## Power Distribution \& Control

## SLHRACK

Part 3/5 Circuit Breakers


ONLINE SHOPPING!
In the office or on the road with the Live Phone App

INCL. AVAILABILITY INFORMATION
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## General Information

## - TOP WAREHOUSE MANAGEMENT IN OUR DISTRIBUTION CENTRE NEAR VIENNA

The new Schrack distribution centres is located just outside Vienna. The prominent appearance of the building with its unmistakable Schrack design highlights all product characteristics which are handled logistically in its interior. We consider availability the number 1 factor for your economic and business success!

Over $12,000 \mathrm{~m}^{2}$ indoor storage space and an outdoor cable storage space of $2,500 \mathrm{~m}^{2}$

- More than 15,000 items are stored ready for shipping
- Professional warehouse management by our top-trained staff


Look out for the icon signalling prompt availability for delivery

## - GENERAL INFORMATION

- All dimensioned drawings are displayed within the confines of available space on the page and are only intended as a guide.
- All circuit diagrams are schematic wiring diagrams which are intended to allow better understanding of the function, and will need to be edited/added to during the course of project planning
- All images represent samples of the product and are intended for information purposes only.

Unless otherwise stipulated, the current version of the General Terms of Delivery issued by The Association of the Austrian Electrical and Electronics Industries "FEEI" shall apply. You can find a copy of these at the end of this catalogue.

No liability for errors in text, type or images; we reserve the right to make changes to technical specifications of the product range.

The user information contained in this catalogue reflect the opinion of the company at the time of writing. The information contained in it was assembled on the basis of published norms, specialist industry presentations, specialist literature and in-house expertise. The content is for informational purposes only and has no validity in law.
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Moulded Case Circuit Breakers MB, fix installed


Moulded Case Circuit Breakers, plug-in


Air Circuit Breaker MO, fix installed


Load Switches MC, fix installed


Load Switches MC, drive-out


Load Switches ML, fix installed


## Circuit Breakers and Load Switches

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$\triangle$ Moulded Case Circuit Breakers MB, fix installed


■ MCCB MB Size 1-3-pole, 15kA


Schrack-Info

- For System and Line Protection
- Fixed overload release
- Fixed short circuit release
- Boxterminals
- Switching capacity 15 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 16 A to 125 A

| Rated current $\mathrm{I}_{n}$ | with thermomagnetic release unit 16-125A |
| :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 415 VAC |
| Adjustable overload release $\mathrm{I}_{r}$ | fix |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | In 16, 20A: fix, 256-384A <br> $\mathrm{I}_{\mathrm{n}}$ 25-40A: fix, 320-480A <br> $\mathrm{I}_{\mathrm{n}} 50,63 \mathrm{~A}:$ fix, $480-720 \mathrm{~A}$ <br> In 80-125A: fix, 800-1200A |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\mathrm{cu}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 15kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 18kA |
| $\mathrm{I}_{\mathrm{ss}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 7.5kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

- MCCB MB Size 1-3-pole, 15kA

MCCB 3-pole MB 1..731 B dimensions

A) Blow out area, minimum distance to other parts
B) Minimum distance to other isolated parts 0 mm ; Minimum distance to other grounded parts 10 mm

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 16 to 125A with thermomagnetic release unit |  |  |  |
| Circuit Breaker MB 1, 15kA, box-terminal, 16A, 3-pole | MB1D-A |  | MB116731B |
| Circuit Breaker MB 1, 15kA, box-terminal, 20A, 3-pole | MB1D-A |  | MB 120731 B |
| Circuit Breaker MB1, 15kA, box-terminal, 25A, 3-pole | MB1D-A |  | MB125731B |
| Circuit Breaker MB 1, 15kA, box-terminal, 32A, 3-pole | MB1D-A |  | MB 132731 B |
| Circuit Breaker MB 1, 15kA, box-terminal, 40A, 3-pole | MB1D-A |  | MB140731B |
| Circuit Breaker MB 1, 15kA, box-terminal, 50A, 3-pole | MB1D-A |  | MB150731B |
| Circuit Breaker MB 1, 15kA, box-terminal, 63A, 3-pole | MB1D-A |  | MB163731B |
| Circuit Breaker MB 1, 15kA, box-terminal, 80A, 3-pole | MB1D-A | $\left[\begin{array}{rr} -\infty & \infty \\ \hline \infty & 0-\infty \\ \hline \end{array}\right.$ | MB 180731 B |
| Circuit Breaker MB 1, 15kA, box-terminal, 100A, 3-pole | MB1D-A |  | MB110731B |
| Circuit Breaker MB 1, 15kA, box-terminal, 125A, 3-pole | MB1D-A |  | MB112731 B |

Moulded Case Circuit Breakers MB

## - MCCB MB Size 1-3-pole, 18kA



Schrack-Info

- For System and Line Protection
- Fixed overload release
- Fixed short circuit release
- Box terminals (MB $1_{x x x x x B}$ ) or screw connections (MB $1_{x x x x x C)}$
- Switching capacity 18 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current $=$ rated current 16 A to 125 A

| Rated current $\mathrm{I}_{\mathrm{n}}$ | with thermomagnetic release unit 16-125A |
| :---: | :---: |
| Rated voltage $\mathrm{U}_{\mathrm{e}}$ | 415VAC |
| Adjustable overload release $\mathrm{I}_{\mathrm{r}}$ | fix |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{aligned} & \mathrm{I}_{n} \text { 16, 20A: fix, } 256-384 \mathrm{~A} \\ & \mathrm{I}_{\mathrm{n}} 25-40 \mathrm{~A}: \text { fix, } 320-480 \mathrm{~A} \\ & \mathrm{I}_{n} 50,63 \mathrm{~A}: \text { fix, } 480-720 \mathrm{~A} \\ & \mathrm{I}_{n} 80-125 \mathrm{~A}: \text { fix, } 800-1200 \mathrm{~A} \end{aligned}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\mathrm{cu}}$ at 415V $50 / 60 \mathrm{~Hz}$ | 18kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 15kA |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 9kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 3-pole MB1..831 B/MB1..831C dimensions

A) Blow out area, minimum distance to other parts
B) Minimum distance to other isolated parts 0 mm ; Minimum distance to other grounded parts 10 mm

■ MCCB MB Size 1-3-pole, 18kA

- Wiring diagram



Moulded Case Circuit Breakers MB

- MCCB MB Size 1-3-pole, 25kA


Schrack-Info

- For System and Line Protection
- Fixed overload release
- Fixed short circuit release
- Boxterminals (MB1xxxxxB) or screw connections (MB1xxxxxB)
- Switching capacity 25 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 16 A to 100 A

| Rated current $I_{n}$ | with thermomagnetic release unit 16-100A |
| :---: | :---: |
| Rated voltage $\mathrm{U}_{\mathrm{e}}$ | 415VAC |
| Adjustable overload release $\mathrm{I}_{\mathrm{r}}$ | fix |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{aligned} & I_{n} \text { 16, 20A: fix, } 256-384 \mathrm{~A} \\ & \mathrm{I}_{n} 25-40 \mathrm{~A}: \text { fix, } 320-480 \mathrm{~A} \\ & \mathrm{I}_{n} 50,63 \mathrm{~A}: \text { fix, } 480-720 \mathrm{~A} \\ & \mathrm{I}_{n} 80-125 \mathrm{~A}: \text { fix, } 800-1200 \mathrm{~A} \end{aligned}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |
| $\mathrm{I}_{\mathrm{cu}}$ at 415V $50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25 kA |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 13.5kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 3-pole MB1.. $131 \mathrm{~B} / \mathrm{MB} 1 . .131 \mathrm{C}$ dimensions

A) Blow out area, minimum distance to other parts
B) Minimum distance to other isolated parts 0 mm ; Minimum distance to other grounded parts 10 mm

- MCCB MB Size 1-3-pole, 25kA
- Wiring diagram



Moulded Case Circuit Breakers MB

## - MCCB MB Size 1-4-pole, 18kA



Schrack-Info

- For System and Line Protection
- Fixed overload release
- Fixed short circuit release
- Box terminals (MB $1_{x x x x x B}$ ) or screw connections (MB $1_{x x x x x C}$ )
- Switching capacity 18 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 80 A to 100 A
\(\left.\begin{array}{l|c} \& with thermomagnetic release unit <br>

Rated current \mathrm{I}_{\mathrm{n}} \& 80-100 \mathrm{~A}\end{array}\right]\)| 415 VAC |
| :--- |
| Rated voltage $U_{e}$ |
| fix |
| Adjustable overload release $\mathrm{I}_{\mathrm{r}}$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |
| $\mathrm{I}_{\mathrm{cv}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |
| $\mathrm{I}_{\mathrm{c}}$ at $\mathbf{4 1 5 \mathrm { V } 5 0 / 6 0 \mathrm { Hz }}$ |
| $\mathrm{I}_{\mathrm{cs}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |
| $\mathrm{I}_{\mathrm{cs}}$ at $\mathbf{4 1 5 \mathrm { V } 5 0 / 6 0 \mathrm { Hz }}$ |
| Ambient temperature (operation) |
| Mounting position |
| Standards and regulations |

## MCCB 4-pole MB 1..841B/MB1..841C dimensions


A) Blow out area, minimum distance to other parts
B) Minimum distance to other isolated parts 0 mm ; Minimum distance to other grounded parts 10 mm

- MCCB MB Size 1-4-pole, 18kA

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{8 0}$ to 100A with thermomagnetic release unit |  |  |
| Circuit Breaker MB1, 18kA, box terminal, 80A, 4-pole | MB1E-4-A |  |
| Circuit Breaker MB1, 18kA, box terminal, 100A, 4-pole | MB1E-4-A | MB180841B |
| Circuit Breaker MB1, 18kA, cable lug, 80A, 4-pole | MB1E-4-A | MB 110841B |
| Circuit Breaker MB1, 18kA, cable lug, 100A, 4-pole | MB1E-4-A | MB180841C |

Moulded Case Circuit Breakers MB

- MCCB MB Size 2-3-pole, 25kA


Schrack-Info

- For System and Line Protection
- Fixed overload release
- Fixed short circuit release (1400-2100A)
- Screw connections
- Switching capacity 25 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 125 A to 250 A

| Rated current $I_{n}$ | with thermomagnetic release unit <br> $125-250 \mathrm{~A}$ |
| :--- | :---: |
| Rated voltage $U_{e}$ | 415 VAC |
| Adjustable overload release $\mathrm{I}_{\mathrm{r}}$ | fix |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | fix, $1400-2100 \mathrm{~A}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at 415V 50/60Hz | $\mathbf{2 5 k A}$ |
| $\mathbf{I}_{\mathrm{cs}}$ at 415V 50/60Hz | $\mathbf{1 2 . 5 \mathrm { kA }}$ |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN $60947-2, \mathrm{VDE} 0660$ |

- MCCB 3-pole MB2..131C dimensions

A) Blow-out area, minimum distance to other parts
- MCCB MB Size 2-3-pole, 25kA
- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :--- | :--- | :--- | :--- |
| $\mathbf{1 2 5}$ to 250A with thermomagnetic release unit |  |  |  |
| Circuit Breaker MB2, 25kA, cable-lug, 125A, 3-pole | MB2B-A |  |  |
| Circuit Breaker MB2, 25kA, cable-lug, 160A, 3-pole | MB2B-A | MB212131C |  |
| Circuit Breaker MB2, 25kA, cable-lug, 200A, 3-pole | MB2B-A | MB216131C |  |
| Circuit Breaker MB2, 25kA, cable-lug, 250A, 3-pole | MB220131C |  |  |

Moulded Case Circuit Breakers MB

■ MCCB MB Size 2-3-pole, 36kA


Schrack-Info

- For System and Line Protection
- Fixed overload release
- Fixed short circuit release (1400-2100A)
- Screw connections
- Switching capacity 36 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 125 A to 250 A

| Rated current $I_{n}$ | with thermomagnetic release unit <br> $125-250 \mathrm{~A}$ |
| :--- | :---: |
| Rated voltage $\mathrm{U}_{\mathrm{e}}$ | 415 VAC |
| Adjustable overload release $\mathrm{I}_{\mathrm{r}}$ | fix |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | fix, $1400-2100 \mathrm{~A}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathbf{I}_{\mathrm{cu}}$ at 415V 50/60Hz | $\mathbf{3 6 k A}$ |
| $\mathrm{I}_{\mathrm{cs}}$ at 415V 50/60Hz | $\mathbf{9 k A}$ |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN $60947-2, \mathrm{VDE} \mathrm{0660}$ |

■ MCCB 3-pole MB2..431C dimensions

A) Blow-out area, minimum distance to other parts

- MCCB MB Size 2-3-pole, 36kA
- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{1 2 5}$ to 250A with thermomagnetic release unit |  |  |
| Circuit Breaker MB2, 36kA, cable-lug, 125A, 3-pole | MB2C-A |  |
| Circuit Breaker MB2, 36kA, cable-lug, 160A, 3-pole | MB2C-A | MB212431C |
| Circuit Breaker MB2, 36kA, cable-lug, 200A, 3-pole | MB2C-A | MB216431C |
| Circuit Breaker MB2, 36kA, cable-lug, 250A, 3-pole | MB2C-A | MB220431C |

Moulded Case Circuit Breakers MB

## I MCCB MB Size 3-3-pole, 36kA/50kA



Schrack-Info

- For System and Line Protection
- Fixed overload release
- Fixed short circuit release (2600-3800A)
- Screw connections
- Switching capacity $36 / 50 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 400A


MCCB 3-pole MB3..431C/MB3..231C dimensions

A) Blow-out area, minimum distance to other parts

- MCCB MB Size 3-3-pole, 36kA/50kA

Wiring diagram


| Circuit Breaker MB3, 36kA, cable-lug, 400A, 3-pole | MB3C-A | MB340431C |
| :--- | :--- | :--- | :--- |
| Circuit Breaker MB3, 50kA, cable-lug, 400A, 3-pole | MB3N-A | MB340231C |

Moulded Case Circuit Breakers MB

## - MCCB MB Size 1 to 3 - Accessories




| B190001 MB19A400 | MB190004 |  |
| :---: | :---: | :---: |
| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| Phase barrier | MB1 | MB190001 |
| Terminal Cover for MB1 3-pole | MB1 | MB190003 |
| Terminal Cover for MB1 4-pole | MB1 | MB190004 |
| Shunt Trip Relay for MB1, 2, 3 230-240V-AC | MB1 $\quad-0$ | MB19A230 |
| Shunt Trip Relay for MB 1, 2, 3 400-415V-AC | MB1 | MB19A400 |
| Undervoltage Relay for MB1, 2, 3 24V-DC | MB1 | MB19U024D |
| Undervoltage Relay for MB1, 2, 3 230-240V-AC | MB1 | MB19U230 |
| Terminal Cover for MB2 3-pole | MB2 | MB290003 |

