

Type: **NZMN1-A125**

Article No.: **259086**

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  | 125                                                |
| Setting range                               |       |    |                                                    |
| Overload releases                           | $I_r$ | A  | 100...125                                          |
| 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  $I_r$

- $0.8 \dots 1 \times I_n$  (ex-works  $0.8 \times I_n$ )

Adjustable short-circuit release  $I_i$

- $6 \dots 10 \times I$

n

- (ex-works  $6 \times I_n$ )

• )<sup>n</sup>

– 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<br>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<br>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  |
| $I_{cu}$ 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                                              |
| 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<br>gG/gL | NZM.1–...20...100:<br>200NZM.1–...125, 160: 315 |
| <b>Technical data, divergent from the products for the IEC market</b>                                            |            |            |                                                 |
| 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 30 °C) |            | %/K        | 0,7                                             |

|                                                           |      |                 |                                                           |
|-----------------------------------------------------------|------|-----------------|-----------------------------------------------------------|
| Frequency range                                           |      | ms              | < 10                                                      |
| <b>Terminal capacities</b>                                |      |                 |                                                           |
| Standard equipment                                        |      |                 | Box terminal                                              |
| Accessories                                               |      |                 | Screw connection<br>Tunnel terminal<br>Connection on rear |
| Rated power of coil                                       |      |                 |                                                           |
| Box terminal                                              |      |                 |                                                           |
| Solid                                                     |      | mm <sup>2</sup> | 1 × (10 – 16)<br>2 × (6 – 16)                             |
| Stranded                                                  |      | mm <sup>2</sup> | 1 × (25 – 70)<br>2 × 25                                   |
| Tunnel terminal                                           |      |                 |                                                           |
| Solid                                                     |      | mm <sup>2</sup> | 1 × (16 – 95)                                             |
| Stranded                                                  |      |                 |                                                           |
| Single hole                                               |      | mm <sup>2</sup> | 1 × (25 – 95)                                             |
| Bolt terminal and rear–side connection                    |      |                 |                                                           |
| Direct on the switch                                      |      |                 |                                                           |
| Solid                                                     |      | mm <sup>2</sup> | 1 × (10 – 16)<br>2 × (6 – 16)                             |
| Stranded                                                  |      | mm <sup>2</sup> | 1 × (25 – 70)<br>2 × 25                                   |
| Al conductors, Cu cable                                   |      |                 |                                                           |
| Tunnel terminal                                           |      |                 |                                                           |
| Solid                                                     |      | mm <sup>2</sup> | 1 × 16                                                    |
| Stranded                                                  |      |                 |                                                           |
| Single hole                                               |      | mm <sup>2</sup> | 1 × (25 – 95)                                             |
| Bolt terminal and rear–side connection                    |      |                 |                                                           |
| Direct on the switch                                      |      |                 |                                                           |
| Solid                                                     |      | mm <sup>2</sup> | 1 × (10 – 16)<br>2 × (10 – 16)                            |
| Stranded                                                  |      | mm <sup>2</sup> | 1 × (25 – 35)<br>2 × (25 – 35)                            |
| Cu strip (number of segments x width x segment thickness) |      |                 |                                                           |
| Box terminal                                              |      |                 |                                                           |
|                                                           | min. | mm <sup>2</sup> | 2 × 9 × 0.8                                               |
|                                                           | max. | mm <sup>2</sup> | 9 × 9 × 0.8                                               |
| Copper busbar (width × thickness)                         |      |                 |                                                           |

|                                        |      |                 |        |
|----------------------------------------|------|-----------------|--------|
| Bolt terminal and rear-side connection |      |                 |        |
| Screw connection                       |      |                 | M8     |
| Direct on the switch                   |      |                 |        |
|                                        | min. | mm <sup>2</sup> | 12 × 5 |
|                                        | max. | mm <sup>2</sup> | 16 × 5 |

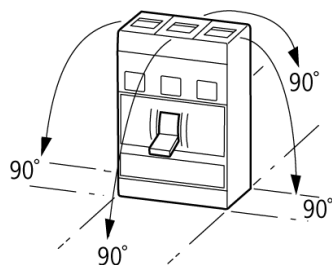
## Notes

## 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.

## Mounting position

Vertical and 90° in all directions



With residual-current release

NZM1, N(S)1: 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 | — | — | — | ● |

---

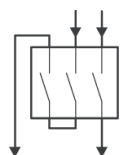
## Notes

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

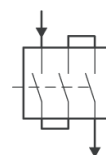
Setting for  $I_t$  at DC = setting  $I_t$  AC/DC correction factor

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

Higher switching capacity on request

E = electronic

Technical drawing of the NZM 1-...-(C)NA terminal block, showing front and side views with dimensions.

