



## Circuit-breaker 3p fix settings

**Part no.** NZMN1-AF30-NA

**Article no.** 281567

### Delivery programme

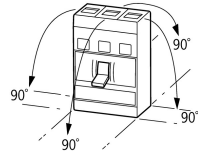
|                                             |                           |    |                                                                                                                                                           |
|---------------------------------------------|---------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product range                               |                           |    | Circuit-breaker                                                                                                                                           |
| Protective function                         |                           |    | System and cable protection                                                                                                                               |
| Standard/Approval                           |                           |    | UL/CSA, IEC                                                                                                                                               |
| Release system                              |                           |    | Thermomagnetic release                                                                                                                                    |
| Installation type                           |                           |    | Fixed                                                                                                                                                     |
| Description                                 |                           |    | Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. Fixed overload releases Ir |
| Frame size                                  |                           |    | NZM1                                                                                                                                                      |
| Number of poles                             |                           |    | 3 pole                                                                                                                                                    |
| Standard equipment                          |                           |    | Box terminal                                                                                                                                              |
| Switching capacity                          |                           |    |                                                                                                                                                           |
| SCCR 480Y/277 V 60 Hz                       | $I_{cu}$                  | kA | 35                                                                                                                                                        |
| Rated current = rated uninterrupted current |                           |    |                                                                                                                                                           |
| Rated current = rated uninterrupted current | $I_n = I_u$               | A  | 30                                                                                                                                                        |
| <b>Setting range</b>                        |                           |    |                                                                                                                                                           |
| Overload trip                               |                           |    |                                                                                                                                                           |
|                                             |                           |    |                                                                                                                                                           |
| Overload release, min.                      | $I_r$                     | A  | 30                                                                                                                                                        |
| Short-circuit releases                      |                           |    |                                                                                                                                                           |
| Non-delayed                                 | $I_i = I_n \times$<br>... |    | 350 A fixed                                                                                                                                               |

### Approbationen

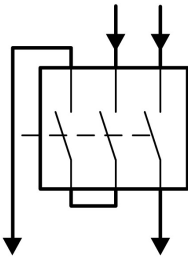
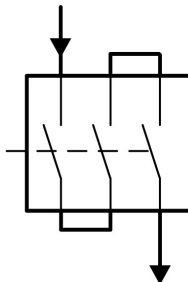
|                           |                                                     |
|---------------------------|-----------------------------------------------------|
| UL approval               | Yes                                                 |
| CSA approval              | Yes                                                 |
| Product Standards         | UL 489; CSA-C22.2 No. 5-09; IEC 60947-2; CE marking |
| UL File No.               | E31593                                              |
| UL CCN                    | DIVQ                                                |
| CSA File No.              | 022086                                              |
| CSA Class No.             | 1432-01                                             |
| NA Certification          | UL listed, CSA certified                            |
| Specially designed for NA | Yes                                                 |
| Suitable for              | Feeder circuits, branch circuits                    |
| Current Limiting CB       | Yes                                                 |
| Max. Voltage Rating       | 480Y/277 V                                          |
| Degree of Protection      | IEC: IP20; UL/CSA Type: -                           |

### 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 to IEC 60068-2-78<br>Damp heat, cyclic to IEC 60068-2-30 |
| Ambient temperature                                                                   |  | °C      |                                                                              |
| Ambient temperature, storage                                                          |  | °C      | - 40 - + 80                                                                  |
| 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 VDE 0106 Part 101 and Part 101/A1                                   |  |         |                                                                              |
| Between auxiliary contacts and main contacts                                          |  | V<br>AC | 500                                                                          |
| between the auxiliary contacts                                                        |  | V<br>AC | 300                                                                          |
| Weight                                                                                |  | kg      | 1.046                                                                        |
| 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 with withdrawable unit:<br/> - NZM3, N3: vertical, 90 ° left<br/> - NZM4, N4: vertical 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 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                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Other technical data (sheet catalogue) |  |  | Threshold and intermediate current, interrupting capacity<br>Weight<br>Temperature dependency, Derating<br>Effective power loss                                                                                                                                                                                                                                                                                                                                                                                          |