Technical data MB1, MB2, MB3

| Mechanical specifications | Rated current max. 125 A MB1 | Rated current max. 250 A MB2 | Rated current max. 400 A MB3 |
| :---: | :---: | :---: | :---: |
| Standards | IEC/EN 60947-2 | IEC/EN 60947-2 | IEC/EN 60947-2 |
| Number of poles | 3, 4 | 3 | 3 |
| Device width [mm] | 3 -pole: 75, 4-pole: 100 | 3 -pole: 105 | 3 -pole: 140 |
| Device height [mm] | 130 | 165 | 255 |
| Device depth [mm] | 84.7 | 95 | 149 |
| Terminals | Lift terminal, cable lug | Cable lug | - |
| Terminal capacity lift terminal $\left[\mathrm{mm}{ }^{2}\right]$ | rigid (solid/stranded) and flexible wire $(2.5-50)$ | - | - |
| Terminal capacity ring tongue [ $\mathrm{mm}^{2}$ ] | Diameter: max. 15 | Diameter: max. 24 | - |
| Busbar thickness [mm] | - | max. 8 | as required |
| Terminal screw | M6 (Pozidriv PZ2) | M8 | M10 |
| Terminal torque [ Nm ] | 4 | 14 | 30 |
| Degree of Protection (DIN VDE 0470) | Built-in behind panel IP40 | Built-in behind panel IP40 | Built-in behind panel IP40 |
| Climatic conditions | $\begin{gathered} \hline \text { according to IEC } 68-2\left(25.55^{\circ} \mathrm{C} /\right. \\ 90 . .95 \% \mathrm{RH}) \end{gathered}$ | $\begin{gathered} \hline \text { according to IEC } 68-2\left(25.55^{\circ} \mathrm{C} /\right. \\ 90 . .95 \% \mathrm{RH}) \end{gathered}$ | $\begin{gathered} \hline \text { according to IEC } 68-2\left(25 . .55^{\circ} \mathrm{C} /\right. \\ 90 . .95 \% \mathrm{RH}) \\ \hline \end{gathered}$ |
| Ambient temperature |  |  |  |
| Storage [ ${ }^{\circ} \mathrm{C}$ ] | -35 ... + 85 | -35 ... +85 | $-35 . . .85$ |
| Operation [ ${ }^{\circ} \mathrm{C}$ ] | $-25 \ldots+70$ | $-25 \ldots+70$ | $-25 . .+70$ |
| Mounting Positions | Vertical and $90^{\circ}$ in all directions | Vertical and $90^{\circ}$ in all directions | Vertical and $90^{\circ}$ in all directions |
| Protection System |  |  |  |
| Enclosures | With insulating surround: IP40 | With insulating surround: IP40 | With insulating surround: IP40 |
| Number of mechanical operating cycles | > 10.000 | > 8.000 | > 5.000 |
| Pollution degree | 3 | 3 | 3 |
| Electrical specifications |  |  |  |
| Maximum LV h.b.c. fuse [A gG/gl] | 200 | 315 | - |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}[\mathrm{VAC}]$ | $400 / 415,50 / 60 \mathrm{~Hz}$ | $400 / 415,50 / 60 \mathrm{~Hz}$ | $440,50 / 60 \mathrm{~Hz}$ |
| Rated current $\mathrm{I}_{\mathrm{n}}[\mathrm{A}]$ | 16 up to 125 | 125, 160, 200, 250 | 250 up to 400 |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}$ [V] | 6.000 (1.2/50 $\mu \mathrm{sec}$ ) | 6.000 (1.2/50 $\mu \mathrm{sec}$ ) | 8.000 (1.2/50 $\mu \mathrm{sec}$ ) |
| Overvoltage category | III | III | III |
| Rated insulation voltage $\mathrm{U}_{\mathrm{i}}[\mathrm{V}]$ | 690 | 690 | 690 |
| For use in IT electrical power networks [V] | 400/415 | 400/415 | 440 |
| Direction of incoming supply | As required | As required | As required |
| Number of electrical operating cycles | $>1.500$ | 1.000 | $>1.000$ |
| Tripping characteristic |  |  |  |
| Conventional non-tripping current Int | $1.05 \mathrm{I}_{\mathrm{n}}$ | $1.05 \mathrm{I}_{\mathrm{n}}$ | $1.05 \mathrm{I}_{\mathrm{n}}$ |
| Conventional tripping current, | $1.30 \mathrm{I}_{\mathrm{n}}$ | $1.30 \mathrm{I}_{\mathrm{n}}$ | $1.30 \mathrm{I}_{\mathrm{n}}$ |
| Reference temperature [ ${ }^{\circ} \mathrm{C}$ ] | 30 | 30 | 40 |

Technical data MB

General and mechanical data MB

- Mounting holes: 1) MB1, 3 and 4-pole 2) MB2, 3-pole


Mounting holes: MB3, 3-pole


Screws and torques for MB1,2 and 3

| MCCB | Screw for connecting cable lug or bus-bar | torque |
| :--- | :--- | :---: |
| MB1.....C | M6 / Pozidriv, size PZ2 | 4 Nm |
| MB2....C | M8 / hexagon socket screw, key size 6 mm | 14 Nm |
| MB3....C | M10/hexagon socket screw, key size 8 mm | 30 Nm |

MCCB
Terminal screw of box-terminal BT
BT, $1 \times 50 \mathrm{~mm}^{2}$, built in, M6 Pozidriv PZ2

Tripping characteristics $M B$
Tripping characteristics 16A...32A according to IEC/EN 60947-2


[^0]
## Technical data MB

Tripping characteristics $M B$
Tripping characteristics 40A...80A according to IEC/EN 60947-2


[^1]
## Tripping characteristics MB

Tripping characteristics 100A...200A according to IEC/EN 60947-2


## Technical data MB

Tripping characteristics MB
Tripping characteristics 250A und 400A according to IEC/EN 60947-2


1) Conventional "non-tripping current"; $I_{n t}=1.05 I_{n}$; $\dagger>2 h$
2) Conventional tripping current; $I_{\mathrm{t}}=1.3 \mathrm{I}_{\mathrm{n}} ; \mathrm{t}<2 \mathrm{~h}$
3) $0.8 \times$ nominal short current release
4) $1.2 \times$ nominal short current release

Moulded Case Circuit Breakers MC, fix installed


MC110118


MC220034



MC110034


MC216341



MC110044


MC322337



MC205331


MC325233


MC410242

Schrack-Info

- MCCB's type MC, size 1-4, 1, 3 or 4-pole, 16-1600A

Load Switches MC

- MCCB MC Size 1-1-pole, 25kA

- Schrack-Info
- For System and Line Protection
- Fixed overload and short circuit release
- Switching capacity Icu 25 kA at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current $=$ rated current 16 A to 125 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit 16-125A |
| :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 400VAC |
| Adjustable overload release I, | fix |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | fix, $8-10 \times{ }_{\text {n }}$ |
| Rated short-circuit breaking capacity $\left.\right\|_{\text {cu }} / l_{\text {cs }}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\mathrm{cv}}$ at 400V 50/60Hz | 25kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\text {cs }}$ at 400V $50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

- MCCB 1-pole MC1.. 118 dimensions

A) Blow out area, minimum distance to other parts
- MCCB MC Size 1-1-pole, 25kA

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{1 6}$ to 125A with fixed thermomagnetic release unit |  | ORDER NO. |
| Circuit Breaker type AF, 1-pole, 25kA, 16A | MC1B-1-AF16 |  |
| Circuit Breaker type AF, 1-pole, 25kA, 20A | MC1B-1-AF20 | MC115118 |
| Circuit Breaker type AF, 1-pole, 25kA, 25A | MC1B-1-AF25 | MC120118 |
| Circuit Breaker type AF, 1-pole, 25kA, 32A | MC1B-1-AF32 | MC125118 |
| Circuit Breaker type AF, 1-pole, 25kA, 40A | MC1B-1-AF40 | MC132118 |
| Circuit Breaker type AF, 1-pole, 25kA, 50A | MC1B-1-AF50 | MC140118 |
| Circuit Breaker type AF, 1-pole, 25kA, 63A | MC1B-1-AF63 |  |
| Circuit Breaker type AF, 1-pole, 25kA, 80A | MC1B-1-AF80 | MC150118 |
| Circuit Breaker type AF, 1-pole, 25kA, 100A | MC1B-1-AF100 | MC163118 |
| Circuit Breaker type AF, 1-pole, 25kA, 125A | MC1B-1-AF125 | MC180118 |

Load Switches MC

- MCCB MC Size 1-3-pole, 25kA


MC120131

Schrack-Info

- For System and Line Protection, Motor Protection
- Adjustable overload release 0.8-1 x In
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 25 kA at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 160 A

| Rated current $I_{\text {r }}$ | with thermomagnetic release unit $20-160 \mathrm{~A}$ | with motor protection 40-100A |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 400VAC | 400VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ | 0.8-1 x ${ }_{0}$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{\mathrm{n}} 20 \mathrm{~A}, 25 \mathrm{~A}, 32 \mathrm{~A}, 160 \mathrm{~A}: \text { fix, 350A } \\ \mathrm{I}_{n} \text { 40A: } 8-10 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} 63-125 \mathrm{~A}: 6-10^{\circ} \times \mathrm{I}_{n} \\ \hline \end{gathered}$ | $\begin{gathered} \mathrm{I}_{\mathrm{n}} 40 \mathrm{~A}, 50 \mathrm{~A}, 63 \mathrm{~A}, 80 \mathrm{~A}: 8-14 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} \text { 100A: } 8-12.5 \times \mathrm{I}_{\mathrm{n}} \end{gathered}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{I}_{\text {cs }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |  |
| $\mathrm{I}_{c v}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |  |
| $\mathrm{I}_{\text {s }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |  |
| $\mathrm{I}_{\text {cs }}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

Dimensions: MCCB 3-pole MC1.. 131 /MC1.. 136 dimensions

A) Blow out area, minimum distance to other parts

- MCCB MC Size 1-3-pole, 25kA
- Wiring diagram



Load Switches MC

- MCCB MC Size 1-3-pole, 50kA



## Schrack-Info

- For System and Line Protection, Motor Protection
- Adjustable overload release 0.8-1 x $\ln$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 160 A

| Rated current In | with thermomagnetic release unit $20-160 \mathrm{~A}$ | with motor protection 40-100A |
| :---: | :---: | :---: |
| Rated voltage Ue | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ | 0.8-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} I_{n} 20 \mathrm{~A}, 25 \mathrm{~A}, 32 \mathrm{~A}, 160 \mathrm{~A}: \text { fix, 350A } \\ I_{n} 40 \mathrm{~A}: 8-10 \times \mathrm{I}_{n} \\ I_{0} 63-125 \mathrm{~A}: 6-10 \times I_{n} \\ \hline \end{gathered}$ | $\begin{gathered} I_{n} 40 \mathrm{~A}, 50 \mathrm{~A}, 63 \mathrm{~A}, 80 \mathrm{~A}: 8-14 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} 100 \mathrm{~A}: 8-12.5 \times \mathrm{I}_{\mathrm{n}} \end{gathered}$ |
| Rated short-circuit breaking capacity $\mathrm{l}_{c v} / \mathrm{l}_{\text {c }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 10kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85 kA |  |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 7.5 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 3-pole MC1..231/MC1.. 236 dimensions

A) Blow out area, minimum distance to other parts

- MCCB MC Size 1-3-pole, 50kA
- Wiring diagram



Load Switches MC

- MCCB MC Size 1-3-pole, 100kA


Schrack-Info

- For System and Line Protection, Motor Protection
- Adjustable overload release 0.8-1 x In
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 100 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 160 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit $20-160 \mathrm{~A}$ | with motor protection $40-100 A$ |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\mathrm{I}_{0}$ | 0.8-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{\mathrm{n}}^{20 \mathrm{~A},} 225 \mathrm{~A}, 32 \mathrm{~A}, 160 \mathrm{~A}: \text { fix, 350A } \\ \mathrm{I}_{\mathrm{n}} 40 \mathrm{~A}: 8-10 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} 63-125 \mathrm{~A}: 6-10^{2} \times \mathrm{I}_{\mathrm{n}} \\ \hline \end{gathered}$ | $\begin{gathered} I_{n} 40 \mathrm{~A}, 50 \mathrm{~A}, 63 \mathrm{~A}, 80 \mathrm{~A}: 8-14 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} 100 \mathrm{~A}: 8-12.5 \times \mathrm{I}_{\mathrm{n}} \end{gathered}$ |
| Rated short-circuit breaking capacity $\left.\right\|_{c v} / I_{c s}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |  |
| $\mathrm{I}_{\text {cu }}$ at $415 \mathrm{~V} \mathrm{50/60Hz}$ | 100kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 10kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |  |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 7.5 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 3-pole MC1.. 331 dimensions

A) Blow out area, minimum distance to other parts

- MCCB MC Size 1-3-pole, 100kA
- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{2 0}$ to 160A with thermomagnetic release unit |  | ORDER NO. |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 20A | MC1H-A20 |  |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 25A | MC1H-A25 | MC120331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 32A | MC1H-A32 | MC125331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 40A | MC1H-A40 | MC132331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 50A | MC1H-A50 | MC140331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 63A | MC1H-A63 | MC150331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 80A | MC1H-A80 | MC163331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 100A | MC1H-A100 | MC180331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 125A | MC1H-A125 | MC110331 |
| Moulded Case Circuit Breaker type A, 3-pole, 100kA, 160A | MC1H-A160 | MC112331 |
| 40 to 100A with motor protection |  | MC116331 |
| Moulded Case Circuit Breaker type M, 3-pole, 100kA, 40A | MC1H-M40 |  |
| Moulded Case Circuit Breaker type M, 3-pole, 100kA, 50A | MC1H-M50 | MC140336 |
| Moulded Case Circuit Breaker type M, 3-pole, 100kA, 63A | MC1H-M63 | MC150336 |
| Moulded Case Circuit Breaker type M, 3-pole, 100kA, 80A | MC1H-M 100 | MC163336 |
| Moulded Case Circuit Breaker type M, 3-pole, 100kA, 100A | MC180336 |  |

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Load Switches MC

- MCCB MC Size 1-4-pole, 25kA


MC120141

Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x $\ln$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 25 kA at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 160 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit 20-160A |
| :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 400VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{\mathrm{n}} 20 \mathrm{~A}, 25 \mathrm{~A}, 32 \mathrm{~A}, 160 \mathrm{~A}: \text { fix, 350A } \\ \mathrm{I}_{\mathrm{n}} 40 \mathrm{~A}: 8-10 \times \mathrm{I}_{n} \\ \mathrm{I}_{n} 63-125 \mathrm{~A}: 6-10 \times \mathrm{I}_{n} \\ \hline \end{gathered}$ |
| Rated short-circuit breaking capacity ${ }_{\mathrm{cv}} / \mathrm{I}_{\text {cs }}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{c v}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{l}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\text {cs }}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 4-pole MC1.. 141 dimensions