**Front View Dimensions:**

- Overall width: 90
- Terminal pitch: 30
- Terminal height: 16
- Mounting hole pitch: 112
- Mounting hole diameter: 126
- Overall height: 145
- Terminal height (approximate):  $\approx 60$
- Terminal height (approximate): 9.5
- Terminal height (approximate): 10.2
- Mounting hole diameter:  $\varnothing 16$
- Mounting hole diameter:  $\varnothing 12$
- Mounting hole diameter:  $\varnothing 10$
- Mounting hole diameter:  $\varnothing 8$
- Mounting hole diameter:  $\varnothing 6$
- Mounting hole diameter:  $\varnothing 4$
- Mounting hole diameter:  $\varnothing 3$
- Mounting hole diameter:  $\varnothing 2$
- Mounting hole diameter:  $\varnothing 1$
- Mounting hole diameter:  $\varnothing 0.5$
- Mounting hole diameter:  $\varnothing 0.2$
- Mounting hole diameter:  $\varnothing 0.1$
- Mounting hole diameter:  $\varnothing 0.05$
- Mounting hole diameter:  $\varnothing 0.02$
- Mounting hole diameter:  $\varnothing 0.01$
- Mounting hole diameter:  $\varnothing 0.005$
- Mounting hole diameter:  $\varnothing 0.002$
- Mounting hole diameter:  $\varnothing 0.001$
- Mounting hole diameter:  $\varnothing 0.0005$
- Mounting hole diameter:  $\varnothing 0.0002$
- Mounting hole diameter:  $\varnothing 0.0001$
- Mounting hole diameter:  $\varnothing 0.00005$
- Mounting hole diameter:  $\varnothing 0.00002$
- Mounting hole diameter:  $\varnothing 0.00001$

**Side View Dimensions:**

- Overall width: 84.5
- Terminal pitch: 68
- Terminal height: 21
- Mounting hole pitch: 64
- Mounting hole diameter: 63
- Overall height: 44.6
- Terminal height (approximate): 41.5
- Terminal height (approximate): 45
- Mounting hole diameter:  $\varnothing 16$
- Mounting hole diameter:  $\varnothing 12$
- Mounting hole diameter:  $\varnothing 10$
- Mounting hole diameter:  $\varnothing 8$
- Mounting hole diameter:  $\varnothing 6$
- Mounting hole diameter:  $\varnothing 4$
- Mounting hole diameter:  $\varnothing 3$
- Mounting hole diameter:  $\varnothing 2$
- Mounting hole diameter:  $\varnothing 1$
- Mounting hole diameter:  $\varnothing 0.5$
- Mounting hole diameter:  $\varnothing 0.2$
- Mounting hole diameter:  $\varnothing 0.1$
- Mounting hole diameter:  $\varnothing 0.05$
- Mounting hole diameter:  $\varnothing 0.02$
- Mounting hole diameter:  $\varnothing 0.01$
- Mounting hole diameter:  $\varnothing 0.005$
- Mounting hole diameter:  $\varnothing 0.002$
- Mounting hole diameter:  $\varnothing 0.001$
- Mounting hole diameter:  $\varnothing 0.0005$
- Mounting hole diameter:  $\varnothing 0.0002$
- Mounting hole diameter:  $\varnothing 0.0001$
- Mounting hole diameter:  $\varnothing 0.00005$
- Mounting hole diameter:  $\varnothing 0.00002$
- Mounting hole diameter:  $\varnothing 0.00001$

