

Data Sheet for Article: MC325233--

# Moulded Case Circuit Breaker Type VE, 3-pole, 50kA, 250A

Size type 3, Rated current 250A, Poles 3, IP Rating IP20, Short circuit switching capacity 50kA, Tripping Unit VE electronic protection for system, line, selective and generator



## Technical Data

|                                       |                                                                    |
|---------------------------------------|--------------------------------------------------------------------|
| Net width (mm)                        | 140,00                                                             |
| Net height (mm)                       | 275,00                                                             |
| Net weight (kg)                       | 6,34                                                               |
| EAN                                   | 9004840262155                                                      |
| Power loss (W)                        | 18,80                                                              |
| Min. ambient temperature (°C)         | -25                                                                |
| Max. ambient temperature (°C)         | 60                                                                 |
| Standard                              | IEC EN 60947<br>VDE 0660                                           |
| Device category                       | circuit breaker                                                    |
| Rated current (A)                     | 250                                                                |
| Rated voltage                         | < 690VAC                                                           |
| Short circuit switching capacity (kA) | 50                                                                 |
| Size type                             | 3                                                                  |
| Tripping Unit                         | VE electronic protection for system, line, selective and generator |
| Poles                                 | 3                                                                  |

## Technical Data - continued

|                                                   |                                                                                |
|---------------------------------------------------|--------------------------------------------------------------------------------|
| Short circuit current                             | 250A                                                                           |
| Protection against direct contact                 | finger-proof and back-of-hand-proof according to VDE 0106 Part 100             |
| Climatic proofing                                 | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Mech. shock resistance Half-sinusoidal shock 10ms | 20 (Halbsinusstoß 20 ms)                                                       |
| IP Rating                                         | IP20                                                                           |
| Rated insulation voltage [Ui] (V)                 | 1000                                                                           |
| Mechanical durability                             | 20000 operation cycles                                                         |
| Electrical endurance (Operation cycle)            | 10000                                                                          |
| Terminal type                                     | Screw terminal                                                                 |
| Rated short-time withstand current Icw            | 3,3kA                                                                          |

## GENERAL DATA - MC2, MC3, MC4

|                                              |                                                                                |
|----------------------------------------------|--------------------------------------------------------------------------------|
| <b>Standards and regulations</b>             | IEC/EN 60947, VDE 0660                                                         |
| <b>Protection against accidental contact</b> | Finger and back-of-hand proof to VDE 0106 Part 100                             |
| <b>Climate resistance</b>                    | Damp heat, constant to IEC 60068-2-78<br>Damp heat, ciclical to IEC 60068-2-30 |
| <b>Ambient temperature</b>                   |                                                                                |
| Storage                                      | -25...+70°C                                                                    |
| Operation                                    | -25...+70°C                                                                    |
| <b>Impact resistance (IEC/EN 60068-2-27)</b> | 20 (half-sinusoidal shock 20 ms)                                               |
| <b>Safe isolation to EN 61140</b>            |                                                                                |
| between auxiliary contacts and main circuits | 500V AC                                                                        |
| between auxiliary contacts                   | 300V AC                                                                        |

## Datei Tabelle: Moulded Case Circuit Breaker Type VE, 3-pole, 50kA, 250A

|                          |                                    |
|--------------------------|------------------------------------|
| <b>Mounting position</b> | vertical and 90° in all directions |
|--------------------------|------------------------------------|



|                                  |                                                                          |
|----------------------------------|--------------------------------------------------------------------------|
| <b>Direction of power supply</b> | any                                                                      |
| <b>Degree of protection</b>      |                                                                          |
| Device                           | in region of component patts: IP20 (basic degree of protection)          |
| Housing                          | with insulating surround: IP40<br>with door coupling roatry handle: IP66 |
| Connectors                       | Tunnel terminal: IP10<br>Phase isolator and strip terminal: IP00         |