A) Blow out area, minimum distance to other parts

MCCB MC Size 1-4-pole, 25kA
Wiring diagram



Load Switches MC

- MCCB MC Size 1-4-pole, 50kA


MC120241

Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x $\ln$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 160 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit $20-160 \mathrm{~A}$ |
| :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{n} 20 \mathrm{~A}, 25 \mathrm{~A}, 32 \mathrm{~A}, 160 \mathrm{~A}: \text { fix, } 350 \mathrm{~A} \\ I_{n} 40 \mathrm{~A}: 8-10 \times \mathrm{I}_{n} \\ I_{n} 63-125 \mathrm{~A}: 6-10 \times \mathrm{I}_{n} \\ \hline \end{gathered}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cv}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 10kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 7.5 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 4-pole MC 1.. 241 dimensions

A) Blow out area, minimum distance to other parts

- MCCB MC Size 1-4-pole, 50kA

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 20 to 160A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 20A | MC1N-4-A20 |  | MC120241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 25A | MC1N-4-A25 |  | MC125241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 32A | MC1N-4-A32 | [-000-9, | MC132241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 40A | MC1N-4-A40 | $+60-\infty$ | MC140241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 50A | MC1N-4-A50 |  | MC150241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 63A | MC1N-4-A63 | [-00000, | MC163241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 80A | MC1N-4-A80 | [-00-9, | MC180241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 100A | MC1N-4-A100 | - +000 - | MC110241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 125A | MC1N-4-A125 |  | MC112241 |
| Moulded Case Circuit Breaker type A, 4-pole, 50kA, 160A | MC1N-4-A160 |  | MC116241 |

Load Switches MC
$\square$ MCCB MC Size 1 - Accessories


MC190195
MC190199


MC190125



MC190015

MC190172



MC190019

MC199471



MC199736

Schrack-Info

- Auxiliary contacts
- Door coupling rotary handles
- Rotary handle
- Terminal covers
- Tunnel terminals
- MCCB MC Size 1-Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Door Sealing Frame for MC1 | MC1-XBR |  | MC190195 |
| Toggle Lever Locking Device for MC1 | MC1-XKAV |  | MC190199 |
| Spacer, MCl/2 | MC1/2-XAB |  | MC190203 |
| Clip Plate 25 mm for MCl | MC1-XC35 | - -6000 | MC190213 |
| Main switch set for MC1 with door interlock, black/grey, MC1 | MC1-XHB |  | MC196626 |
| Main switch set for MC1 with door interlock, red/yellow, MC1 | MC1-XHBR | $+500-6$ | MC196632 |
| Early make auxiliary contact, MC1 | MC1-XHIVL |  | MC199432 |

## Connecting technic, accessories

| Box Terminal 3-pole for MC1 | MC1-XKC |  | MC190015 |
| :---: | :---: | :---: | :---: |
| Screw Terminal 3-pole for MC1 | MC1-XKS |  | MC190019 |
| Terminal Cover 3-pole, MC1 | MC1-XKSA | -000-0) | MC190021 |
| Control Circuit Terminal for Screw Connection, MC1 | MC1-XSTS |  | MC190150 |
| Terminal Cover 3-pole, MC1 | MC1-XKSFA | -000-0.0.00 | MC190780 |
| Terminal Cover 4-pole, MC1 | MC1-4-XKSFA | $+60-\infty$ | MC190781 |
| 60 mm Busbar Adapter 160A, 3-pole, MC1 | 32570 |  | MC195700 |
| Phase separator plates for MC1, 3-pole | MC1-XKP |  | MC196609 |
| Screw Terminal 4-pole for MC1 | MC1-4-XKS |  | MC196725 |
| Tunnel Terminal 90mm², 3-pole for MC1 | MC1-XKA |  | MC196730 |
| Tunnel Terminal $95 \mathrm{~mm}^{2}$, 4-pole for MCl | MC1-4-XKA | - $-\cdots 000$ | MC196731 |
| Rear Connection 3-pole, MC1 | MC1-XKR |  | MC196734 |
| Control Circuit Terminal, MC1-4 | MC1-XSTK | [000-9, | MC196739 |
| Terminal Cover 4-pole, MC1 | MC1-4-XKSA | $+500-6$ | MC196741 |
| IP2x finger protection for box terminal, 3-pole, MC1 | MC1-XIPK | 0000 | MC196744 |
| IP2X protection for terminal cover MC1, 3-pole | MCI-XIPA |  | MC196748 |
| IP2X finger protection for terminal cover, 4-pole, MC1 | MC1-4-XIPA |  | MC196749 |
| Phase separator plates for $\mathrm{MC1}$, 4-pole | MC1-4-XKP |  | MC196870 |
| Box Terminal 4-pole for MC1 | MC1-4-XKC |  | MC197075 |

Rotary handles, door coupling handles, accessories

| Rotary Handle complete, lockable for MCl | MC1-XDV | -000-0.0 | MC190125 |
| :---: | :---: | :---: | :---: |
| Rotary Handle with door interlock, black/grey | MC1-XTVD |  | MC190131 |
| Rotary Handle red/yellow lockable for MC1 | MCI-XDVR | -000-9000, | MC190135 |
| Rotary Handle Emergency-Stop with door interlock | MC1-XTVDR |  | MC190142 |
| Door Coupling Rotary Handle, lockable, black/grey, MCI | MCI-XTVD | [-0000 | MC190166 |
| Door Coupling Rotary Handle, lockable, MC1 | MC1-XTVDV | -000-n | MC190172 |
| Door Coupling Rotary Handle, lockable, red/yellow, MCl | MC1-XTVDVR | -00 -0.0 <br> 00 0 | MC190178 |
| Extension Shaft $600 \mathrm{~mm}, \mathrm{MCl} / 2$ | MC1/2-XV6 | $+\infty 0=-\infty$ | MC190191 |
| Extension Shaft $400 \mathrm{~mm}, \mathrm{MCl} / 2$ | MC1/2-XV4 | $0 \times 0$ | MC191232 |
| Door coupling for MC1 60 mm | MC1-XTVDVR-60 |  | MC191512 |
| Mechanical Interlock for MC1 | MCI-XMV | -000-0, | MC191581 |
| Under voltage release units, shunt-trips and accessories |  |  |  |
| Undervoltage Release 24VAC for MC1, included 3m cable | MC1-XUL24AC |  | MC199462 |
| Undervoltage Release 208-240VAC for MC1, included 3m cable | MC1-XUL208-240 | -000-6 | MC199471 |
| Undervoltage Release 380-440VAC for MC1, included 3m cable | MC1-XUL380-440 |  | MC199473 |
| Undervoltage Release 24VDC for MCl , included 3m cable | MC1-XUL24DC | $+\infty 0 \div$ | MC199481 |
| Undervoltage Release 220-250VDC for MC1, included 3m cable | MC1-XUL220-250 |  | MC199489 |
| Undervoltage Release with 2 early make Contacts, 230VAC, MC1 | MC1-XUHIV208-240 | $+\infty=0$ | MC199565 |
| Undervoltage Release with 2 early make Contacts, 400VAC, MC1 | MCI-XUHIV380-440 |  | MC199567 |
| Time-delay unit for MC1-MC4 | MC-UVU | - -80 | MC190154 |
| Undervoltage Release for time-delay unit, MCl | MC1-XUVL |  | MC191607 |
| Shunt trip 24V AC/DC with 3m cable for MC1 | MC1-XAL24VAC/DC | -80-0 | MC199736 |

[^2]Sthrack

Load Switches MC

MCCB MC Size 1 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Under voltage release units, shunt-trips and accessories |  |  |  |
| Shunt trip 115V AC/DC with 3 m cable for MC1 | MC1-XALIIO-130 |  | MC199742 |
| Shunt trip 208-250V AC/DC with 3m cable for MC1 | MC1-XAL208-250 | -600-6) | MC199744 |
| Shunt trip 24V AC/DC with 1 early make auxiliary contact and 3m cable for MC1 | MC1-XAHIVL24 |  | MC199792 |
| Shunt trip 230V AC/DC with 1 early make auxiliary contact and 3m cable for MC1 | MC1-XAHIVL208-250 |  | MC199800 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release, right hand mounting, 3-pole $30 \mathrm{~mA}, \mathrm{MC1}$ | MC1-XFI30R |  | MC194603 |
| Earth Leakage Release, right hand mounting, 3-pole $300 \mathrm{~mA}, \mathrm{MCl}$ | MC1-XFI300R |  | MC194604 |
| Earth Leakage Release, right hand mounting, 3-pole up to 3A, MC1 | MCI-XFIR | - -8000 | MC194605 |
| Earth Leakage Release, bottom mounting, 3-pole $30 \mathrm{~mA}, \mathrm{MCl}$ | MC1-XFI3OU |  | MC194609 |
| Earth Leakage Release, bottom mounting, 3-pole $300 \mathrm{~mA}, \mathrm{MCl}$ | MC1-XFI300U |  | MC194610 |
| Earth Leakage Release, right hand mounting, 4-pole $30 \mathrm{~mA}, \mathrm{MC} 2$ | MC1-4-XFI30R |  | MC194606 |
| Earth Leakage Release, right hand mounting, 4-pole $300 \mathrm{~mA}, \mathrm{MC1}$ | MC1-4-XFI300R |  | MC194607 |
| Earth Leakage Release, right hand mounting, 4-pole up to 3A, MC1 | MC1-4-XFIR | -80008 | MC194608 |
| Earth Leakage Release, bottom mounting, 4-pole $30 \mathrm{~mA}, \mathrm{MCl}$ | MC1-4-XFI3OU |  | MC194612 |
| Earth Leakage Release, bottom mounting, 4-pole 300 mA , MC1 | MC1-4-XFI300U |  | MC194613 |
| Earth Leakage Release, bottom mounting, 4-pole up to 3A, MC1 | MC1-4-XFIU | $+\infty=\infty$ | MC194614 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 | $+\infty=-\infty$ | MM216376 |
| NC contact block, front montage | M22-K01 | -000-6) | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 | $+\infty=0$ | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $+\infty=0$ | MM107899 |
| $\underline{\mathrm{NO}+\mathrm{NC}, \text { Cage clamp }}$ | M22-CK 11 | $+\infty=-\frac{1}{0}$ | MM107940 |

- MCCB MC Size 2-3-pole, 25kA


Schrack-Info

- For System and Line Protection, Motor Protection
- Adjustable overload release 0.8-1 x In
- Adjustable short circuit release $6-10 \times \ln (8-14 \times \ln )$
- Box terminals standard, screw connections as option
- Switching capacity 25 kA at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 125 A to 300 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit $125-300 \mathrm{~A}$ | with motor protection $125-200 \mathrm{~A}$ |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 400 VAC | 400 VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ | 0.8-1 $\times 1$ ] |
| Adjustable short circuit release I, | $6-10 \times 1$ | $8-14 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{c u} / \mathrm{I}_{\text {cs }}$ |  |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |  |
| $\mathrm{I}_{c v}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |  |
| $\mathrm{I}_{\text {s }}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 3-pole MC2.. 131/MC2.. 136 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

- MCCB MC Size 2-3-pole, 25kA
$\square$ Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 125 to 300A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 125A | MC2B-A125 | -000-9000, | MC212131 |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 160A | MC2B-A160 | $\begin{array}{rr} -\infty 0 & \sigma-\infty \\ \hline \end{array}$ | MC216131 |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 200A | MC2B-A200 | - $-0 \times 0$ | MC220131 |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 250A | MC2B-A250 | $+\infty=0$ | MC225131 |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 300A | MC2B-A300 | -00\%-9, | MC230131 |
| 125 to 200A with motor protection |  |  |  |
| Moulded Case Circuit Breaker type M, 3-pole, 25kA, 125A | MC2B-M 125 | [-000-9080 | MC212136 |
| Moulded Case Circuit Breaker type M, 3-pole, 25kA, 160A | MC2B-M 160 | $+\infty=0$ | MC216136 |
| Moulded Case Circuit Breaker type M, 3-pole, 25kA, 200A | MC2B-M200 | $\begin{array}{lll} -\infty 0 & -\infty \\ \hline \end{array}$ | MC220136 |

MCCB MC Size 2-3-pole, 36kA


Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x ln
- Adjustable short circuit release 6-10 $\times \mathrm{ln}$
- Box terminals standard, screw connections as option
- Switching capacity 36 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 160 A to 300 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit $160-300 \mathrm{~A}$ |
| :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\text {, }}$, | $6-10 \times 1$ |
| Rated short-circuit breaking capacity $\left.\right\|_{\text {cu }} /\left.\right\|_{\text {cs }}$ |  |
| $\mathrm{I}_{c u}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55kA |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 36kA |
| $\mathrm{I}_{\text {cv }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 8 kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55kA |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 36kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 4 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 3-pole MC2.. 431 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

MCCB MC Size 2-3-pole, 36kA
$\square$ Wiring diagram

|  |  |  |  |
| :---: | :---: | :---: | :---: |
| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| 160 to 300A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 160A | MC2C-A 160 | -000-9 | MC216431 |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 200A | MC2C-A200 |  | MC220431 |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 250A | MC2C-A250 | -000000000 | MC225431 |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 300A | MC2C-A300 |  | MC230431 |

- MCCB MC Size 2-3-pole, 50kA


Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 90 A to 300 A
$\left.\begin{array}{l|c|c|c|c}\text { with thermomagnetic } \\ \text { release unit } \\ 125-300 \mathrm{~A}\end{array}\right)$

Dimensions: MCCB 3-pole MC2..231/MC2..236/MC2..233/MC2.. 237 dimensions

A) Blow out area, minimum distance to other parts

## Load Switches MC

- MCCB MC Size 2-3-pole, 50kA

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 125 to 300A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 125A | MC2N-A 125 |  | MC212231 |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 160A | MC2N-A160 | $-\infty 0$ | MC216231 |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 200A | MC2N-A200 | [-0000, | MC220231 |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 250A | MC2N-A250 | - $+0 \times 0$ | MC225231 |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 300A | MC2N-A300 |  | MC230231 |
| 125 to 200A with motor protection |  |  |  |
| Moulded Case Circuit Breaker type M, 3-pole, 50kA, 125A | MC2N-M 125 |  | MC212236 |
| Moulded Case Circuit Breaker type M, 3-pole, 50kA, 160A | MC2N-M160 |  | MC216236 |
| Moulded Case Circuit Breaker type M, 3-pole, 50kA, 200A | MC2N-M200 |  | MC220236 |
| 100 to 250A with delayed electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 100A | MC2N-VE100 | - -200 | MC210233 |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 160A | MC2N-VE160 | - $+0 \times 0$ | MC216233 |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 250A | MC2N-VE250 | - -0.0 | MC225233 |
| 90 to 220A with electronic motor protection |  |  |  |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 90A | MC2N-ME90 | - $-0 \times 0$ | MC290237 |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 140A | MC2N-ME140 | $-\infty 0-\infty$ | MC214237 |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 220A | MC2N-ME220 | -000-0, | MC222237 |