## Circuit-breakers

|                                       |           |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated surge voltage invariability     | $U_{imp}$ |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Main contacts                         |           | V       | 6000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Auxiliary contacts                    |           | V       | 6000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Rated operational voltage             | $U_e$     | V<br>AC | 690                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Rated operational voltage             | $U_e$     | V<br>DC | 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                       |           |         | <p>1) Details apply for 3 pole system protection circuit-breaker with thermomagnetic release NZMN(H)1(2)(3)-A... to 500 A.</p> <p>For rated operating voltage switching via 3 contacts:</p> <p>DC correction factor for instantaneous release response value: NZM1: 1.25, NZM2: 1.35, NZM3: 1.45</p> <p>Set value for <math>I_i</math> at DC = set value <math>I_i</math> AC/correction factor DC</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Switching of one pole via two series contacts</b></p>  </div> <div style="text-align: center;"> <p><b>Switching of one pole via three series contacts</b></p>  </div> </div> |
| Overvoltage category/pollution degree |           |         | III/3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Rated insulation voltage              | $U_i$     | V       | 690                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Use in unearthed supply systems       |           | V       | $\leq 690$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## Switching capacity

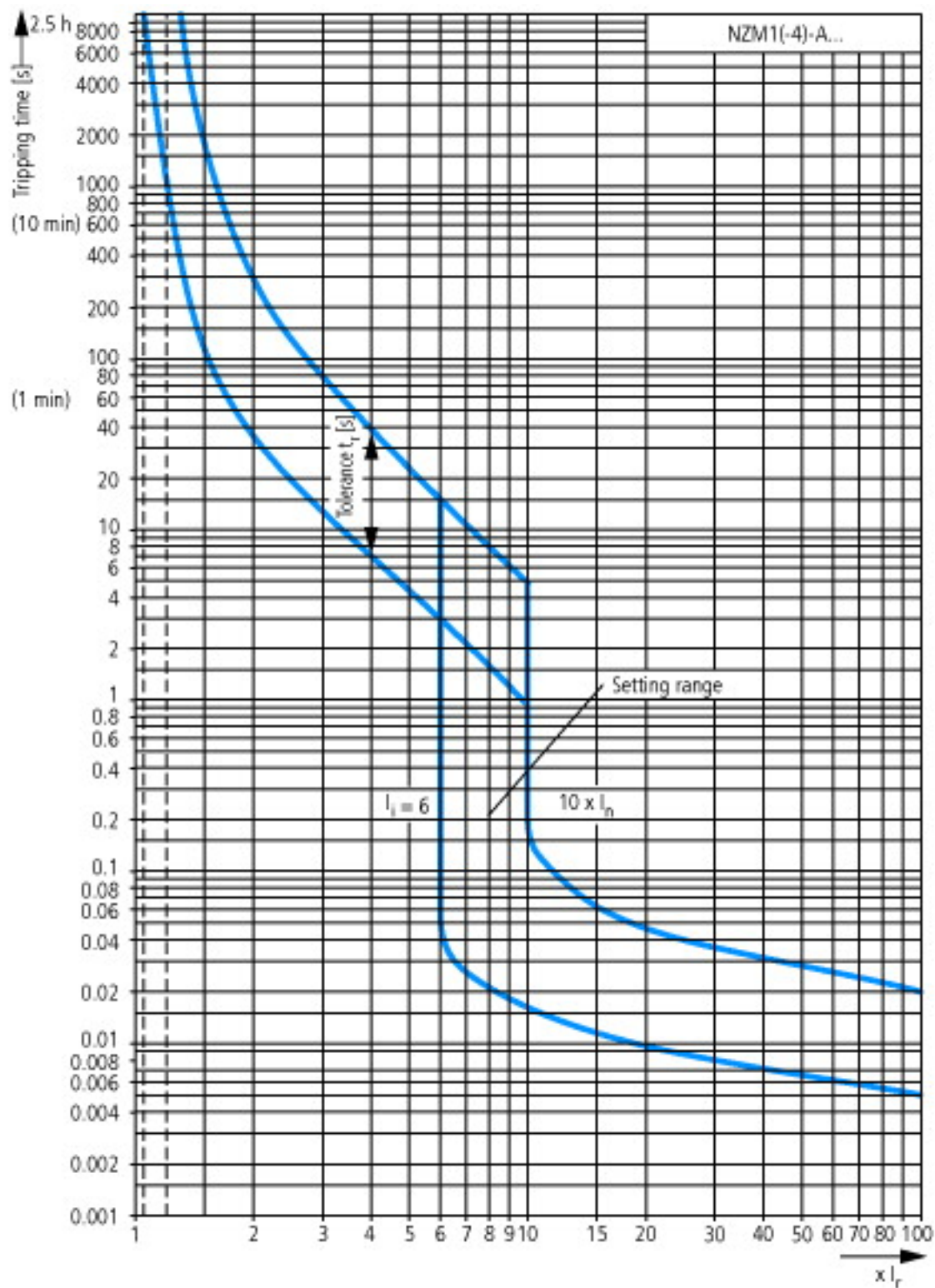
|                                                |          |    |     |
|------------------------------------------------|----------|----|-----|
| Rated short-circuit making capacity            | $I_{cm}$ |    |     |
| 240 V                                          | $I_{cm}$ | kA | 187 |
| 400/415 V                                      | $I_{cm}$ | kA | 105 |
| 440 V 50/60 Hz                                 | $I_{cm}$ | kA | 74  |
| 525 V 50/60 Hz                                 | $I_{cm}$ | kA | 40  |
| 690 V 50/60 H                                  | $I_c$    | kA | 17  |
| Rated short-circuit breaking capacity $I_{cn}$ | $I_{cn}$ |    |     |
| $I_{cu}$ to IEC/EN 60947 test cycle O-t-CO     | $I_{cu}$ | kA |     |