## DIELECTIC STRENGTH OF MCCB - MC3

|                                                             | Max. rated uninterrupted current 630A |                       |                       |
|-------------------------------------------------------------|---------------------------------------|-----------------------|-----------------------|
|                                                             | MC3 - 36kA                            | MC3 - 50kA            | MC3 - 150kA           |
| <b>Rated impulse withstand voltage <math>U_{imp}</math></b> |                                       |                       |                       |
| Main circuits                                               | 8000V                                 | 8000V                 | 8000V                 |
| Auxiliary circuits                                          | 6000V                                 | 6000V                 | 6000V                 |
| <b>Rated operational voltage <math>U_e</math></b>           | 690V AC                               | 690V AC               | 690V AC               |
| <b>Rated operational voltage breaking via 3 conductors</b>  | -                                     | 750V DC <sup>1)</sup> | 750V DC <sup>1)</sup> |
| <b>Surge protection/ pollution degree</b>                   | III/3                                 | III/3                 | III/3                 |
| <b>Rated insulation voltage <math>U_i</math></b>            | 1000V <sup>2)</sup>                   | 1000V                 | 1000V                 |
| <b>Range of application in IT networks</b>                  | 690V                                  | 690V                  | 690V                  |

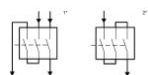
### Notes:

<sup>1)</sup> For rated operational voltage breaking via 3 conductors, the following applies: DC correction factor for instantaneous release response value:

MC3: 1,35

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

Value applies to 3-pole protection devices with thermomagnetic release MC3



1 \* Breaking one pole via two circuits in series

2 \* Breaking one pole via three circuits in series

<sup>2)</sup> For 3-pole protection devices, the following applies: 690V

## BREAKING CAPACITY - MC3

Max. rated uninterrupted current 630A

MC3 - 36kA      MC3 - 50kA      MC3 - 150kA

### Rated short-circuit breaking capacity values $I_{cm}$

|          |       |       |       |
|----------|-------|-------|-------|
| 240V     | 121kA | 187kA | 330kA |
| 400/415V | 76kA  | 105kA | 330kA |
| 440V     | 63kA  | 74kA  | 286kA |
| 525V     | 24kA  | 53kA  | 143kA |
| 690V     | 14kA  | 40kA  | 40kA  |

### Rated short-circuit breaking capacity value $I_{cn}/I_{cs}$

|                               |                  |        |      |       |
|-------------------------------|------------------|--------|------|-------|
| $I_{cu}$ meets IEC/EN 60947   | 240V 50/60 Hz    | 55kA   | 85kA | 150kA |
| Breaking sequence O-t-CO      | 400/415V 50/60Hz | 36kA   | 50kA | 150kA |
|                               | 440V 50/60Hz     | 30kA   | 35kA | 130kA |
|                               | 525V 50/60Hz     | 12kA   | 25kA | 65kA  |
|                               | 690V 50/60Hz     | 8kA    | 20kA | 35kA  |
|                               | 500V DC          | -      | 30kA | 70kA  |
|                               | 750V DC          | -      | 30kA | 70kA  |
| $I_{cs}$ meets IEC/EN 60947   | 240V 50/60Hz     | 55kA   | 50kA | 150kA |
| Breaking sequence O-t-CO-t-CO | 400/415V 50/60Hz | 36kA   | 50kA | 50kA  |
|                               | 440V 50/60Hz     | 22,5kA | 35kA | 130kA |
|                               | 525V 50/60Hz     | 9kA    | 13kA | 33kA  |
|                               | 690V 50/60Hz     | 4kA    | 5kA  | 9kA   |

Maximum HBC fuse  $\leq 1600A$

MC3-...250, 400: 400A gG/gL

MC3-...630: 630A gG/gL

### Utilization category to IEC/EN 60947-2

A      A      A

### Rated short-time withstand current $I_{cw}$

|            |       |       |       |
|------------|-------|-------|-------|
| $t = 0,3s$ | 3,3kA | 3,3kA | 3,3kA |
| $t = 1s$   | 3,3kA | 3,3kA | 3,3kA |