- MCCB MC Size 2-3-pole, 150kA


Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 300 A

| Rated current I | with thermomagnetic release unit $20-300 \mathrm{~A}$ | with delayed electronic release unit 100-250A | with electronic motor protection $90-220 \mathrm{~A}$ |
| :---: | :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ | 0.5-1 $\times$ I | 0.5-1 $\times$ I |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{n} \text { 20A, 32A: fix, 350A } \\ I_{n} 25 A: 6-10 \times I_{n} \\ I_{n} 40 \mathrm{~A}: 8-10 \times I_{n} \\ I_{n} 50 \mathrm{~A}-300 \mathrm{~A}: 6-10 \times I_{n} \end{gathered}$ | fix, $12 \times 1{ }_{n}$ | $2-14 \times{ }^{\text {n }}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cv}} / \mathrm{I}_{\mathrm{cs}}$ |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 20kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 5 kA |  |
| Ambient temperature (operation) |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations |  | IEC/EN 60947-2, VDE 0660 |  |

MCCB 3-pole MC2..331/MC2..333/MC2.. 337 dimensions

A) Blow out area, minimum distance to other parts

## Load Switches MC

MCCB MC Size 2-3-pole, 150kA
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 20 to 300A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 20A | MC2H-A2O |  | MC202331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 25A | MC2H-A25 |  | MC205331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 32A | MC2H-A32 |  | MC232331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 40A | MC2H-A40 |  | MC240331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 50A | MC2H-A50 |  | MC250331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 63A | MC2H-A63 |  | MC263331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 80A | MC2H-A80 | -000-9, | MC280331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 100A | MC2H-A100 | $+\infty=0$ | MC210331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 125A | MC2H-A 125 |  | MC212331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 160A | MC2H-A 160 |  | MC216331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 200A | MC2H-A200 |  | MC220331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 250A | MC2H-A250 |  | MC225331 |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 300A | MC2H-A300 |  | MC230331 |
| 100 to 250A with delayed electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 150kA, 100A | MC2H-VE100 |  | MC210333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 150kA, 160A | MC2H-VE160 |  | MC216333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 150kA, 250A | MC2H-VE250 |  | MC225333 |
| 90 to 220A with electronic motor protection |  |  |  |
| Moulded Case Circuit Breaker type ME, 3-pole, 100kA, 90A | MC2H-ME90 |  | MC290337 |
| Moulded Case Circuit Breaker type ME, 3-pole, 150kA, 140A | MC2H-ME140 |  | MC214337 |
| Moulded Case Circuit Breaker type ME, 3-pole, 150kA, 220A | MC2H-ME220 |  | MC222337 |

MCCB MC Size 2-4-pole, 25kA


Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x $\ln$
- Adjustable short circuit release 6-10 $\times \mathrm{ln}$
- Box terminals standard, screw connections as option
- Switching capacity 25 kA at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 125 A to 300 A

| Rated current ${ }^{\text {I }}$ | with thermomagnetic release unit $125-300 \mathrm{~A}$ |
| :---: | :---: |
| Rated voltage U | 400VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ ] |
| Adjustable short circuit release I, | 6-10 $\times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{c u} / \mathrm{I}_{\text {cs }}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\text {v }}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{l}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\text {s }}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 4-pole MC2.. 141 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

MCCB MC Size 2-4-pole, 25kA
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :--- | :--- | :--- | :--- |
| $\mathbf{1 2 5}$ to 300A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type A, 4-pole, 25kA, 125A | MC2B-4-A125 | MC212141 |  |
| Moulded Case Circuit Breaker type A, 4-pole, 25kA, 160A | MC2B-4-A160 | MC2B-4-A200 | MC216141 |
| Moulded Case Circuit Breaker type A, 4-pole, 25kA, 200A | MC2B-4-A250 | MC2B-4-A300 |  |
| Moulded Case Circuit Breaker type A, 4-pole, 25kA, 250A |  | MC230141 |  |
| Moulded Case Circuit Breaker type A, 4-pole, 25kA, 300A |  |  |  |

- MCCB MC Size 2-4-pole, 50kA


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Fixed or adjustable short circuit release
- Types with reduced neutral conductor-release available
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 100A to 300 A

| Rated current $I_{n}$ | with thermomagnetic release unit $125-300 \mathrm{~A}$ | with delayed electronic release unit $100-250 \mathrm{~A}$ |
| :---: | :---: | :---: |
| Rated voltage U ${ }_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ | 0.5-1 $\times 1$ |
| Adjustable short circuit release ${ }_{\text {I }}$ | $6-10 \times 1$ | fix, $12 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{I}_{\text {cs }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 5 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC2..241/MC2..241R/MC2..243/MC2..243R dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

- MCCB MC Size 2-4-pole, 50kA

Wiring diagram



100 to 250A with delayed electronic release unit

| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 100A | MC2N-4-VE100 | MC2N-4-VE160 | MC210243 |
| :--- | :--- | :--- | :--- |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 160A | MC2N-4-VE160/100 | MC2N-4-VE250 | MC216243R |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 160A/100A, reduced Neutral | MC2N-4-VE250/160 | MC225243 |  |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 250A |  |  |  |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 250/160A |  |  |  |

- MCCB MC Size 2-4-pole, 150kA


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 300 A

| Rated current $I_{\text {I }}$ | with thermomagnetic release unit $20-300 \mathrm{~A}$ | with delayed electronic release unit 100-250A |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release I. | 0.8-1 $\times 1$ | 0.5-1 $\times 1$ 。 |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{n} \text { 20A, 32A: fix, 350A } \\ I_{n} 25 \mathrm{~A}: 6-10 \times I_{n} \\ I_{n} \text { 40A: } 8-10 \times I_{n} \\ I_{n} 50 \mathrm{~A}-300 \mathrm{~A}: 6-10 \times \mathrm{I}_{n} \end{gathered}$ | fix, $12 \times{ }_{\text {n }}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {ci }} / \mathrm{Ics}^{\text {c }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |  |
| $\mathrm{l}_{c v}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 5 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC2..341/MC2.. 343 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

- MCCB MC Size 2-4-pole, 150kA

Wiring diagram


MCCB MC Size 2 - Accessories


- Auxiliary contacts
- Door coupling rotary handles
- Rotary handle and plug- in socket
- Terminal covers
- Residual current release
- Remote operator
- Plug-in socket

Load Switches MC

MCCB MC Size 2 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Toggle Lever Locking Device for MC2 | MC2/3-XKAV | -800-9 | MC290201 |
| Clip Plate 75 mm for MC2 | MC2-XC75 |  | MC290215 |
| Main switch set with door interlock, black/grey, MC2 | MC2-XHB |  | MC296627 |
| Main switch set with door interlock, red/yellow, MC2 | MC2-XHBR |  | MC296633 |
| Connecting technic, accessories |  |  |  |
| Terminal Cover 3-pole, MC2 | MC2-XKSA |  | MC290038 |
| 60 mm Busbar Adapter 250A, 3-pole, MC2 | 32140 | - -100 | MC291400 |
| Cover for Adapter MC2, 3-pole | MC2-XKR4 | - -1000 | MC291666V2 |
| Extra Cover for Remote Operator for MC2 4-pole | MC2-XAVPR | -000-0, | MC296677 |
| Control Circuit Terminal for screw connection, MC2 | MC2-XSTS | $+50-\infty$ | MC290156 |
| Door Sealing Frame for MC2 | MC2-XBR |  | MC290197 |
| Tunnel Terminal $185 \mathrm{~mm}^{2}$, 3-pole for MC2 | MC2-XKA | - $-20-9$ | MC291457 |
| Tunnel Terminal $1 \times 185 \mathrm{~mm}^{2}$, 4-pole for MC2 | MC2-4-XKA | - -1000 | MC291458 |
| Box Terminal 160A for MC2 (3 pcs.) | MC2-160-XKC | -00\%-9, | MC292240 |
| Box Terminal 250A for MC2 (3 pcs.) | MC2-250-XKC |  | MC292244 |
| Box Terminal 160A for MC2 (4 pcs.) | MC2-4-160-XKC | -000-n) | MC296755 |
| Box Terminal 250A for MC2-4 (4 pcs.) | MC2-4-250-XKC | -000-9, | MC296756 |
| Connection Cover 3-pole, MC2 | MC2-XKSFA | $+\infty 0 \div \infty$ | MC294640 |
| Connection Cover 4-pole, MC2 | MC2-4-XKSFA | -500-9 | MC294641 |
| Rear Connection 3-pole, MC2 | MC2-XKR |  | MC296765 |
| Rear Connection 4-pole, MC2 | MC2-4-XKR |  | MC296768 |
| Phase separator plates for MC2, 3-pole | MC2-XKP |  | MC296871 |
| Phase separator plates for MC2, 4-pole | MC2-4-XKP |  | MC296872 |
| Cable Lug $95 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS95 | [-00-9, | MC299775 |
| Cable Lug $120 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS 120 | - -1000 | MC299776 |
| Cable Lug 150mm ${ }^{2} \mathrm{MC} 2$ | MC2-XKS 150 | $+\infty=\sigma$ | MC299777 |
| Cable Lug $185 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS 185 | -000-0, | MC290032 |
| Screw Terminal 3-pole for MC2 | MC2-XKS |  | MC290030 |
| Screw Terminal 4-pole for MC2 | MC2-4-XKS |  | MC296750 |
| Terminal Cover 4-pole, MC2 | MC2-4-XKSA | - -60 | MC296770 |
| IP2x finger protection for terminal cover, 3-pole, MC2 | MC2-XIPA |  | MC296777 |
| IP2x-protection cover for terminals, 3-pole, for MC2 | MC2-XIPK | - $+\cdots \times 0$ | MC296773 |
| IP2x-protection cover for terminals, 4-pole, for MC2 | MC2-4-XIPK |  | MC296774 |
| IP2x finger protection for terminal cover, 4-pole, MC2 | MC2-4-XIPA |  | MC296778 |
| Control Circuit Unit for auxiliary contact, $\mathrm{MCl} / 2, \mathrm{MCl} / 2-\mathrm{N}$ | MC2-XSVHI |  | MC296705 |
| Control Circuit Unit for remote operator | MC2-XSVR |  | MC296706 |

Rotary handles, door coupling handles, accessories

| Rotary Handle complete, lockable for MC2 | MC2-XDV | - $+0 \times 0$ | MC290127 |
| :---: | :---: | :---: | :---: |
| Rotary Handle with door interlock, black/grey for MC2 | MC2-XDTV |  | MC290133 |
| Rotary Handle red/yellow lockable | MC2-XDVR | - $-\cdots 0$ | MC290137 |
| Rotary Handle emergency stop with door interlock | MC2-XDTVR |  | MC290144 |
| Door Coupling Rotary Handle, lockable, black/grey, MC2 | MC2-XTVD | - $+0 \times 0$ | MC290168 |
| Door Coupling Rotary Handle, lockable, black/grey 0/1, MC2 | MC2-XTVDV | - $-\cdots 000$ | MC290174 |
| Door Coupling Rotary Handle, lockable, red/yellow, MC2 | MC2-XTVDVR |  | MC290180 |
| Mechanical Interlock for MC2 | MC2-XMV |  | MC291582 |
| Mechanical Interlock for Remote Operator for MC2 | MC2-XMVR | - -800 - | MC294543 |
| Mechanical Interlock for Remote Operator for MC2/3 | MC2/3-XMVR | $+\infty=-\infty$ | MC294544 |
| Mechanical Interlock for Remote Operator for MC2, long | MC2-XMVRL | - -1000 | MC294548 |
| Mechanical Interlock for Remote Operator for MC2/3, long | MC2/3-XMVRL |  | MC294549 |
| Extension Shaft 600mm, MCl/2 | MCl/2-XV6 | $\begin{array}{rr} \hline-000 & \sigma=-\infty \\ \hline \end{array}$ | MC190191 |

[^3]MCCB MC Size 2 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |

## Rotary handles, door coupling handles, accessories

| Spacer, MCl/2 | $\mathrm{MCl} / 2-\mathrm{XAB}$ | -80008080 | MC190203 |
| :---: | :---: | :---: | :---: |
| Extension Shaft 400mm, MC1/2 | MC1/2-XV4 | -700\%-6) | MC191232 |
| Door coupling for MC2 60 mm | MC2-XTVDVR-60 |  | MC191513 |
| Bowden Cable 225 mm | MC-XBZ225 | - -60 | MC191585 |
| Bowden Cable 600 mm | MC-XBZ600 | - $-\cdots$ | MC191586 |

## Undervoltage release units, shunt-trips, motor operators and accessories

| Undervoltage release 24V AC for MC2/3 | MC2/3-XU24AC | -000-6 | MC299491 |
| :---: | :---: | :---: | :---: |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 |  | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 | -000-6 | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | [-000-9, | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV |  | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | -000-9, | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | -000-9, | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | -000-6, | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA 130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 |  | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |
| Remote Operator 24-30V DC for MC2 can be synchronised and interlocked | MC2-XR240DC | -000-9, | MC299836 |
| Remote Operator 24-30V DC for MC2 can not be synchronised and interlocked | MC2-XRD240DC | $+50-\infty$ | MC299837 |
| Remote Operator 48-60V DC for MC2 can be synchronised and interlocked | MC2-XR48-60DC | $+\infty=-\infty$ | MC299838 |
| Remote Operator 208-240V AC for MC2 can be synchronised and interlocked | MC2-XR208-240AC | $\begin{array}{\|ccc} \hline-\infty & -\infty \\ \hline \end{array}$ | MC299832 |
| Remote Operator 208-240V AC for MC2 can not be synchronised and interlocked | MC2-XRD208-240A | $\begin{array}{lll} \hline-00 & -\infty \\ \hline \end{array}$ | MC299833 |

Residual current release units and accessories

| RCD 4-pole for MC2, 30mA, pulse current sensitivity version 2 | MC2-4-XFI30 V2 |  | MC296719V2 |
| :---: | :---: | :---: | :---: |
| RCD 4-pole for MC2, 0.1-1A, pulse current sensitivity version 2 | MC2-4-XFI | - -2000 | MC296720V2 |
| RCD 4-pole for MC2, 30mA, AC/DC current sensitivity version 2 | MC2-4-XFIA30 V2 | [-000-9, | MC292345V2 |
| RCD 4-pole for MC2, 0.3-1A, AC/DC current sensitivity version 2 | MC2-4-XFIA V2 | $+\infty=-\infty$ | MC292346V2 |
| Early make auxiliary contact, MC2/3 | MC2/3-XHIV | -000-0, | MC299430 |

## Auxiliary contacts

| NO contact block, front montage | M22-K10 | -000-0, | MM216376 |
| :---: | :---: | :---: | :---: |
| NC contact block, front montage | M22-K01 | -000-6) | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 | -000-9, | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | -600-6, | MM107899 |
| NO+NC, Cage clamp | M22-CK 11 | -800-9 | MM107940 |

