

## Circuit-breaker, 3p, 200A

|                       |                   |
|-----------------------|-------------------|
| Part no.              | <b>NZMN2-M200</b> |
| Catalog No.           | <b>265725</b>     |
| EL-Nummer<br>(Norway) | <b>4315569</b>    |

Similar to illustration

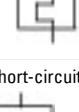
## Delivery program

|                     |   |  |  |
|---------------------|---|--|--|
| Product range       | Circuit-breaker   |  |  |
| Protective function | Motor protection  |  |  |
| Standard/Approval   | IEC   |  |  |
| Installation type   | Fixed   |  |  |
| Release system      | Thermomagnetic release  |  |  |
| Construction size   | NZM2  |  |  |
| Description         | Tripping class 10 A<br>IEC/EN 60947-4-1, IEC/EN 60947-2<br>The circuit-breaker fulfills all requirements for AC-3 switching category. |  |  |
| Number of poles     | 3 pole  |  |  |
| Standard equipment  | Screw connection  |  |  |

## Switching capacity

|   |             |    |     |
|---|-------------|----|-----|
| 400/415 V 50 Hz                             | $I_{cu}$    | kA | 50  |
| Rated current = rated uninterrupted current | $I_n = I_u$ | A  | 200 |

## Setting range

|   |                          |   |           |
|---|--------------------------|---|-----------|
| Overload trip   | $I_r$                    | A | 160 - 200 |
| Short-circuit releases  |                          |   |           |
|  | $I_i = I_n \times \dots$ |   | 8 - 14    |

## Motor rating AC-3 50/60 Hz

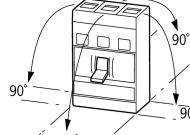
|             |   |    |     |
|-------------|---|----|-----|
| 380 V 400 V | P | kW | 110 |
| 400 V       | P | kW | 110 |

## Motor rating AC-3 50/60 Hz

|       |       |   |     |
|-------|-------|---|-----|
| 400 V | $I_e$ | A | 196 |
|       |       |   |     |

## Technical data

|   |      |    |  |
|---|------|----|--|
| 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   |      |    |  |
| Ambient temperature, storage  |      | °C | - 40 - + 70  |
| 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 EN 61140  |      |    |  |
| Between auxiliary contacts and main contacts  | V AC |    | 500  |

|  |             |      |   |  |
|--|-------------|------|---|--|
| between the auxiliary contacts   | V AC        | 300  | Vertical and 90° in all directions  | With XFI earth-fault release:<br>- NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in unit<br>- NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit:<br>- NZM3, N3: vertical, 90° right/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 |
| 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<br>With door coupling rotary handle: IP66  |  |
| Terminations   |             |      | Tunnel terminal: IP10<br>Phase isolator and strip terminal: IP00  |  |
| Other technical data (sheet catalogue)                                       |             |      | Temperature dependency, Derating  |  |
| <b>Circuit-breakers</b>  |             |      |   |  |
| Rated current = rated uninterrupted current                                  | $I_n = I_u$ | A    | 200   |  |
| Rated surge voltage invariability  | $U_{imp}$   |      |   |  |
| 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  |  |
| Use in unearthing supply systems   |             | V    | $\leq 690$  |  |
| <b>Switching capacity</b>  |             |      |   |  |
| 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   | 53  |  |
| 690 V 50/60 Hz   | $I_c$       | kA   | 40  |  |
| Rated short-circuit breaking capacity $I_{cn}$                               | $I_{cn}$    |      |   |  |
| $I_{cu}$ to IEC/EN 60947 test cycle 0-t-CO                                   | $I_{cu}$    | kA   |   |  |
| 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  |  |
| $I_{cs}$ to IEC/EN 60947 test cycle 0-t-CO-t-CO                              | $I_{cs}$    | kA   |   |  |
| 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   | 5   |  |
|  |             |      | Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker. |  |
| Rated short-time withstand current   |             |      |   |  |
| $t = 0.3 \text{ s}$  | $I_{cw}$    | kA   | 1.9   |  |
| $t = 1 \text{ s}$  | $I_{cw}$    | kA   | 1.9   |  |
| Utilization category to IEC/EN 60947-2                                       |             |      | A   |  |
| Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release) | Operations  |      | 20000   |  |
| Lifespan, electrical   |             |      |   |  |

|                                   |            |       |  |
|-----------------------------------|------------|-------|--|
| AC-1                              |            |       |  |
| 400 V 50/60 Hz                    | Operations | 10000 |  |
| 415 V 50/60 Hz                    | Operations | 10000 |  |
| 690 V 50/60 Hz                    | Operations | 7500  |  |
| AC-3                              |            |       |  |
| 400 V 50/60 Hz                    | Operations | 6500  |  |
| 415 V 50/60 Hz                    | Operations | 6500  |  |
| 690 V 50/60 Hz                    | Operations | 5000  |  |
| Max. operating frequency          | Ops/h      | 120   |  |
| Total break time at short-circuit | ms         | < 10  |  |