### Rated making and breaking capacity $I_e$

|                         |      |                              |      |      |      |
|-------------------------|------|------------------------------|------|------|------|
| Rated operating current | AC-1 | 400/415V 50/60Hz             | 500A | 630A | 630A |
|                         |      | 690V 50/60Hz                 | 500A | 630A | 630A |
|                         | AC-3 | 400/415V 50/60Hz             | 450A | 450A | 450A |
|                         |      | 690V 50/60Hz                 | 450A | 450A | 450A |
|                         | DC-1 | 500V DC with thermal release | -    | 500A | 500A |
|                         |      | 750V DC with thermal release | -    | 500A | 500A |
|                         | DC-3 | 500V DC with thermal release | -    | 500A | 500A |
|                         |      | 750V DC with thermal release | -    | 500A | 500A |

## LIFETIME - MC3

| Max. rated uninterrupted current 630A                               |            |            |             |
|---------------------------------------------------------------------|------------|------------|-------------|
|                                                                     | MC3 - 36kA | MC3 - 50kA | MC3 - 150kA |
| <b>Service life, mechanical (operations)</b>                        | 15000      | 15000      | 15000       |
| <b>Maximum operating cycles</b>                                     | 60 S/h     | 60 S/h     | 60 S/h      |
| <b>Service life, electrical</b>                                     |            |            |             |
| AC-1 400/415V 50/60Hz                                               | 5000       | 5000       | 5000        |
| 690V 50/60Hz                                                        | 3000       | 3000       | 3000        |
| AC-3 400/415V 50/60Hz                                               | 2000       | 2000       | 2000        |
| 690V 50/60Hz                                                        | 2000       | 2000       | 2000        |
| DC-1 500V with thermal release                                      | -          | 5000       | 5000        |
| 750V with thermal release                                           | -          | 5000       | 5000        |
| DC-3 500V with thermal release                                      | -          | 2000       | 2000        |
| 750V with thermal release                                           | -          | 2000       | 2000        |
| <b>Current heat loss per pole at <math>I_u</math> <sup>1)</sup></b> | 31W        | 31W        | 31W         |
| <b>Total disconnecting time at short-circuit</b>                    | <10ms      | <10ms      | <10ms       |

<sup>1)</sup> The current heat loss per pole ratings refer to the maximum current rating for the particular frame size.