Load Switches MC

- MCCB MC Size 3-3-pole, 36kA


Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x ln
- Adjustable short circuit release 6-10 $\times \mathrm{ln}$
- Box terminals standard, screw connections as option
- Switching capacity 36 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 320 A to 500 A

| Rated current $\mathrm{I}_{\text {r }}$ | with thermomagnetic release unit $320-500 \mathrm{~A}$ |
| :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ |
| Adjustable short circuit release I | $6-10 \times 1$ |
| Rated short-circuit breaking capacity ${ }_{c c} / \mathrm{I}_{\text {cs }}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55kA |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 36kA |
| $\mathrm{l}_{c v}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 8kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55 kA |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 36kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 4 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 3-pole MC3.. 431 dimensions

A) Blow out area, minimum distance to other parts

MCCB MC Size 3-3-pole, 36kA
Wiring diagram



Load Switches MC

- MCCB MC Size 3-3-pole, 50kA


MC332231

Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 220 A to 630 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit 320-500A | with electronic release unit $250-630 \mathrm{~A}$ | with delayed electronic release unit 250-630A | with electronic motor protection 220-450A |
| :---: | :---: | :---: | :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690 VAC | 690 VAC | 690 VAC | 690 VAC |
| Adjustable overload release I, | 0.8-1,0x ${ }_{0}$ | $0.5-1,0 \times 1$ | 0.5-1,0x ${ }_{0}$ | $0.5-1,0 \times 1$. |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $6-10 \times 1$ | $\begin{gathered} \mathrm{I}_{n} \text { 250A, 400A: } 2-11 \times I_{n} \\ I_{n} \text { 630A: } 2-8 \times I_{n} \\ \hline \end{gathered}$ | $\begin{gathered} \mathrm{I}_{\mathrm{n}} \text { 250A, 400A: } 2-10 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} \text { 630A: } 2-7 \times \mathrm{I}_{\mathrm{n}} \end{gathered}$ | $2-14 \times I_{n}$ |
| Rated short-circuit breaking capacity $\left.\right\|_{\text {cu }} /\left.\right\|_{\text {cs }}$ |  |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85 kA |  |  |  |
| $\mathrm{I}_{c v}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50 kA |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20 kA |  |  |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85 kA |  |  |  |
| $\mathrm{I}_{\text {cs }}$ at 400V $50 / 60 \mathrm{~Hz}$ | 50 kA |  |  |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 5 kA |  |  |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |  |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |  |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |  |  |

MCCB 3-pole MC3..231/MC3..232/MC3..233/MC3.. 237 dimensions

A) Blow out area, minimum distance to other parts

- MCCB MC Size 3-3-pole, 50kA

Wiring diagram



250 to 630A with delayed electronic release unit

220 to 450A with electronic motor protection

Load Switches MC

- MCCB MC Size 3-3-pole, 150kA


MC332331

Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 220 A to 630 A


Dimensions: MCCB 3-pole MC3..331/MC3..332/MC3..333/MC3.. 337

A) Blow out area, minimum distance to other parts

- MCCB MC Size 3-3-pole, 150kA

Wiring diagram



Load Switches MC

- MCCB MC Size 3-4-pole, 50kA


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Adjustable short circuit release
- Types with reduced neutral conductor-release available
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 320 A to 630 A

| Rated current $I_{n}$ | with thermomagnetic release unit $320-500 \mathrm{~A}$ | with electronic release unit $400-630 \mathrm{~A}$ | with delayed electronic release unit 400-630A |
| :---: | :---: | :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$. | 0.5-1 x ${ }_{0}$ | 0.5-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $6-10 \times 1$ | $\begin{gathered} \mathrm{I}_{n} \text { 250A, 400A: } 2-11 \times \mathrm{I}_{n} \\ \mathrm{I}_{\mathrm{n}} \text { 630A: } 2-8 \times \mathrm{I}_{n} \end{gathered}$ | $\begin{gathered} \mathrm{I}_{\mathrm{n}} \text { 250A, 400A: } 2-10 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} \text { 630A: } 2-7 \times \mathrm{I}_{n} \end{gathered}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{I}_{\mathrm{cs}}$ |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 85kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at 415V $50 / 60 \mathrm{~Hz}$ |  | 50kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 20kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 85kA |  |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ |  | 50kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 5 kA |  |
| Ambient temperature (operation) |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations |  | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC3..241/MC3..242/MC3..242R/MC3..243/MC3..243R dimensions

A) Blow out area, minimum distance to other parts

- MCCB MC Size 3-4-pole, 50kA

Wiring diagram



Load Switches MC

- MCCB MC Size 3-4-pole, 150kA


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 320 A to 630 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit $320-500 \mathrm{~A}$ | with electronic release unit $400-630 \mathrm{~A}$ | with delayed electronic release unit $400-630 \mathrm{~A}$ |
| :---: | :---: | :---: | :---: |
| Rated voltage Ue | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ | 0.5-1 x ${ }_{0}$ | 0.5-1 x ${ }_{\text {n }}$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $6-10 \times 1$ | $\begin{gathered} \mathrm{I}_{n} \text { 250A, 400A: } 2-11 \times \mathrm{I}_{n} \\ \mathrm{I}_{\mathrm{n}} \text { 630A: } 2-8 \times \mathrm{I}_{n} \end{gathered}$ | $\begin{gathered} \mathrm{I}_{\mathrm{n}} \text { 250A, 400A: } 2-10 \times \mathrm{I}_{\mathrm{n}} \\ \mathrm{I}_{\mathrm{n}} \text { 630A: } 2-7 \times \mathrm{I}_{\mathrm{n}} \end{gathered}$ |
| Rated short-circuit breaking capacity $\mathrm{l}_{\mathrm{cv}} / \mathrm{l}_{c s}$ |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at 415V $50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 35 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\mathrm{cs}}$ at 415V $50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 9 kA |  |
| Ambient temperature (operation) |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations |  | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC3..341/MC3..342/MC3.. 343 dimensions

A) Blow out area, minimum distance to other parts

- MCCB MC Size 3-4-pole, 150kA

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :--- | :--- | :--- | :--- |
| $\mathbf{3 2 0}$ to 500A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type A, 4-pole, 150kA, 320A | MC3H-4-A320 | MC332341 |  |
| Moulded Case Circuit Breaker type A, 4-pole, 100 kA, 400A | MC3H-4-A400 | MC340341 |  |
| Moulded Case Circuit Breaker type A, 4-pole, 150kA, 500A |  | MC350341 |  |
| 400 to 630A with electronic release unit | MC3H-4-AE400 |  |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 150kA, 400A | MC3H-4-AE630 | MC340342 |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 150 kA, 630A |  | MC363342 |  |
| 400 to 630A with delayed electronic release unit | MC3H-4-VE400 |  |  |
| Moulded Case Circuit Breaker type VE, 4-pole, 150kA, 400A | MC3H-4-VE630 | MC340343 |  |
| Moulded Case Circuit Breaker type VE, 4-pole, 150 kA, 630A |  | MC363343 |  |

Load Switches MC

MCCB MC Size 3 - Accessories


MC390042


MC396804


MC900070


MC390140


MC391583



MC391700


MC394545


MM107899

- Auxiliary contacts
- Door coupling rotary handles
- Rotary handle and plug- in socket
- Terminal covers
- Residual current release
- Remote operator
- Drive-out socket


## MCCB MC Size 3 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Spacer, MC3 | МСЗ-ХАВ | -00000 | MC390211 |
| Door Sealing Frame for MC3 | MC3-XBR |  | MC394645 |
| Main switch set with door interlock, black/grey, MC3 | MC3-XHB |  | MC396628 |
| Main switch set with door interlock, red/yellow, MC3 | MC3-XHBR |  | MC396634 |
| Connecting technic, accessories |  |  |  |
| Screw connection 3-pole for MC3 | MC3-XKS |  | MC390039 |
| Cable Lug $185 \mathrm{~mm}^{2} \mathrm{MC} 3$ | MC3-XKS 185 | - -200 | MC390040 |
| Cable Lug $240 \mathrm{~mm}^{2}$ MC3 | MC3-XKS240 | -000-n) | MC390041 |
| Box Terminal 3-pole for MC3 | MC3-XKC | -000-9, | MC390042 |
| Terminal Cover 3-pole, MC3 | MC3-XKSA | -500-9 | MC390045 |
| Phase Separator Plate, 3-pole, MC3 | MC3-XKP | - $-\cdots \times 0$ | MC390512 |
| Connection Width Extension 3-pole 630A, MC3 | MC3-XKV70 | -000-9, | MC390514 |
| Box Terminal $300 \mathrm{~mm}^{2} 3$-pole, MC3 | MC3-XK300 |  | MC390782 |
| Connection Terminals max. $22 \times 21 \mathrm{~mm}^{2}$, 3-pole | MC3-XK22X21 |  | MC390784 |
| Tunnel Terminal 3-pole 1x185 $\mathrm{mm}^{2}$ for MC3 | MC3-XKA1 | [000-8, | MC391459 |
| Tunnel Terminal 3-pole $2 \times 240 \mathrm{~mm}^{2}$ for MC3 | MC3-XKA2 | $+00 \%-\infty$ | MC391461 |
| 60 mm Busbar Adapter 630A, 3-pole, MC3 | 32170 | - $-0 \times 0$ | MC391700 |
| Cover for Adapter MC3, 3-pole | MC3-XKR 13 | -50\% | MC391668 |
| Connection cover, knock-out able, 3-pole for MC3 | MC3-XKSFA |  | MC394642 |
| Rear Connection 3-pole, MC3 | MC3-XKR |  | MC396792 |
| Control Circuit Terminal for Screw Connection, MC3/MC4 | MC3/4-XSTS | [-000-9, | MC396797 |
| IP2x Finger Protection for Box Terminal, 3-pole, MC3 | MC3-XIPK | - -1000 | MC396804 |
| IP2x Finger Protection for Terminal Cover, 3-pole, MC3 | MC3-XIPA | -000-9, | MC396808 |
| Phase Separator Plate, 4-pole, MC3 | MC3-4-XKP |  | MC390513 |
| Connection Width Extension 4-pole 630A, MC3 | MC3-4-XKV70 |  | MC390515 |
| Box Terminal $300 \mathrm{~mm}^{2} 4$-pole, MC3 | МСЗ-4-хК300 |  | MC390783 |
| Connection Terminals max. $22 \times 21 \mathrm{~mm}^{2}$, 4 -pole | MC3-XK22X21 |  | MC390785 |
| Tunnel Terminal 4-pole $1 \times 185 \mathrm{~mm}^{2}$ for MC3 | MC3-4-XKA1 |  | MC391460 |
| Tunnel Terminal 4-pole $2 \times 240 \mathrm{~mm}^{2}$ for MC3 | MC3-4-XKA2 | - $-0 \times 0$ | MC391462 |
| Connection cover, knock-out able, 4-pole for MC3 | MC3-4-XKSFA |  | MC394643 |
| Extra Cover for Remote Operator for MC3 4-pole | MC3-XAVPR | -000-6 | MC396678 |
| Screw connection 4-pole for MC3 | MC3-4-XKS |  | MC396780 |
| Box Terminal 4-pole for MC3 | МСЗ-4-ХКС |  | MC396783 |
| Rear Connection 4-pole, MC3 | MC3-4-XKR |  | MC396795 |
| Terminal Cover 4-pole, MC3 | MC3-4-XKSA | - $-0 \times 0$ | MC396801 |
| IP2x Finger Protection for Box Terminal, 4-pole, MC3 | MC3-4-XIPK |  | MC396805 |
| IP2x Finger Protection for Terminal Cover, 4-pole, MC3 | MC3-4-XIPA |  | MC396809 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable, black/grey for MC3 | MC3-XDV | [000-9, | MC390129 |
| Rotary Handle complete, lockable, red/yellow for MC3 | MC3-XDVR |  | MC390140 |
| Door Coupling Rotary Handle, lockable, black/grey, MC3 | MC3-XTVD | [00-9, | MC390170 |
| Door Coupling Rotary Handle, lockable, black/grey 0/1, MC3 | MC3-XTVDV | -00\%-豕 | MC390176 |
| Door Coupling Rotary Handle, lockable, red/yellow, MC3 | MC3-XTVDVR | [0000, | MC390182 |
| Extension Shaft 600mm, MC3/4 | MC3/4-XV6 | -000-m | MC390193 |
| Extension Shaft 400mm, MC3/4 | MC3/4-XV4 | -000-9, | MC391234 |
| Mechanical Interlock for MC3 | MC3-XMV | $+70=0$ | MC391583 |
| Mechanical Interlock for Remote Operator MC3/4 | MC3/4-XMVR | - $-\infty$ | MC394546 |
| Mechanical Interlock for Remote Operator MC3, long | MC3-XMVRL | $+800$ | MC394550 |
| Mechanical Interlock for Remote Operator MC3/4, long | MC3/4-XMVRL |  | MC394551 |

## Load Switches MC

## MCCB MC Size 3 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage release 24V AC for MC2/3 | MC2/3-XU24AC | -000-980 | MC299491 |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 | - -2000 | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 | [-000080 | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | $+50 \div 0$ | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV | - -00000 | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - +000 | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | - | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | -000-9, | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA 130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | - -8000 | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |
| Mechanical Interlock for Remote Operator for MC3 | MC3-XMVR | $+\infty 0$ | MC394545 |
| Remote Operator 24-30V DC for MC3 can be synchronised and interlocked | MC3-XR240DC | -000-9, | MC399854 |
| Remote Operator 48-60V DC for MC3 can be synchronised and interlocked | MC3-XR48-60DC |  | MC399856 |
| Remote Operator 208-240V AC for MC3 can be synchronised and interlocked | MC3-XR208-240AC | $+\infty=0$ | MC399850 |

## Residual current release units and accessories

| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| :---: | :---: | :---: | :---: |
| Earth Leakage Release 0.3A | FIR-0,3 | -000-6, | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | -000-9, | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer $\mathrm{dm}=20 \mathrm{~mm}$ | FIR-WS-20 |  | MC900020 |
| Current Transformer dm $=30 \mathrm{~mm}$ | FIR-WS-30 | - $50-6$ | MC900030 |
| Current Transformer $\mathrm{dm}=35 \mathrm{~mm}$ | FIR-WS-35 | -000, -1 | MC900035 |
| Current Transformer dm $=70 \mathrm{~mm}$ | FIR-W-70 | $+\infty=0$ | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 | -00-0, | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 | $+\infty=\infty$ | MC900140 |
| Current Transformer dm=210mm | FIR-W-210 | -000-0, | MC900210 |
| Current Transformer 70x175mm | FIR-WR-175 | -000-9, | MC910175 |
| Current Transformer $115 \times 305 \mathrm{~mm}$ | FIR-WR-305 |  | MC910305 |
| Current Transformer 150x350mm | FIR-WR-350 |  | MC910350 |


| Auxiliary contacts |  |  |  |
| :---: | :---: | :---: | :---: |
| NO contact block, front montage | M22-K10 | 4-80-9 | MM216376 |
| NC contact block, front montage | M22-K01 | [-000-0.0) | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 | - -10000 | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | -0000000, | MM107899 |
| NO+NC, Cage clamp | M22-CK 11 | $+60 \%-\infty$ | MM107940 |