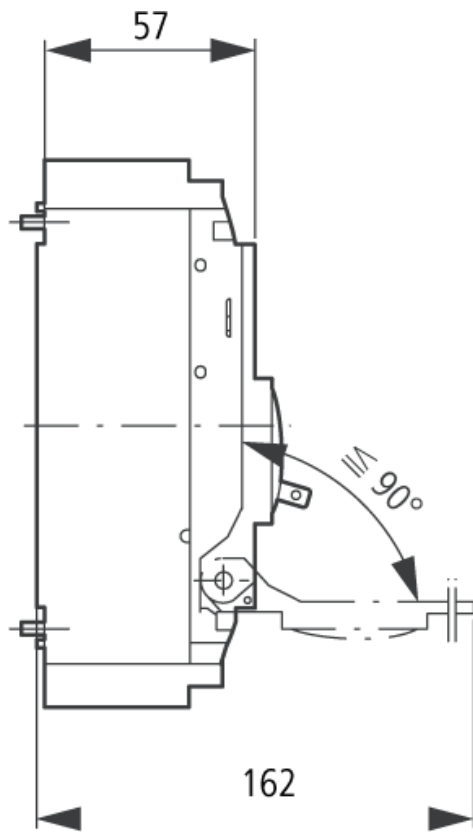
**Other Labels:**

- NZM...1-...-(C)NA
- SW4
- M4 x 50/10
- R 104
- 90°

Blow out area, minimum clearance to other parts 60 mm

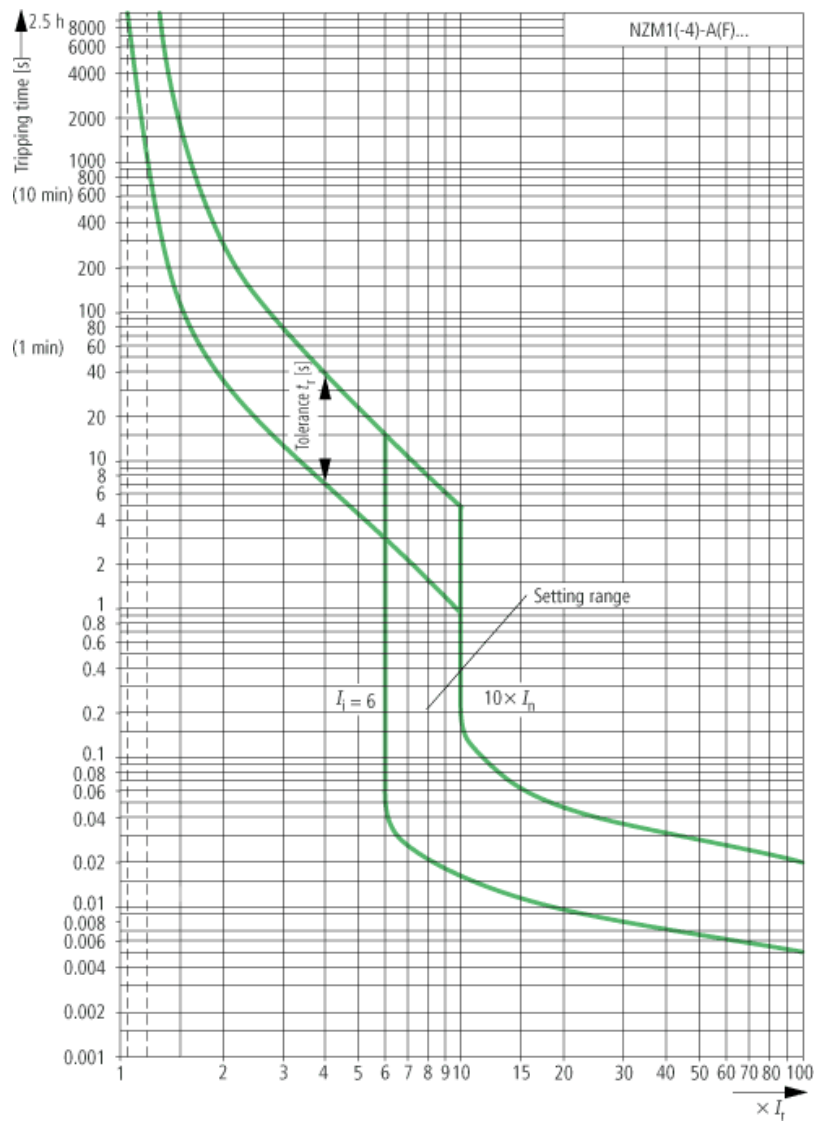
## 8





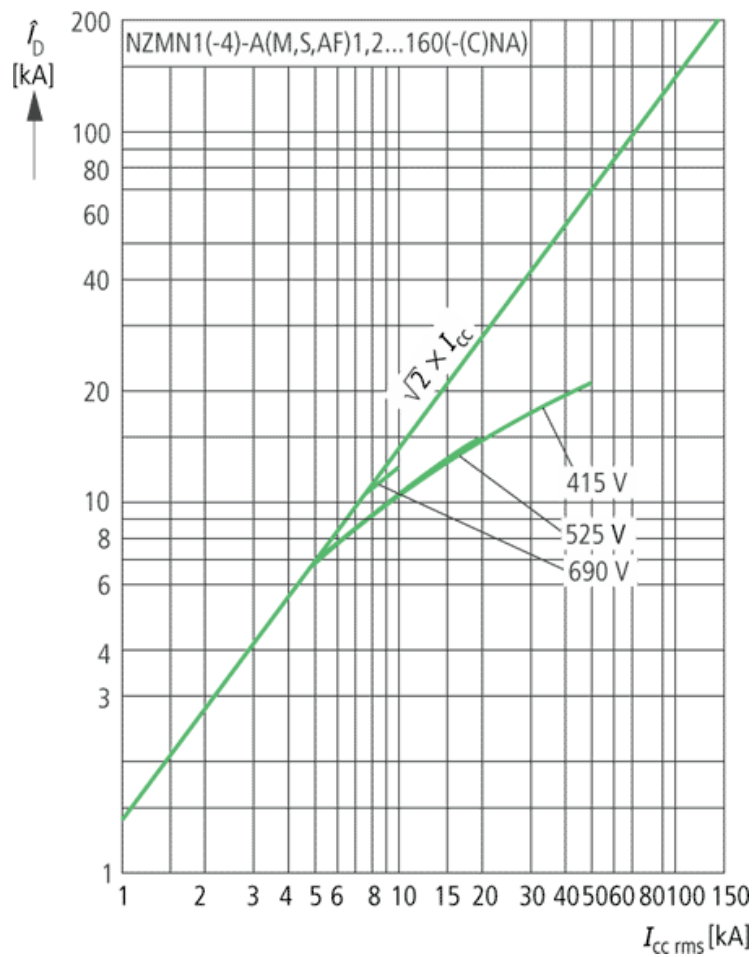
---

**Characteristic curve**



System and line protection with NZM1

### Characteristic curve

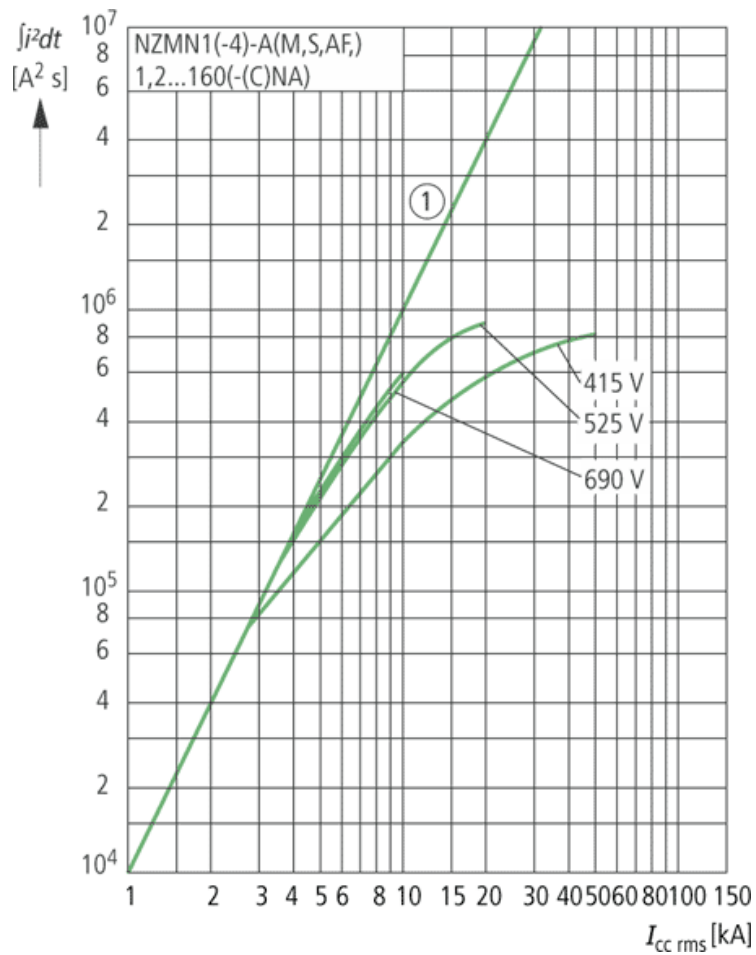



---

Let-through current  $\hat{i}_D$   
 Let-through energy  $I^2t$

---

### Characteristic curve




---

1 half-shaft

---

Moeller GmbH, Hein-Moeller-Str. 7-11, D-53115 Bonn  
 E-Mail: [catalog@moeller.net](mailto:catalog@moeller.net), Internet: [www.moeller.net](http://www.moeller.net), <http://catalog.moeller.net>  
 Copyright 2006 by Moeller GmbH. HPL-C2007G V2.1