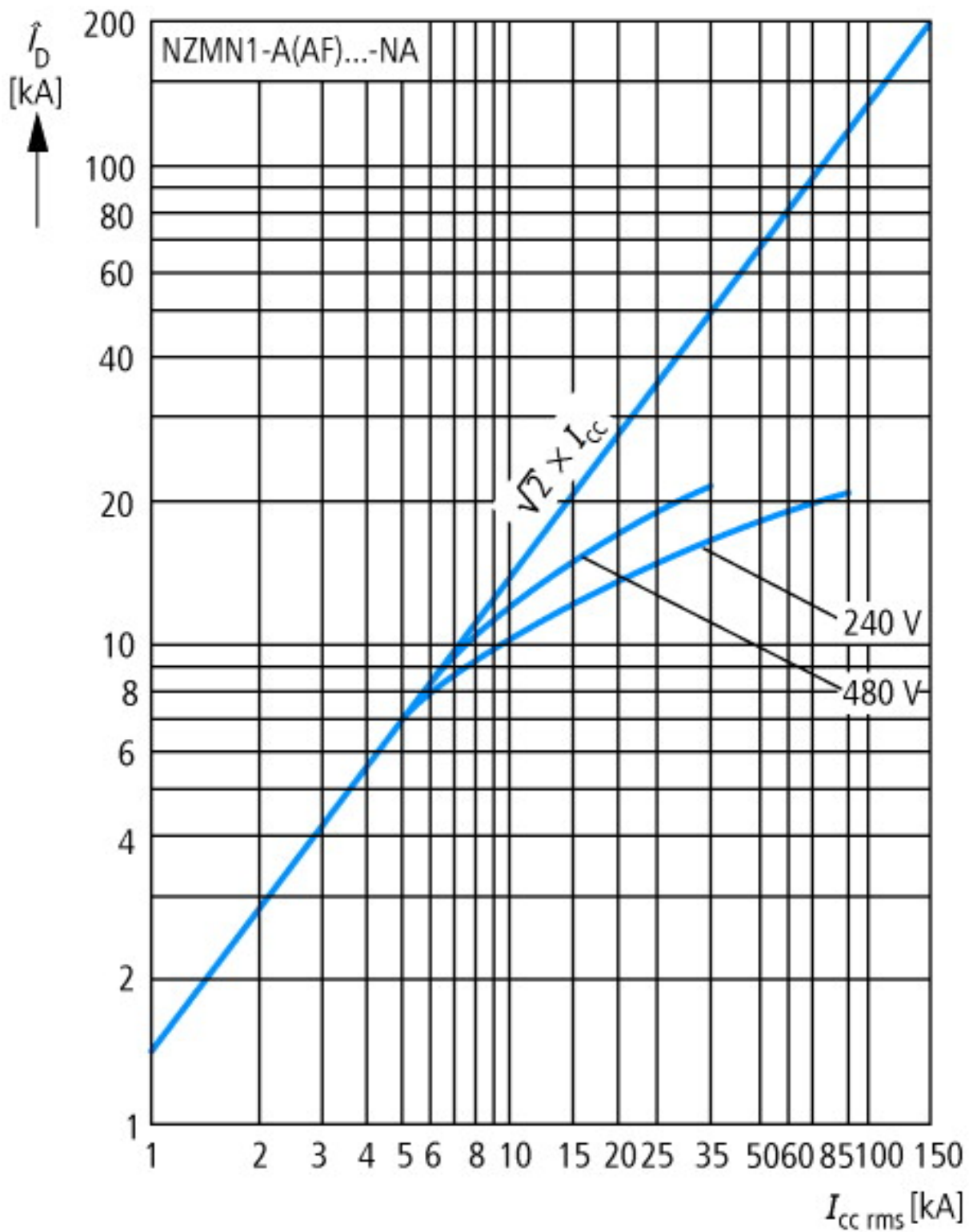
|                                                                                                                      |                 |                |                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------|-----------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 240 V 50/60 Hz                                                                                                       | I <sub>cu</sub> | kA             | 85                                                                                                                                              |
| 400/415 V 50/60 Hz                                                                                                   | I <sub>cu</sub> | kA             | 50                                                                                                                                              |
| 440 V 50/60 Hz                                                                                                       | I <sub>cu</sub> | kA             | 35                                                                                                                                              |
| 525 V 50/60 Hz                                                                                                       | I <sub>cu</sub> | kA             | 20                                                                                                                                              |
| 690 V 50/60 Hz                                                                                                       | I <sub>cu</sub> | kA             | 10                                                                                                                                              |
| 500 V DC                                                                                                             | I <sub>cu</sub> | kA             | 15                                                                                                                                              |
| Ics to IEC/EN 60947 test cycle O-t-CO-t-CO                                                                           | I <sub>cs</sub> | kA             |                                                                                                                                                 |
| 240 V 50/60 Hz                                                                                                       | I <sub>cs</sub> | kA             | 85                                                                                                                                              |
| 400/415 V 50/60 Hz                                                                                                   | I <sub>cs</sub> | kA             | 50                                                                                                                                              |
| 440 V 50/60 Hz                                                                                                       | I <sub>cs</sub> | kA             | 35                                                                                                                                              |
| 525 V 50/60 Hz                                                                                                       | I <sub>cs</sub> | kA             | 10                                                                                                                                              |
| 690 V 50/60 Hz                                                                                                       | I <sub>cs</sub> | kA             | 7.5                                                                                                                                             |
| Maximum low-voltage h.b.c. fuse                                                                                      |                 | A<br>gG/<br>gL | 200                                                                                                                                             |
|                                                                                                                      |                 |                | Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker. |
| <b>Technical data that diverge from products for the IEC market</b>                                                  |                 |                |                                                                                                                                                 |
| Switching capacity of NA switches (UL489, CSA 22.2 No. 5.1)                                                          |                 |                |                                                                                                                                                 |
| Short-circuit current rating SCCR                                                                                    |                 |                |                                                                                                                                                 |
| SCCR 240 V 60 Hz                                                                                                     | I <sub>cu</sub> | kA             | 85                                                                                                                                              |
| SCCR 480Y/277 V 60 Hz                                                                                                | I <sub>cu</sub> | kA             | 35                                                                                                                                              |
| Utilization category to IEC/EN 60947-2                                                                               |                 |                | A                                                                                                                                               |
| Rated making and breaking capacity                                                                                   |                 |                |                                                                                                                                                 |
| Rated operational current                                                                                            | I <sub>e</sub>  | A              |                                                                                                                                                 |