MCCB MC Size 4-3-pole, 50kA


## Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x In
- Adjustable short circuit release $2-12 \times \ln (2-14 \times \ln )$
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 550A to 1600 A

| Rated current ${ }_{\text {I }}$ | with electronic release unit $630-1600 \mathrm{~A}$ | with delayed electronic release unit 630-1600A | with electronic motor protection $550-1400 \mathrm{~A}$ |
| :---: | :---: | :---: | :---: |
| Rated voltage U | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$. | 0.5-1 $\times 1$ ] | 0.5-1 $\times 1$. |
| Adjustable short circuit release I | $2-12 \times 1$ | $2-12 \times 10$ | $2-14 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cv}} / \mathrm{I}_{\text {cs }}$ |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 50kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 50kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 20kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 37 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 37kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 15 kA |  |
| Ambient temperature (operation) |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations |  | IEC/EN 60947-2, VDE 0660 |  |

MCCB 3-pole MC4..232/MC4..233/MC4.. 237 dimensions

A) Blow out area, minimum distance to other parts $\geq 100 \mathrm{~mm}$ up to $690 \mathrm{~V} ; \geq 200 \mathrm{~mm}$ up to 1000 V
B) Minimum distance to other parts

## Load Switches MC

- MCCB MC Size 4-3-pole, 50kA
$\square$ Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 630 to 1600A with electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 630A | MC4N-AE630 |  | MC463232 |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 800A | MC4N-AE800 |  | MC480232 |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 1000A | MC4N-AE1000 | - $-0 \times 0$ | MC410232 |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 1250A | MC4N-AE1250 | -00\% | MC412232 |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 1600A | MC4N-AE1600 | -00\%-9, | MC416232 |
| 630 to 1600A with delayed electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 630A | MC4N-VE630 |  | MC463233 |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 800A | MC4N-VE800 | -600-n) | MC480233 |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 1000A | MC4N-VE1000 | [-000-6, | MC410233 |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 1250A | MC4N-VE1250 | $+000-\infty$ | MC412233 |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 1600A | MC4N-VE1600 | $+\infty 00$ | MC416233 |
| 550 to 1400A with electronic motor protection |  |  |  |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 550A | MC4N-ME550 |  | MC455237 |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 875A | MC4N-ME875 |  | MC487237 |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 1400A | MC4N-ME1400 |  | MC414237 |

MCCB MC Size 4-3-pole, 85kA

$\square$ Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release 2-12x $\ln (2-14 \times \ln )$
- Box terminals standard, screw connections as option
- Switching capacity 85 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 550A to 1600 A

| Rated current ${ }_{\text {I }}$ | with electronic release unit $630-1600 \mathrm{~A}$ | with delayed electronic release unit $630-1600 \mathrm{~A}$ | with electronic motor protection $550-1400 \mathrm{~A}$ |
| :---: | :---: | :---: | :---: |
| Rated voltage $U_{\text {。 }}$ | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$ | 0.5-1 $\times 1$. | 0.5-1 $\times 1$ |
| Adjustable short circuit release I, | $2-12 \times 1$ | $2-12 \times 1$ | $2-14 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{Icv} / \mathrm{I}_{\mathrm{cs}}$ |  |  |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 125 kA |  |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 85kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 50kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 63kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 43kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 37 kA |  |
| Ambient temperature (operation) |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations |  | IEC/EN 60947-2, VDE 0660 |  |

MCCB 3-pole MC4..332/MC4..333/MC4.. 337 dimensions

A) Blow out area, minimum distance to other parts $\geq 100 \mathrm{~mm}$ up to 690 V ; $\geq 200 \mathrm{~mm}$ up to 1000 V
B) Minimum distance to other parts

## Load Switches MC

- MCCB MC Size 4-3-pole, 85kA
- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 630 to 1600A with electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type AE, 3-pole, 85 kA , 630A | MC4H-AE630 |  | MC463332 |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 800A | MC4H-AE800 | -80-80 | MC480332 |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 1000A | MC4H-AE1000 |  | MC410332 |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 1250A | MC4H-AE 1250 | - -80 | MC412332 |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 1600A | MC4H-AE 1600 | - -7 | MC416332 |
| $\mathbf{6 3 0}$ to 1600A with delayed electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 630A | MC4H-VE630 |  | MC463333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 800A | MC4H-VE800 |  | MC480333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 85 kA , 1000A | MC4H-VE1000 |  | MC410333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 1250A | MC4H-VE 1250 |  | MC412333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 1600A | MC4H-VE 1600 |  | MC416333 |
| 550 to 1400A with electronic motor protection |  |  |  |
| Moulded Case Circuit Breaker type ME, 3-pole, 85kA, 550A | MC4H-ME550 |  | MC455337 |
| Moulded Case Circuit Breaker type ME, 3-pole, 85kA, 875A | MC4H-ME875 |  | MC487337 |
| Moulded Case Circuit Breaker type ME, 3-pole, 85kA, 1400A | MC4H-ME1400 |  | MC414337 |

- MCCB MC Size 4-4-pole, 50kA


MC410243

## Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x In
- Adjustable short circuit release 2-12 $\times \mathrm{ln}$
- Types with reduced neutral conductor-release available
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 800 A to 1600 A

| Rated current $I_{\text {n }}$ | with electronic release unit 800-1600A | with delayed electronic release unit $800-1600 \mathrm{~A}$ |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$ In | 0.5-1 $\times 1$ In |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $2-12 \times 1$ | $2-12 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{I}_{\text {cs }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cv }}$ at $415 \mathrm{~V} \mathrm{50/60Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 37 kA |  |
| $\mathrm{I}_{\text {cs }}$ at 415V 50/60Hz | 37kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 15 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC4..242/MC4..243/MC4..243R dimensions

A) Blow out area, minimum distance to other parts $\geq 100 \mathrm{~mm}$ up to $690 \mathrm{~V} ; \geq 200 \mathrm{~mm}$ up to 1000 V
B) Minimum distance to other parts

Load Switches MC

MCCB MC Size 4- 4-pole, 50kA
Wiring diagram



- MCCB MC Size 4-4-pole, 85kA


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x In
- Adjustable short circuit release 2-12 x In
- Box terminals standard, screw connections as option
- Switching capacity 85 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 800 A to 1600 A

| Rated current ${ }_{\text {I }}$ | with electronic release unit $800-1600 \mathrm{~A}$ | with delayed electronic release unit $800-1600 \mathrm{~A}$ |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690 VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$. | 0.5-1 $\times 1$ |
| Adjustable short circuit release I, | $2-12 \times 1$ | $2-12 \times 1$ |
| Rated short-circuit breaking capacity ${ }_{c c} / I_{c s}$ |  |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 125 kA |  |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{l}_{c v}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 63 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 43kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 37 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC4..342/MC4.. 343 dimensions

A) Blow out area, minimum distance to other parts $\geq 100 \mathrm{~mm}$ up to 690 V ; $\geq 200 \mathrm{~mm}$ up to 1000 V
B) Minimum distance to other parts

Load Switches MC

MCCB MC Size 4- 4-pole, 85 kA
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{8 0 0}$ to 1600A with electronic release unit |  | ORDER NO. |
| Moulded Case Circuit Breaker type AE, 4-pole, 85 kA, 800A | MC4H-4-AE800 |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 85kA, 1000A | MC4H-4-AE1000 |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 85kA, 1250A | MC4H-4-AE1250 | MC410342 |
| Moulded Case Circuit Breaker type AE, 4-pole, 85 kA, 1600A | MC4H-4-AE1600 | MC412342 |
| $\mathbf{8 0 0}$ to 1600A with delayed electronic release unit |  | MC416342 |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 800A | MC4H-4-VE800 | MC4H-4-VE1000 |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 1000A | MC4H-4-VE1250 | MC480343 |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 1250A | MC4H-4-VE1600 | MC410343 |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 1600A |  | MC412343 |

MCCB MC Size 4 - Accessories


MC496614


MC900020
Schrack-Info

- Auxiliary contacts
- Door coupling rotary handles
- Rotary handle
- Terminal covers
- Residual current release
- Remote operator
- Drive-out socket


MC496837


MC496204


MC496685


MC496608


MC900003


MM216376

## Load Switches MC

## MCCB MC Size 4 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Main switch set for MC4 | MC4-XHB |  | MC491779 |
| Main switch set for MC4 with door interlock, Emergency-Stop, red/yellow, for MC4 | MC4-XHBR |  | MC491842 |
| Door Sealing Frame for MC4 | MC4-XBR |  | MC494646 |
| Connecting technic, accessories |  |  |  |
| Connection Width Extension 3-pole 1600A, long, MC4 | MC4-XKV110 | - $-\infty \times 0$ | MC491593 |
| Connection Width Extension 4-pole 1600A, long, MC4 | MC4--4XKV 120 |  | MC491594 |
| Connection Width Extension 4-pole 1600A, MC4 | MC4-4-XKV95 |  | MC496827 |
| Connection cover, knock-out able, 3-pole for MC4 | MC4-XKSFA |  | MC492193 |
| Connection cover, knock-out able, 4-pole for MC4 | MC4-4-XKSFA |  | MC492194 |
| Connection Extension 3-pole 1600A, MC4 | MC4-XKM2S-1600 | -600-0 | MC494473 |
| Connection Extension 4-pole 1600A, MC4 | MC4-4-XKM2S-1600 |  | MC494474 |
| Module Plate 1 hole, MC4, 3-pole | MC4-XKM 1 | - $+0 \times 0$ | MC496814 |
| Module Plate 2 hole, MC4, 3-pole | MC4-XKM2 |  | MC496820 |
| Module Plate 1 hole, MC4, 4-pole | MC4-4-XKM 1 |  | MC496815 |
| Module Plate 2 hole, MC4, 4-pole | MC4-4-XKM2 |  | MC496821 |
| Connection Width Extension 3-pole 1600A, MC4 | MC4-XKS4 |  | MC496826 |
| Flat Conductor Terminal 3-pole, MC4 | MC4-XKB | -000-0, | MC496829 |
| Flat Conductor Terminal 4-pole, MC4 | MC4-4-XKB |  | MC496831 |
| Tunnel Terminal 3-pole, $4 \times 240 \mathrm{~mm}^{2}$ for MC4 | MC4-XKA |  | MC496836 |
| Tunnel Terminal 4-pole, $4 \times 240 \mathrm{~mm}^{2}$ for MC4 | MC4-4-XKA | -000-0, | MC496837 |
| Rear Connection 3-pole, MC4 | MC4-XKR |  | MC496842 |
| Rear Connection 4-pole, MC4 | MC4-4-XKR |  | MC496843 |
| Terminal Cover 3-pole, MC4 | MC4-XKC | - $-\infty \times 0$ | MC496846 |
| Terminal Cover 3-pole, MC4 | MC4-4-XKSA |  | MC496847 |
| Phase separator plates for MC4, 3-pole | MC4-XKP | - -0.0 | MC496873 |
| Phase separator plates for MC4, 4-pole | MC4-4-XKP |  | MC496874 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Mechanical Interlock for MC4 | MC4-XMV | - $-60-0$ | MC491584 |
| Mechanical Interlock for Remote Operator for MC4 | MC4-XMVR | - $-0 \times 0$ | MC494547 |
| Mechanical Interlock for Remote Operator for MC4, long | MC4-XMVRL |  | MC494552 |
| Rotary handle direct, lockable, black/grey | MC4-XDV | -000-0, | MC496608 |
| Rotary handle direct, lockable, red/yellow | MC4-XDVR |  | MC496610 |
| Door coupling rotary handle, lockable, black/grey | MC4-XTVD |  | MC496614 |
| Door coupling rotary handle, $2 \times$ lockable, black/grey | MC4-XTVDV | - $000-0$ | MC496616 |
| Door coupling rotary handle, $2 \times$ lockable, red/yellow | MC4-XTVDVR | - 00000 | MC496618 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage Release 24VAC for MC4 | MC4-XU24AC | - $-0 \times 0$ | MC496189 |
| Undervoltage Release 110-130VAC for MC4 | MC4-XU110-130AC |  | MC496192 |
| Undervoltage Release 208-240VAC for MC4 | MC4-XU208-240AC |  | MC496193 |
| Undervoltage Release 380-440VAC for MC4 | MC4-XU380-440AC |  | MC496194 |
| Undervoltage Release 24VDC for MC4 | MC4-XU24DC | -000-0.0) | MC496204 |
| Undervoltage Release 220-250VDC for MC4 | MC4-XU220-250DC |  | MC496208 |
| Undervoltage Release with 2 early make contacts, 230VAC, MC4 | MC4-XUHIV208-240 |  | MC496221 |
| Undervoltage Release with 2 early make contacts, 400VAC, MC4 | MC4-XUHIV380-440 |  | MC496222 |
| Undervoltage release for time-delay unit, for MC4 | MC4-XUV |  | MC496588 |
| Shunt trip 24 VAC/DC for MC4 | MC4-XA24AC/DC | - $+0 \times 0$ | MC496447 |
| Shunt trip 110-130V AC/DC for MC4 | MC4-XA 110-130AC/DC |  | MC496450 |
| Shunt trip 208-250V AC/DC for MC4 | MC4-XA208-250AC/DC | - $-\infty \times-\infty$ | MC496451 |
| Shunt trip with early make contact 24VAC/DC for MC4 | MC4-XAVHI24AC/DC |  | MC496471 |
| Shunt trip with early make contact 230VAC/DC for MC4 | MC4-XAVHI230AC/DC |  | MC496475 |

[^4]MCCB MC Size 4 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Early-Make auxiliary contact, MC4 | MC4-XHIV |  | MC496172 |
| Remote Operator 24-30V DC for MC4, can be synchronised and interlocked | MC4-XR240DC |  | MC496686 |
| Remote Operator 48-60V DC for MC4, can be synchronised and interlocked | MC4-XR48-60DC | [-000] | MC496687 |
| Remote Operator 208-240V AC for MC4, can be synchronised and interlocked | MC4-XR208-240AC |  | MC496685 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 | - $-\infty \times 0$ | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | -000-6 | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer dm=20mm | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer $\mathrm{dm}=35 \mathrm{~mm}$ | FIR-WS-35 | -000-n | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 |  | MC900070 |
| Current Transformer dm $=105 \mathrm{~mm}$ | FIR-W-105 | $+\infty 0 \div 0$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 |  | MC900140 |
| Current Transformer $\mathrm{dm}=210 \mathrm{~mm}$ | FIR-W-210 | $+600 \%-\infty$ | MC900210 |
| Current Transformer 70x175mm | FIR-WR-175 | $0 \times 0$ | MC910175 |
| Current Transformer $115 \times 305 \mathrm{~mm}$ | FIR-WR-305 |  | MC910305 |
| Current Transformer 150x350mm | FIR-WR-350 |  | MC910350 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 | - $-\infty \times 0$ | MM216376 |
| NC contact block, front montage | M22-K01 | $+\infty=0-\infty$ | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 |  | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $+5006$ | MM107899 |
| NO+NC, Cage clamp | M22-CK11 | - | MM107940 |

Load Switches MC

Load Switches MC, fix installed


MC163034



MC363035


MC412045

- Load break switches type MC, size 1-4, 3 or 4-poles, 63-1600A, fix installed
$\square$ Load Switches MC Size 1-3-pole

- Schrack-Info
- Load-Break Switches without release unit
- Fitted with box-terminals, screw-connections as option
- Types for remote release are retrofit able with auxiliary contacts, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=2,8 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 63 A to 160 A
\(\left.\begin{array}{l|c}Rated current I_{n} \& without thermomagnetic release unit <br>

63-160 \mathrm{~A}\end{array}\right]\)| 440 VAC |
| :--- |
| Rated voltage $U_{\text {e }}$ |
| Rated short-circuit making capacity |
| $\boldsymbol{I}_{\mathrm{cm}}$ at $\mathbf{4 1 5 \mathrm { V } 5 0 / 6 0 \mathrm { Hz }}$ |
| Ambient temperature (operation) |
| Mounting position |
| Standards and regulations |

Load Switches MC Size 1-3-pole
Load Switch 3-pole MC 1..034/MC1.. 035 dimensions

A) Blow out area, minimum distance to other parts

Wiring diagram

DESCRIPTION $\quad$ TYPE NO. AVAILABLE ORDER NO.