### Terminal capacity

|   |                 |                                      |   |
|---|-----------------|--------------------------------------|---|
| Standard equipment  |                 |                                      | Screw connection                                      |
| Optional accessories                                      |                 |                                      | Box terminal<br>Tunnel terminal<br>connection on rear |
| Round copper conductor                                    |                 |                                      |   |
| Box terminal  |                 |                                      |   |
| Solid   | mm <sup>2</sup> | 1 x (10 - 16)<br>2 x (6 - 16)        |   |
| Stranded  | mm <sup>2</sup> | 1 x (25 - 185)<br>2 x (25 - 70)      |   |
| Tunnel terminal   |                 |                                      |   |
| Solid   | mm <sup>2</sup> | 1 x 16                               |   |
| Stranded  | mm <sup>2</sup> | 1 x (25 - 185)                       |   |
| Bolt terminal and rear-side connection                    |                 |                                      |   |
| Direct on the switch                                      |                 |                                      |   |
| Solid   | mm <sup>2</sup> | 1 x (10 - 16)<br>2 x (6 - 16)        |   |
| Stranded  | mm <sup>2</sup> | 1 x (25 - 185)<br>2 x (25 - 70)      |   |
| Al circular conductor                                     |                 |                                      |   |
| Tunnel terminal   |                 |                                      |   |
| Solid   | mm <sup>2</sup> | 1 x 16                               |   |
| Stranded  | mm <sup>2</sup> | 1 x (25 - 185)                       |   |
| Bolt terminal and rear-side connection                    |                 |                                      |   |
| Direct on the switch                                      |                 |                                      |   |
| Solid   | mm <sup>2</sup> | 1 x (10 - 16)<br>2 x (10 - 16)       |   |
| Stranded  | mm <sup>2</sup> | 1 x (25 - 50)<br>2 x (25 - 50)       |   |
| 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<br>(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  |
| Control cables  |                 |                                      |   |
|   | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 1.5) |   |

## Design verification as per IEC/EN 61439

| Technical data for design verification   |           |    |  |
|--|-----------|----|--|
| Rated operational current for specified heat dissipation   | $I_n$     | A  | 200  |
| Equipment heat dissipation, current-dependent  | $P_{vid}$ | W  | 48   |
| 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 8.0

|   |  |    |  |
|---|--|----|--|
| Low-voltage industrial components (EG000017) / Motor protection circuit-breaker (EC000074)  |  |    |  |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016]) |  |    |  |
| Overload release current setting  |  | A  | 160 - 200                                |
| Adjustment range undelayed short-circuit release  |  | A  | 1600 - 2800                              |
| With thermal protection   |  |    | Yes                                      |
| Phase failure sensitive   |  |    | No                                       |
| Switch off technique  |  |    | Thermomagnetic                           |
| Rated operating voltage   |  | V  | 690 - 690                                |
| Rated permanent current $I_L$   |  | A  | 200                                      |
| Rated operation power at AC-3, 230 V  |  | kW | 55                                       |
| Rated operation power at AC-3, 400 V  |  | kW | 110                                      |
| Type of electrical connection of main circuit   |  |    | Screw connection                         |
| Type of control element   |  |    | Rocker lever                             |
| Device construction   |  |    | Built-in device fixed built-in technique |
| With integrated auxiliary switch  |  |    | No                                       |
| With integrated under voltage release   |  |    | No                                       |
| Number of poles   |  |    | 3  |
| Rated short-circuit breaking capacity $I_{cu}$ at 400 V, AC   |  | kA | 35                                       |
| Degree of protection (IP)   |  |    | IP20                                     |

|        |    |     |
|--------|----|-----|
| Height | mm | 184 |
| Width  | mm | 105 |
| Depth  | mm | 149 |