| AC-1                                                                                                                 |                 |                |                                                                                                                                                 |
| 400/415 V 50/60 Hz                                                                                                   | I <sub>e</sub>  | A              | 160                                                                                                                                             |
| 415 V                                                                                                                | I <sub>e</sub>  | A              | 125                                                                                                                                             |
| 690 V 50/60 Hz                                                                                                       | I <sub>e</sub>  | A              | 160                                                                                                                                             |
| AC--3                                                                                                                |                 |                |                                                                                                                                                 |
| 400/415 V 50/60 Hz                                                                                                   | I <sub>e</sub>  | A              | 30                                                                                                                                              |
| 415 V                                                                                                                | I <sub>e</sub>  | A              | 30                                                                                                                                              |
| 690 V 50/60 Hz                                                                                                       | I <sub>e</sub>  | A              | 30                                                                                                                                              |
| DC - -1                                                                                                              |                 |                |                                                                                                                                                 |
| 500 V DC                                                                                                             | I <sub>e</sub>  | CSA            | 125                                                                                                                                             |
| DC - 3                                                                                                               |                 |                |                                                                                                                                                 |
| 500 V DC                                                                                                             | I <sub>e</sub>  | CSA            | 125                                                                                                                                             |
| Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release)                                          | Operations      |                | 20000                                                                                                                                           |
| Lifespan, electrical                                                                                                 |                 |                |                                                                                                                                                 |
| AC-1                                                                                                                 |                 |                |                                                                                                                                                 |
| 400 V V 50/60 Hz                                                                                                     | Operations      |                | 10000                                                                                                                                           |
| 415 V 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                                                                                                                                            |
| DC - -1                                                                                                              |                 |                |                                                                                                                                                 |
| 500 V DC                                                                                                             |                 | Operations     | 10000                                                                                                                                           |
| DC - 3                                                                                                               |                 |                |                                                                                                                                                 |
| 500 V DC                                                                                                             | Operations      |                | 5000                                                                                                                                            |
| Max. operating frequency                                                                                             |                 | Ops/<br>h      | 120                                                                                                                                             |
| Current heat losses per pole at I <sub>u</sub> are based on the maximum rated operational current of the frame size. |                 | W              | 16.7                                                                                                                                            |