63 to 160A - Load Switches, not remote releasable

| Switch Disconnector, 3-pole, 63A | MC1-PN-63 | -000-6 | MC163034 |
| :---: | :---: | :---: | :---: |
| Switch Disconnector, 3-pole, 100A | MC1-PN-100 | - $+\cdots-{ }^{0}$ | MC110034 |
| Switch Disconnector, 3-pole, 125A | MC1-PN-125 |  | MC112034 |
| Switch Disconnector, 3-pole, 160A | MC1-PN-160 | $\begin{array}{\|cc\|} \hline-\infty 0 & -\infty \\ \hline \end{array}$ | MC116034 |
| 63 to 160A - Load Switches, remote releasable |  |  |  |
| Switch Disconnector, 3-pole, 63A for remote operation | MC1-N-63 |  | MC163035 |
| Switch Disconnector, 3-pole, 100A for remote operation | MC1-N-100 | -000-0, | MC110035 |
| Switch Disconnector, 3-pole, 125A for remote operation | MC1-N-125 | $\begin{array}{r} -\infty 0 \\ \hline 00 \\ \hline \end{array}$ | MC112035 |
| Switch Disconnector, 3-pole, 160A for remote operation | MC1-N-160 | - $+0 \times 0$ | MC116035 |

Load Switches MC

## Load Switches MC Size 1-4-pole



MC112044

Schrack-Info

- Load-Break Switches without release unit
- Fitted with box-terminals, screw-connections as option
- Types for remote release are retrofit able with auxiliary contacts, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=2,8 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 63 A to 160 A

|  | without thermomagnetic release unit <br> Rated current $I_{n}$ |
| :--- | :---: |
| Rated voltage $U_{e}$ | 440 VAC |
| Rated short-circuit making capacity | $\mathbf{2 . 8 k A}$ |
| $\mathbf{I}_{\mathrm{cm}}$ at 415V 50/60Hz | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Ambient temperature (operation) | vertical and $90^{\circ}$ in all directions |
| Mounting position | IEC/EN $60947-3$ |
| Standards and regulations |  |

Load Switch 4-pole MC 1..044/MC $1 . .045$ dimensions

A) Blow out area, minimum distance to other parts

## Load Switches MC Size 1-4-pole

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 63 to 160A - Load Switches, not remote releasable |  |  |  |
| Switch Disconnector, 4-pole, 63A | MC1-PN-4-63 |  | MC163044 |
| Switch Disconnector, 4-pole, 100A | MC1-PN-4-100 | -000-90000 | MC110044 |
| Switch Disconnector, 4-pole, 125A | MC1-PN-4-125 | -000-0, | MC112044 |
| Switch Disconnector, 4-pole, 160A | MC1-PN-4-160 |  | MC116044 |
| 63 to 125A - Load Switches, remote releasable |  |  |  |
| Switch Disconnector, 4-pole, 63A for remote operation | MC1-N-4-63 |  | MC163045 |
| Switch Disconnector, 4-pole, 100A for remote operation | MC1-N-4-100 | -000-9, | MC110045 |
| Switch Disconnector, 4-pole, 125A for remote operation | MC1-N-4-125 | -00\% | MC112045 |

Load Switches MC

L Load Switches MC Size 1-Accessories


- Auxiliary contacts
- Door couplings
- Rotary handles
- Terminal covers
- Tunnel terminals


## Load Switches MC Size 1 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Door Sealing Frame for MC1 | MC1-XBR |  | MC190195 |
| Toggle Lever Locking Device for MC1 | MCI-XKAV |  | MC190199 |
| Spacer, MCl/2 | MC1/2-XAB | [-000-9, | MC190203 |
| Clip Plate 25 mm for MCl | MC1-XC35 | - -1000 | MC190213 |
| Main switch set for MC1 with door interlock, black/grey, MC1 | MC1-XHB |  | MC196626 |
| Main switch set for MC1 with door interlock, red/yellow, MC1 | MC1-XHBR | - -00000 | MC196632 |
| Early make auxiliary contact, MCl | MC1-XHIVL | - -0.0 | MC199432 |
| Connecting technic, accessories |  |  |  |
| Box Terminal 3-pole for MC1 | MC1-XKC |  | MC190015 |
| Screw Terminal 3-pole for MC1 | MC1-XKS | -60-6 | MC190019 |
| Terminal Cover 3-pole, MC1 | MC1-XKSA |  | MC190021 |
| Control Circuit Terminal for Screw Connection, MCI | MCI-XSTS |  | MC190150 |
| Terminal Cover 3-pole, MC1 | MCI-XKSFA | [-000-9, | MC190780 |
| Terminal Cover 4-pole, MC1 | MC1-4-XKSFA |  | MC190781 |
| 60 mm Busbar Adapter 160A, 3-pole, MC1 | 32570 | - -10000 | MC195700 |
| Phase separator plates for MC1, 3-pole | MC1-XKP |  | MC196609 |
| Screw Terminal 4-pole for MC1 | MC1-4-XKS |  | MC196725 |
| Tunnel Terminal 90mm², 3-pole for MC1 | MC1-XKA | [-000 | MC196730 |
| Tunnel Terminal $95 \mathrm{~mm}^{2}$, 4-pole for MC1 | MC1-4-XKA | - $-0 \times 0$ | MC196731 |
| Rear Connection 3-pole, MC1 | MC1-XKR |  | MC196734 |
| Control Circuit Terminal, MC1-4 | MCI-XSTK | -000-9, | MC196739 |
| Terminal Cover 4-pole, MC1 | MC1-4-XKSA |  | MC196741 |
| IP2x finger protection for box terminal, 3-pole, MC1 | MC1-XIPK | - $-\cdots \times 0$ | MC196744 |
| IP2X protection for terminal cover MC1, 3-pole | MC1-XIPA |  | MC196748 |
| IP2X finger protection for terminal cover, 4-pole, MC1 | MC1-4-XIPA |  | MC196749 |
| Phase separator plates for $\mathrm{MCl}, 4$-pole | MC1-4-XKP |  | MC196870 |
| Box Terminal 4-pole for MC1 | MC1-4-XKC |  | MC197075 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable for MC1 | MC1-XDV |  | MC190125 |
| Rotary Handle with door interlock, black/grey | MCI-XTVD |  | MC190131 |
| Rotary Handle red/yellow lockable for MC1 | MC1-XDVR | [000-0, | MC190135 |
| Rotary Handle Emergency-Stop with door interlock | MC1-XTVDR |  | MC190142 |
| Door Coupling Rotary Handle, lockable, black/grey, MC1 | MC1-XTVD | - $-\infty \times 0$ | MC190166 |
| Door Coupling Rotary Handle, lockable, MC1 | MC1-XTVDV | -000-9 | MC190172 |
| Door Coupling Rotary Handle, lockable, red/yellow, MC1 | MCI-XTVDVR | [-000-0, | MC190178 |
| Extension Shaft 600mm, MCl/2 | MC1/2-XV6 | $+\infty=0$ | MC190191 |
| Extension Shaft $400 \mathrm{~mm}, \mathrm{MCl} / 2$ | MC1/2-XV4 | - -0.0 | MC191232 |
| Door coupling for MC1 60 mm | MC1-XTVDVR-60 |  | MC191512 |
| Mechanical Interlock for MC1 | MCI-XMV |  | MC191581 |

Undervoltage release units, shunt-trips and accessories

| Undervoltage Release 24VAC for MC1, included 3m cable | MC1-XUL24AC |  | MC199462 |
| :---: | :---: | :---: | :---: |
| Undervoltage Release 208-240VAC for MC1, included 3m cable | MC1-XUL208-240 | -000000 | MC199471 |
| Undervoltage Release 380-440VAC for MC1, included 3m cable | MC1-XUL380-440 |  | MC199473 |
| Undervoltage Release 24VDC for MCl , included 3m cable | MC1-XUL24DC | - $-\infty$ | MC199481 |
| Undervoltage Release 220-250VDC for $\mathrm{MC1}$, included 3m cable | MC1-XUL220-250 |  | MC199489 |
| Undervoltage Release with 2 early make Contacts, 230VAC, MC1 | MC1-XUHIV208-240 | -600-6 | MC199565 |
| Undervoltage Release with 2 early make Contacts, 400VAC, MC1 | MC1-XUHIV380-440 |  | MC199567 |
| Time-delay unit for MC1-MC4 | MC-UVU | $+\infty 0=0$ | MC190154 |
| Undervoltage Release for time-delay unit, MC1 | MC1-XUVL |  | MC191607 |
| Shunt trip 24V AC/DC with 3 m cable for MC1 | MC1-XAL24VAC/DC | $+60 \div 0$ | MC199736 |

Load Switches MC

Load Switches MC Size 1 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Undervoltage release units, shunt-trips and accessories |  |  |  |
| Shunt trip 115V AC/DC with 3 m cable for MC1 | MC1-XALIIO-130 |  | MC199742 |
| Shunt trip 208-250V AC/DC with 3m cable for MC1 | MC1-XAL208-250 | -600-6) | MC199744 |
| Shunt trip 24V AC/DC with 1 early make auxiliary contact and 3m cable for MC1 | MC1-XAHIVL24 |  | MC199792 |
| Shunt trip 230V AC/DC with 1 early make auxiliary contact and 3m cable for MC1 | MC1-XAHIVL208-250 |  | MC199800 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release, right hand mounting, 3-pole $30 \mathrm{~mA}, \mathrm{MC1}$ | MC1-XFI30R |  | MC194603 |
| Earth Leakage Release, right hand mounting, 3-pole $300 \mathrm{~mA}, \mathrm{MCl}$ | MC1-XFI300R |  | MC194604 |
| Earth Leakage Release, right hand mounting, 3-pole up to 3A, MC1 | MC1-XFIR | - | MC194605 |
| Earth Leakage Release, bottom mounting, 3-pole $30 \mathrm{~mA}, \mathrm{MCl}$ | MC1-XFI3OU |  | MC194609 |
| Earth Leakage Release, bottom mounting, 3-pole $300 \mathrm{~mA}, \mathrm{MCl}$ | MC1-XFI300U |  | MC194610 |
| Earth Leakage Release, right hand mounting, 4-pole $30 \mathrm{~mA}, \mathrm{MC} 2$ | MC1-4-XFI30R |  | MC194606 |
| Earth Leakage Release, right hand mounting, 4-pole $300 \mathrm{~mA}, \mathrm{MC1}$ | MC1-4-XFI300R |  | MC194607 |
| Earth Leakage Release, right hand mounting, 4-pole up to 3A, MC1 | MC1-4-XFIR | -80008 | MC194608 |
| Earth Leakage Release, bottom mounting, 4-pole $30 \mathrm{~mA}, \mathrm{MCl}$ | MC1-4-XFI3OU |  | MC194612 |
| Earth Leakage Release, bottom mounting, 4-pole 300 mA , MC1 | MC1-4-XFI300U |  | MC194613 |
| Earth Leakage Release, bottom mounting, 4-pole up to 3A, MC1 | MC1-4-XFIU | $+\infty=\infty$ | MC194614 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 | $+\infty=-\infty$ | MM216376 |
| NC contact block, front montage | M22-K01 | -000-6) | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 | $+\infty=0$ | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $+\infty=0$ | MM107899 |
| $\underline{\mathrm{NO}+\mathrm{NC}, \text { Cage clamp }}$ | M22-CK 11 | $+\infty=-\frac{1}{0}$ | MM107940 |

## Load Switches MC Size 2-3-pole


$\square$ Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections, box-terminals as option
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=5,5 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current $=$ rated current 160 A to 250 A
\(\left.\begin{array}{l|c}Rated current I_{n} \& without thermomagnetic release unit <br>

160-250 \mathrm{~A}\end{array}\right]\)| Rated voltage $U_{e}$ |
| :--- |
| Rated short-circuit making capacity |
| $\mathbf{I}_{\mathrm{cm}}$ at 415V 50/60Hz |
| Ambient temperature (operation) |
| Mounting position |
| Standards and regulations |

Load Switch 3-pole MC2..034/MC2.. 035 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

Load Switches MC Size 2-3-pole
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 160 to 250A - Load Switches, not remote releasable |  |  |  |
| Switch Disconnector, 3-pole, 160A | MC2-PN-160 |  | MC216034 |
| Switch Disconnector, 3-pole, 200A | MC2-PN-200 | -000-0, | MC220034 |
| Switch Disconnector, 3-pole, 250A | MC2-PN-250 |  | MC225034 |
| 160 to 250A - Load Switches, remote releasable |  |  |  |
| Switch Disconnector, 3-pole, 160A for remote operation | MC2-N-160 |  | MC216035 |
| Switch Disconnector, 3-pole, 200A for remote operation | MC2-N-200 | $+\infty=0$ | MC220035 |
| Switch Disconnector, 3-pole, 250A for remote operation | MC2-N-250 | $0 \times 0$ | MC225035 |

Load Switches MC Size 2-4-pole


Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections, box-terminals as option
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=5,5 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 160 A to 250 A
\(\left.\begin{array}{l|c}Rated current I_{n} \& without thermomagnetic release unit <br>

160-250 \mathrm{~A}\end{array}\right]\)| Rated voltage $U_{e}$ |
| :--- |
| Rated short-circuit making capacity |
| $\mathbf{I}_{\mathrm{cm}}$ at 415V 50/60Hz |
| Ambient temperature (operation) |
| Mounting position |
| Standards and regulations |

Load Switch 4-pole MC2..044/MC2.. 045 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