## CONNECTION CROSS SECTIONS

|                                                           |          |                               |                                              | MC3                                                      | I <sub>n</sub> <sup>1)</sup> |
|-----------------------------------------------------------|----------|-------------------------------|----------------------------------------------|----------------------------------------------------------|------------------------------|
| Standard equipment                                        |          |                               |                                              | Screw connection                                         | -                            |
| Accessories                                               |          |                               |                                              | Box terminal<br>Tunnel terminals<br>Rear-side connection |                              |
| Cu-conductors, Cu-cable                                   |          |                               |                                              |                                                          |                              |
| Box terminal                                              | solid    | 2 x 16mm <sup>2</sup>         |                                              |                                                          | 500A                         |
|                                                           | stranded | 1 x (35 - 240)mm <sup>2</sup> |                                              |                                                          |                              |
|                                                           |          | 2 x (25 - 120)mm <sup>2</sup> |                                              |                                                          |                              |
| Tunnel terminal                                           | solid    | -                             |                                              |                                                          | -                            |
|                                                           | stranded | 1-hole                        | 1 x (25-185)mm <sup>2</sup>                  |                                                          | 350A                         |
|                                                           |          | 2-hole                        | 1 x (50 - 240)mm <sup>2</sup>                |                                                          | 630A                         |
|                                                           |          | 2 x (50 - 240)mm <sup>2</sup> |                                              | 2 x 185A                                                 |                              |
|                                                           |          | 4-hole                        | -                                            |                                                          | -                            |
| Screw connection and Rear-side connection                 |          |                               |                                              |                                                          |                              |
| directly on switch                                        | solid    | 1 x 16mm <sup>2</sup>         |                                              |                                                          | 630A2 x 185A                 |
|                                                           |          | 2 x 16mm <sup>2</sup>         |                                              |                                                          |                              |
|                                                           | stranded | 1 x (25 - 240)mm <sup>2</sup> |                                              |                                                          |                              |
|                                                           |          | 2 x (25 - 240)mm <sup>2</sup> |                                              |                                                          |                              |
| Module plate                                              | 1-hole   | min.                          | -                                            |                                                          | -                            |
|                                                           |          | max.                          | -                                            |                                                          | -                            |
| Module plate                                              | 2-hole   | min.                          | -                                            |                                                          | -                            |
|                                                           |          | max.                          | -                                            |                                                          | -                            |
| Connection extension                                      |          |                               |                                              | 2 x 300mm <sup>2</sup>                                   | 630A2x185                    |
| Al-conductors, Al-cable                                   |          |                               |                                              |                                                          |                              |
| Tunnel terminal                                           | solid    | 1 x 16mm <sup>2</sup>         |                                              |                                                          | 350A                         |
|                                                           | stranded | 1-hole                        | 1 x (25 - 185) <sup>2)</sup> mm <sup>2</sup> |                                                          |                              |
|                                                           |          | 2-hole                        | 1 x (50 - 240)mm <sup>2</sup>                |                                                          | 630A                         |
|                                                           |          | 2 x (50-240)mm <sup>2</sup>   |                                              |                                                          |                              |
|                                                           |          | 4-hole                        | -                                            |                                                          | -                            |
| Screw connection and Rear-side connection                 |          |                               |                                              |                                                          |                              |
| directly on switch                                        | solid    | 1 x 16mm <sup>2</sup>         |                                              |                                                          | 400A                         |
|                                                           |          | 2 x (10 - 16)mm <sup>2</sup>  |                                              |                                                          |                              |
|                                                           | stranded | 1 x (25 - 120)mm <sup>2</sup> |                                              |                                                          |                              |
|                                                           |          | 2 x (25 - 120)mm <sup>2</sup> |                                              |                                                          |                              |
| Module plate                                              | 1-hole   | min.                          | -                                            |                                                          | -                            |
|                                                           |          | max.                          | -                                            |                                                          | -                            |
| Module plate                                              | 2-hole   | -                             |                                              |                                                          | -                            |
| Connection extension                                      |          |                               |                                              | -                                                        | -                            |
| Cu-strip (number of segments x width x segment thickness) |          |                               |                                              |                                                          |                              |
| Box terminal                                              |          |                               | min.                                         | 6 x 16 x 0,8mm                                           | 630A                         |
|                                                           |          |                               | max.                                         | 10 x 24 x 1,0mm                                          |                              |
|                                                           |          |                               |                                              | +5 x 24 x 1,0mm                                          |                              |
|                                                           |          |                               |                                              | (2x) 8 x 24 x 1,0mm                                      |                              |
| Flat conductor terminal, basic                            |          |                               | min.                                         | -                                                        | -                            |
|                                                           |          |                               | max.                                         | -                                                        | -                            |

|                                           |        |                      |      |
|-------------------------------------------|--------|----------------------|------|
| Mouldle plate                             | 1-hole | -                    | -    |
| Screw connection and Rear-side connection |        |                      |      |
| Cu-strip, with holes                      | min.   | 6 x 16 x 0,8mm       | 630A |
|                                           | max.   | 10 x 32 x 1,0mm      |      |
|                                           |        | +5 x 32 x 1,0mm      |      |
| Connection extension                      |        | (2x) 10 x 50 x 1,0mm |      |