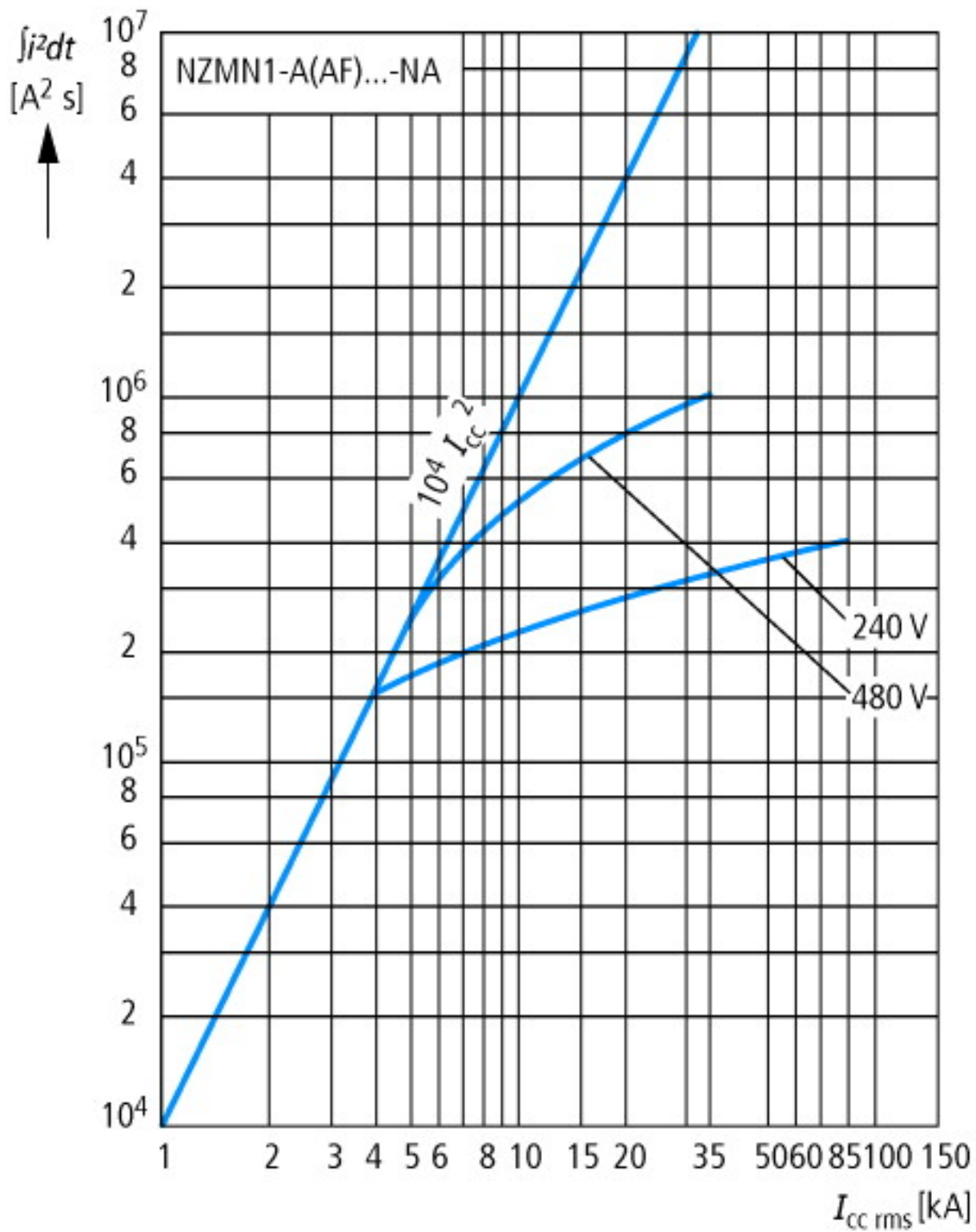


|                                                                |  |    |                  |
|----------------------------------------------------------------|--|----|------------------|
| Setting range short-term delayed short-circuit release         |  | A  | 0                |
| Rated short-circuit breaking capacity $I_{cu}$ at 400 V, 50 Hz |  | kA | 50               |
| Switched-off indicator available                               |  |    | No               |
| Type of control element                                        |  |    | Toggle lever     |
| Connection type main current circuit                           |  |    | Box terminal     |
| Motor operator integrated                                      |  |    | No               |
| Position of connection for main circuit                        |  |    | Front connection |
| Protection type (IP)                                           |  |    | IP20             |
| Number of auxiliary contacts as changeover contact             |  |    | 0                |
| Setting range of overload releases                             |  | A  | 30               |

