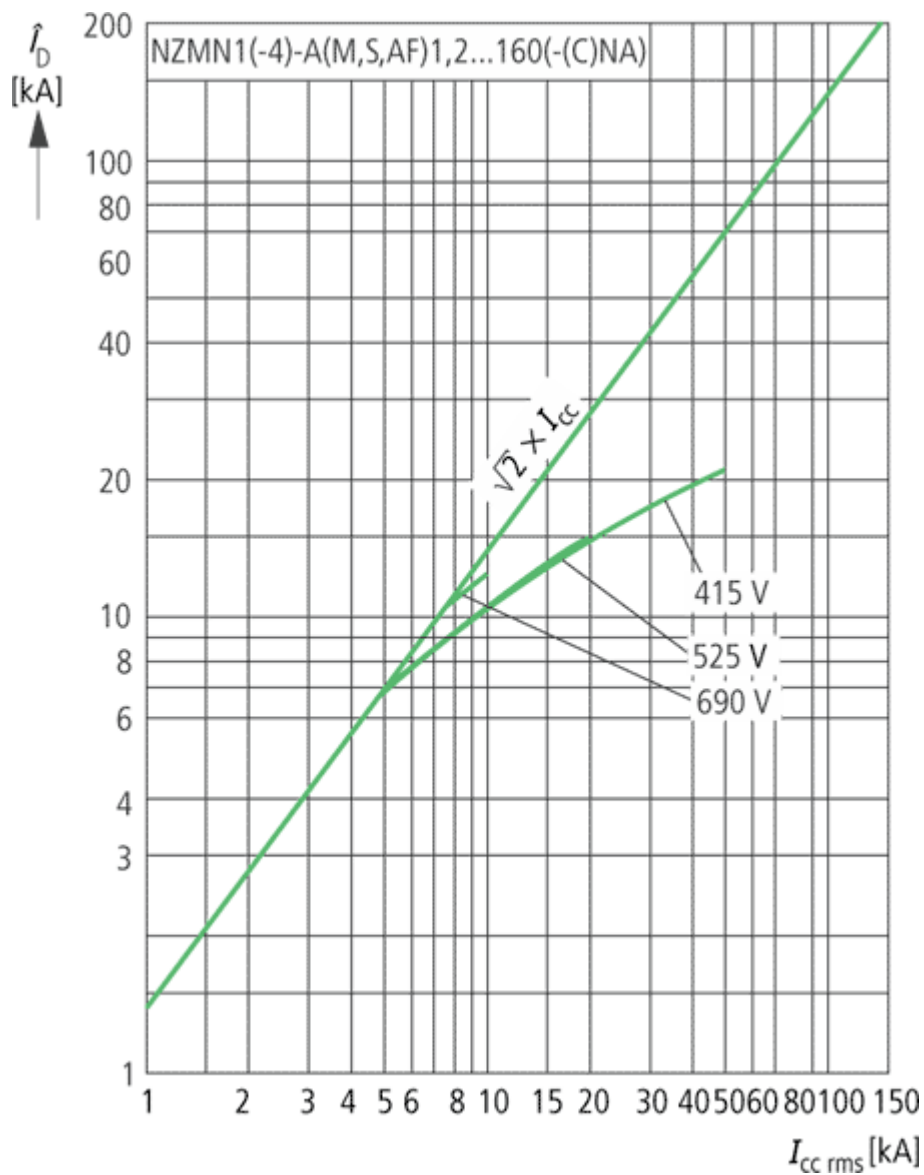


Characteristic curve



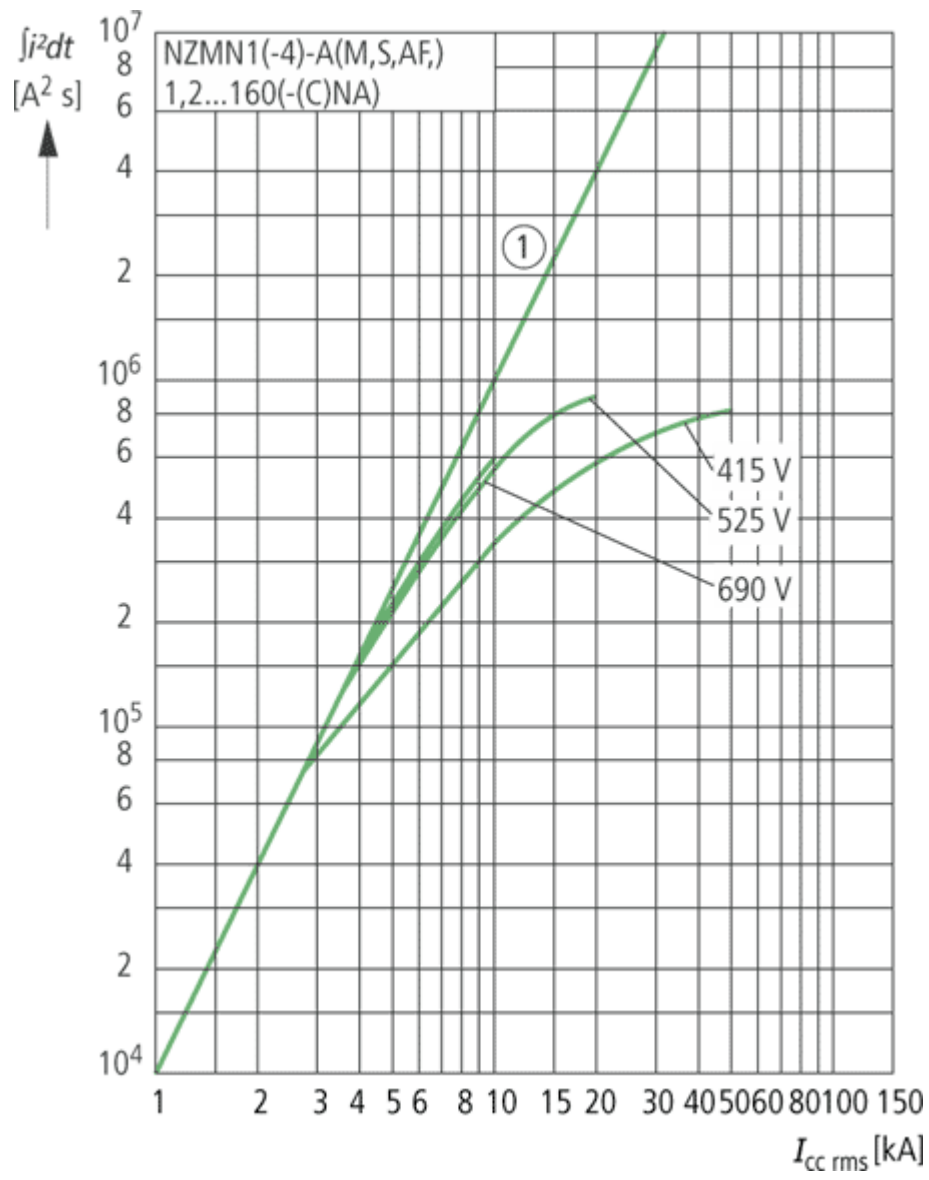
System and line protection with NZM1

Characteristic curve



Let-through current i_D
 Let-through energy I^2t

Characteristic curve



① 1 half-shaft

Moeller GmbH, Hein-Moeller-Str. 7-11, D-53115 Bonn
 E-Mail: catalog@moeller.net, Internet: www.moeller.net, <http://catalog.moeller.net>
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