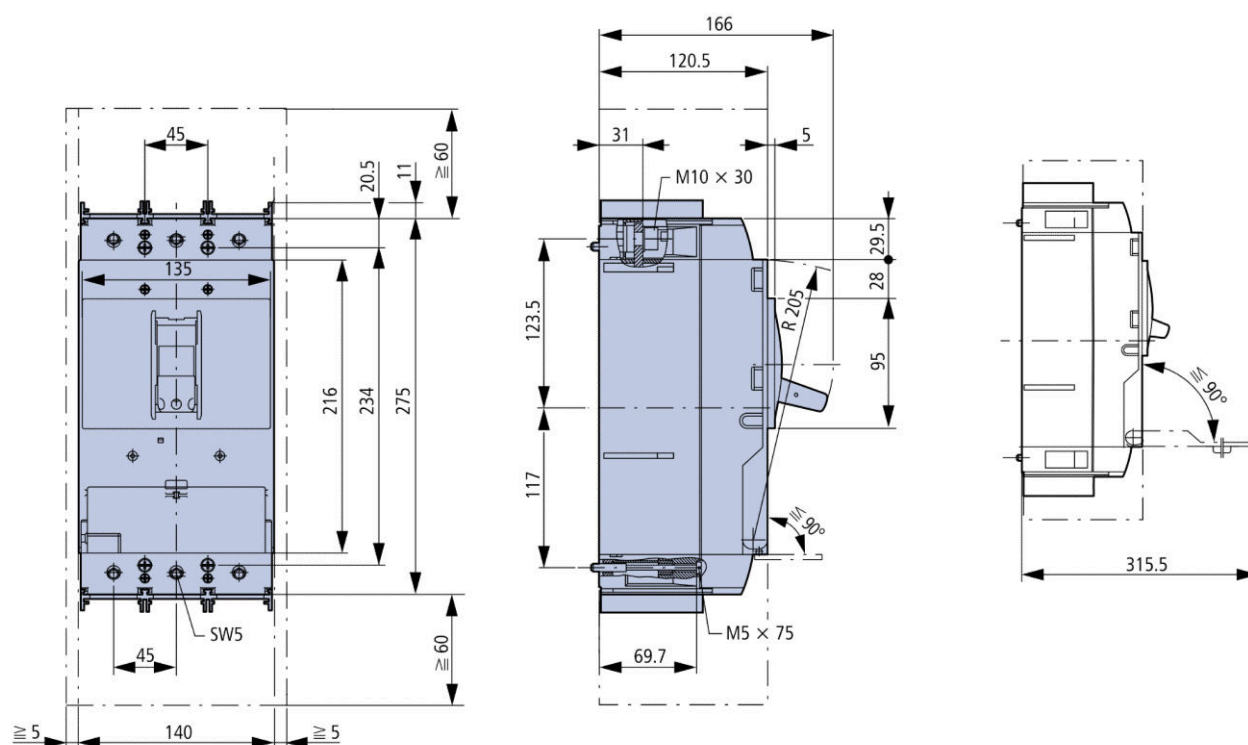
**Cu-rail (width x thickness)**

| Screw connection and Rear-side connection |        |      |               |             |
|-------------------------------------------|--------|------|---------------|-------------|
| Screw connection                          |        | M10  |               | -           |
| directly on switch                        |        | min. | 20 x 5mm      | 630A        |
|                                           |        | max. | 30 x 10mm     |             |
|                                           |        |      | +30 x 5mm     |             |
| Module plate                              | 1-hole | min. | -             | -           |
|                                           |        | max. | -             | -           |
| Module plate                              | 2-hole |      | -             | -           |
| Connection extension                      |        | min. | -             | 630A10 x 40 |
|                                           |        | max. | 2 x (10 x 50) |             |

**Notes:** 1) The rated currents  $I_n$  have been calculated in accordance with IEC/EN 60947 (protection devices standard) and generally relate to the max. specified cross-sections and are used here for the purpose of orientation. The design standards which apply in each case must be observed.

2) Depending on the cable manufacturer up to 240mm<sup>2</sup> can be connected.

**Dimensioned drawing: Moulded Case Circuit Breaker Type VE, 3-pole, 50kA, 250A**







| DESCRIPTION                                                                                                                                                                                                                                   | Order No. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Moulded Case Circuit Breaker Type VE, 3-pole, 50kA, 250A<br>Size type 3, Rated current 250A, Poles 3, IP Rating IP20, Short circuit switching capacity 50kA, Tripping Unit VE electronic protection for system, line, selective and generator | MC325233  |