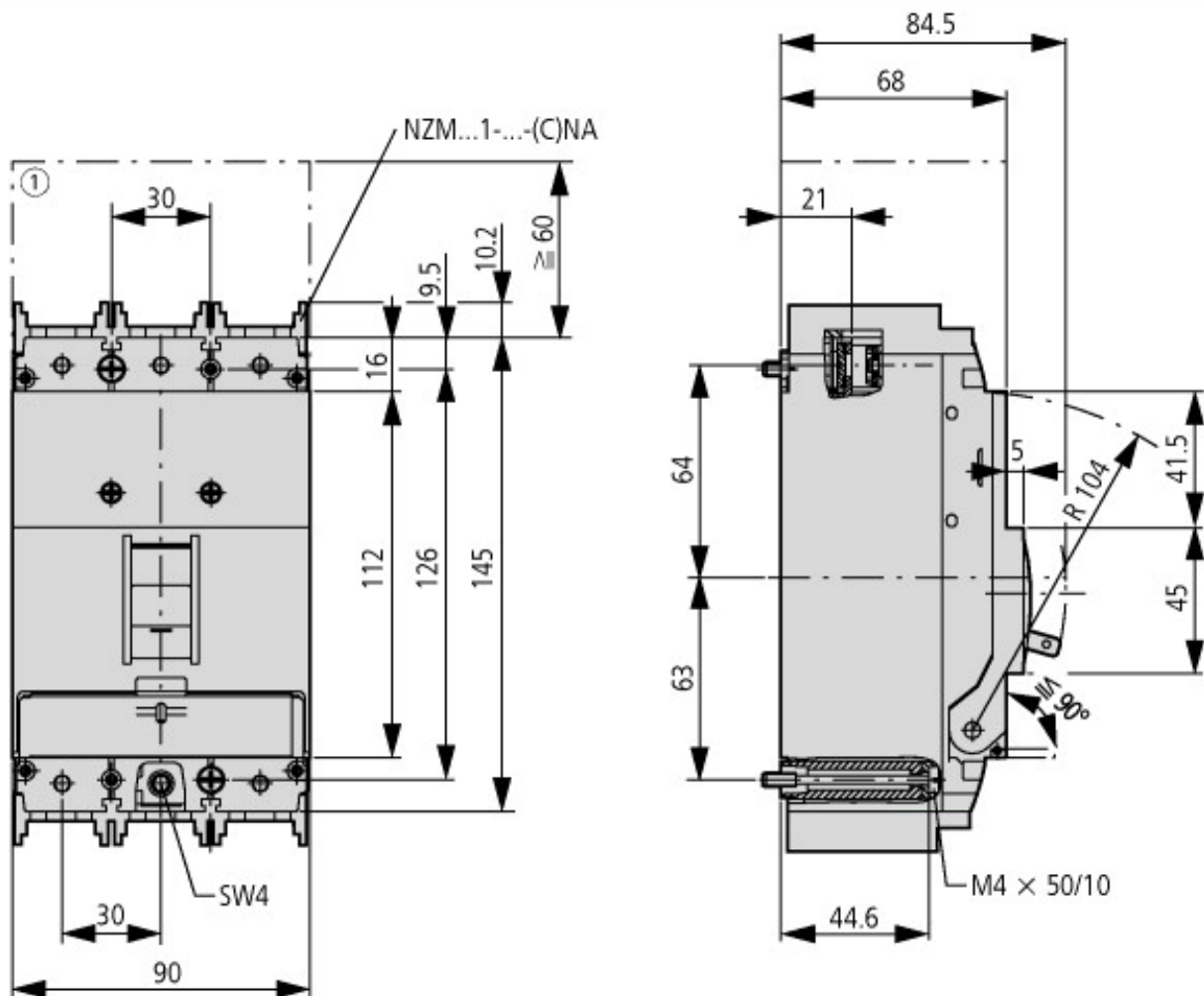
## Characteristics







## Dimensions



① Blow out area, minimum clearance to adjacent parts