Load Switches MC Size 2-4-pole

- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 160 to 250A - Load Switches, not remote releasable |  |  |  |
| Switch Disconnector, 4-pole, 160A | MC2-PN-4-160 |  | MC216044 |
| Switch Disconnector, 4-pole, 200A | MC2-PN-4-200 |  | MC220044 |
| Switch Disconnector, 4-pole, 250A | MC2-PN-4-250 | - $-0 \times 0$ | MC225044 |
| 160 to 250A - Load Switches, remote releasable |  |  |  |
| Switch Disconnector, 4-pole, 160A for remote operation | MC2-N-4-160 | - -60 | MC216045 |
| Switch Disconnector, 4-pole, 200A for remote operation | MC2-N-4-200 |  | MC220045 |
| Switch Disconnector, 4-pole, 250A for remote operation | MC2-N-4-250 | [-000-80 | MC225045 |

Load Switches MC Size 2 - Accessories


MC296720V2


MC296872


MC290201


MC290032


MC299832


MC290038


MC290137



MC294640


MC191585


MM 107899

- Auxiliary contacts
- Door couplings
- Rotary handles and plug in sockets
- Terminal covers
- Residual current release
- Remote operator

Load Switches MC

Load Switches MC Size 2 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Toggle Lever Locking Device for MC2 | MC2/3-XKAV | -80000 | MC290201 |
| Clip Plate 75 mm for MC2 | MC2-XC75 |  | MC290215 |
| Main switch set with door interlock, black/grey, MC2 | MC2-XHB |  | MC296627 |
| Main switch set with door interlock, red/yellow, MC2 | MC2-XHBR |  | MC296633 |
| Early make auxiliary contact, MC2/3 | MC2/3-XHIV | - $-\times 0$ | MC299430 |
| Connecting technic, accessories |  |  |  |
| Terminal Cover 3-pole, MC2 | MC2-XKSA | [-0\% -6 | MC290038 |
| 60 mm Busbar Adapter 250A, 3-pole, MC2 | 32140 | $+500-6$ | MC291400 |
| Cover for Adapter MC2, 3-pole | MC2-XKR4 | [00-9, | MC291666V2 |
| Extra Cover for Remote Operator for MC2 4-pole | MC2-XAVPR | -5000 | MC296677 |
| Control Circuit Terminal for screw connection, MC2 | MC2-XSTS | -0000] | MC290156 |
| Door Sealing Frame for MC2 | MC2-XBR |  | MC290197 |
| Tunnel Terminal $185 \mathrm{~mm}^{2}$, 3-pole for MC2 | MC2-XKA | - -0.9 | MC291457 |
| Tunnel Terminal $1 \times 185 \mathrm{~mm}^{2}$, 4-pole for MC2 | MC2-4-XKA | - -60 | MC291458 |
| Box Terminal 160A for MC2 (3 pcs.) | MC2-160-XKC |  | MC292240 |
| Box Terminal 250A for MC2 (3 pcs.) | MC2-250-XKC | - -0000 | MC292244 |
| Box Terminal 160A for MC2 (4 pcs.) | MC2-4-160-XKC | - -0000 | MC296755 |
| Box Terminal 250A for MC2-4 (4 pcs.) | MC2-4-250-XKC | - -6000 | MC296756 |
| Connection Cover 3-pole, MC2 | MC2-XKSFA | -80-9, | MC294640 |
| Connection Cover 4-pole, MC2 | MC2-4-XKSFA | -50000) | MC294641 |
| Rear Connection 3-pole, MC2 | MC2-XKR |  | MC296765 |
| Rear Connection 4-pole, MC2 | MC2-4-XKR |  | MC296768 |
| Phase separator plates for MC2, 3-pole | MC2-XKP |  | MC296871 |
| Phase separator plates for MC2, 4-pole | MC2-4-XKP |  | MC296872 |
| Cable Lug $95 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS95 | [-0008 | MC299775 |
| Cable Lug $120 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS 120 | $+\infty=-\infty$ | MC299776 |
| Cable Lug $150 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS 150 | -000-9, | MC299777 |
| Cable Lug $185 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS 185 | - $+\cdots 0$ | MC290032 |
| Screw Terminal 3-pole for MC2 | MC2-XKS |  | MC290030 |
| Screw Terminal 4-pole for MC2 | MC2-4-XKS |  | MC296750 |
| Terminal Cover 4-pole, MC2 | MC2-4-XKSA | - -200 | MC296770 |
| IP2x finger protection for terminal cover, 3-pole, MC2 | MC2-XIPA |  | MC296777 |
| IP2x-protection cover for terminals, 3-pole, for MC2 | MC2-XIPK | -000-98) | MC296773 |
| IP2x-protection cover for terminals, 4-pole, for MC2 | MC2-4-XIPK |  | MC296774 |
| IP2x finger protection for terminal cover, 4-pole, MC2 | MC2-4-XIPA |  | MC296778 |
| Control Circuit Unit for auxiliary contact, MC1/2, MC1/2-N | MC2-XSVHI |  | MC296705 |
| Control Circuit Unit for remote operator | MC2-XSVR |  | MC296706 |

## Rotary handles, door coupling handles, accessories

| Rotary Handle complete, lockable for MC2 | MC2-XDV | -000-9000, | MC290127 |
| :---: | :---: | :---: | :---: |
| Rotary Handle with door interlock, black/grey for MC2 | MC2-XDTV |  | MC290133 |
| Rotary Handle red/yellow lockable | MC2-XDVR |  | MC290137 |
| Rotary Handle emergency stop with door interlock | MC2-XDTVR |  | MC290144 |
| Door Coupling Rotary Handle, lockable, black/grey, MC2 | MC2-XTVD | - $-0 \times 0$ | MC290168 |
| Door Coupling Rotary Handle, lockable, black/grey 0/1, MC2 | MC2-XTVDV | $+\infty=0$ | MC290174 |
| Door Coupling Rotary Handle, lockable, red/yellow, MC2 | MC2-XTVDVR | $0 \times 0$ | MC290180 |
| Mechanical Interlock for MC2 | MC2-XMV | - -1000 | MC291582 |
| Mechanical Interlock for Remote Operator for MC2 | MC2-XMVR | $+\infty=\infty$ | MC294543 |
| Mechanical Interlock for Remote Operator for MC2/3 | MC2/3-XMVR | - $-\times-\frac{1}{40}$ | MC294544 |
| Mechanical Interlock for Remote Operator for MC2, long | MC2-XMVRL | $+5000$ | MC294548 |
| Mechanical Interlock for Remote Operator for MC2/3, long | MC2/3-XMVRL |  | MC294549 |

[^5]Load Switches MC Size 2 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Extension Shaft $600 \mathrm{~mm}, \mathrm{MCl} / 2$ | $\mathrm{MCl} / 2-\mathrm{XV} 6$ |  | MC190191 |
| Spacer, MCl/2 | MC1/2-XAB |  | MC190203 |
| Extension Shaft 400mm, MCl/2 | MC1/2-XV4 |  | MC191232 |
| Door coupling for MC2 60 mm | MC2-XTVDVR-60 |  | MC191513 |
| Bowden Cable 225 mm | MC-XBZ225 |  | MC191585 |
| Bowden Cable 600mm | MC-XBZ600 | $+\infty 0=0$ | MC191586 |
| Bowden Cable 1000 mm | MC-XBZ1000 |  | MC191587 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage release 24V AC for MC2/3 | MC2/3-XU24AC |  | MC299491 |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 | -600-6 | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 |  | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC |  | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV |  | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - -80 | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | $+\infty 0-\infty$ | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | - -000 | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | - -1000 | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |
| Remote Operator 24-30V DC for MC2 can be synchronised and interlocked | MC2-XR240DC | - $-60-5$ | MC299836 |
| Remote Operator 24-30V DC for MC2 can not be synchronised and interlocked | MC2-XRD240DC | [00-7 | MC299837 |
| Remote Operator 48-60V DC for MC2 can be synchronised and interlocked | MC2-XR48-60DC | $+\quad+\infty 0$ | MC299838 |
| Remote Operator 208-240V AC for MC2 can be synchronised and interlocked | MC2-XR208-240AC |  | MC299832 |
| Remote Operator 208-240V AC for MC2 can not be synchronised and interlocked | MC2-XRD208-240A | $\begin{aligned} &-\infty \sigma-\infty \\ & \hline \end{aligned}$ | MC299833 |
| Residual current release units and accessories |  |  |  |
| RCD 4-pole for MC2, 30mA, pulse current sensitivity version 2 | MC2-4-XFI30 V2 |  | MC296719V2 |
| RCD 4-pole for MC2, 0.1-1A, pulse current sensitivity version 2 | MC2-4-XFI | [-0000] | MC296720V2 |
| RCD 4-pole for MC2, 30mA, AC/DC current sensitivity version 2 | MC2-4-XFIA30 V2 | -moner | MC292345V2 |
| RCD 4-pole for MC2, 0.3-1A, AC/DC current sensitivity version 2 | MC2-4-XFIA V2 | -0000, | MC292346V2 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 |  | MM216376 |
| NC contact block, front montage | M22-K01 | $\begin{array}{rrrr} \hline-80 & 0-\infty \\ \hline \end{array}$ | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 |  | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $+\infty=\sigma$ | MM107899 |
| NO+NC, Cage clamp | M22-CK 11 | -600-9 | MM107940 |

Load Switches MC

## Load Switches MC Size 3-3-pole



MC340034

Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections, box-terminals as option
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=25 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current $=$ rated current 400 A to 630 A
\(\left.$$
\begin{array}{l|c} & \begin{array}{c}\text { without thermomagnetic release unit } \\
\text { Rated current } I_{n}\end{array}
$$ <br>

\hline Rated voltage U_{e} \& 400-630 \mathrm{~A}\end{array}\right]\)| Rated short-circuit making capacity |
| :--- |

Load Switch 3-pole MC3..034/MC3.. 035 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC Size 3-3-pole
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 400 to 630A - Load Switches, not remote releasable |  |  |  |
| Switch Disconnector, 3-pole, 400A | MC3-PN-400 |  | MC340034 |
| Switch Disconnector, 3-pole, 630A | MC3-PN-630 | - -1000 | MC363034 |
| 400 to 630A - Load Switches, remote releasable |  |  |  |
| Switch Disconnector, 3-pole, 400A for remote operation | MC3-N-400 | $+\infty=0$ | MC340035 |
| Switch Disconnector, 3-pole, 630A for remote operation | MC3-N-630 | -000-0 | MC363035 |

Load Switches MC

Load Switches MC Size 3-4-pole


MC340045

Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections, box-terminals as option
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=25 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 400 A to 630 A
\(\left.$$
\begin{array}{l|c} & \begin{array}{c}\text { without thermomagnetic release unit } \\
\text { Rated current } I_{n}\end{array}
$$ <br>

\hline Rated voltage U_{e} \& 400-630 \mathrm{~A}\end{array}\right]\)| Rated short-circuit making capacity |
| :--- |

Load Switch 4-pole MC3..044/MC3.. 045 dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC Size 3-4-pole
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 400 to 630A - Load Switches, not remote releasable |  |  |  |
| Switch Disconnector, 4-pole, 400A | MC3-PN-4-400 |  | MC340044 |
| Switch Disconnector, 4-pole, 630A | MC3-PN-4-630 |  | MC363044 |
| 400 to 630A - Load Switches, remote releasable |  |  |  |
| Switch Disconnector, 4-pole, 400A for remote operation | MC3-N-4-400 | $+50-\infty$ | MC340045 |
| Switch Disconnector, 4-pole, 630A for remote operation | MC3-N-4-630 | -8000) | MC363045 |

Load Switches MC

Load Switches MC Size 3 - Accessories


MC390211

> MC390042

MC390140
MC391700


MC391668


MC394545


MM107899

## Schrack-Info

- Auxiliary contacts
- Door couplings
- Rotary handles and plug in sockets
- Terminal covers
- Residual current release
- Remote operator


## Load Switches MC Size 3 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| General accessories |  |  |
| Spacer, MC3 | MC3-XAB | MC3-XBR |
| Door Sealing Frame for MC3 | MC3-XHB | MC390211 |
| Main switch set with door interlock, black/grey, MC3 | MC3-XHBR | MC394645 |
| Main switch set with door interlock, red/yellow, MC3 | MC2/3-XHIV | MC396628 |
| Early make auxiliary contact, MC2/3 | MC396634 |  |

Connecting technic, accessories

| Screw connection 3-pole for MC3 | MC3-XKS |  | MC390039 |
| :---: | :---: | :---: | :---: |
| Cable Lug 185mm² MC3 | MC3-XKS 185 | - $700-5$ | MC390040 |
| Cable Lug $240 \mathrm{~mm}^{2}$ MC3 | MC3-XKS240 | [-000-000, | MC390041 |
| Box Terminal 3-pole for MC3 | MC3-XKC |  | MC390042 |
| Terminal Cover 3-pole, MC3 | МСЗ-XKSA |  | MC390045 |
| Phase Separator Plate, 3-pole, MC3 | МСЗ-XKP | [morer | MC390512 |
| Connection Width Extension 3-pole 630A, MC3 | MC3-XKV70 | - $0 \times 0$ | MC390514 |
| Box Terminal $300 \mathrm{~mm}^{2} 3$-pole, MC3 | МСЗ-ХK300 |  | MC390782 |
| Connection Terminals max. $22 \times 21 \mathrm{~mm}^{2}$, 3-pole | MC3-XK22X21 |  | MC390784 |
| Tunnel Terminal 3-pole $1 \times 185 \mathrm{~mm}^{2}$ for MC3 | МСЗ-XKA1 | - $-80-0$ | MC391459 |
| Tunnel Terminal 3-pole $2 \times 240 \mathrm{~mm}^{2}$ for MC3 | МСЗ-XKA2 | $\underline{-500} 0$ | MC391461 |
| 60mm Busbar Adapter 630A, 3-pole, MC3 | 32170 |  | MC391700 |
| Cover for Adapter MC3, 3-pole | MC3-XKR 13 | $0 \times 0$ | MC391668 |
| Connection cover, knock-out able, 3-pole for MC3 | MC3-XKSFA |  | MC394642 |
| Rear Connection 3-pole, MC3 | MC3-XKR |  | MC396792 |
| Control Circuit Terminal for Screw Connection, MC3/MC4 | MC3/4-XSTS | [-000-6 | MC396797 |
| IP2x Finger Protection for Box Terminal, 3-pole, MC3 | MC3-XIPK | [00-7, | MC396804 |
| IP2x Finger Protection for Terminal Cover, 3-pole, MC3 | MC3-XIPA | $+50$ | MC396808 |
| Phase Separator Plate, 4-pole, MC3 | MC3-4-XKP |  | MC390513 |
| Connection Width Extension 4-pole 630A, MC3 | MC3-4-XKV70 |  | MC390515 |
| Box Terminal $300 \mathrm{~mm}^{2} 4$-pole, MC3 | MC3-4-XK300 |  | MC390783 |
| Connection Terminals max. $22 \times 21 \mathrm{~mm}^{2}$, 4 -pole | MC3-XK22X21 |  | MC390785 |
| Tunnel Terminal 4-pole $1 \times 185 \mathrm{~mm}^{2}$ for MC3 | MC3-4-XKA1 |  | MC391460 |
| Tunnel Terminal 4-pole $2 \times 240 \mathrm{~mm}^{2}$ for MC3 | MC3-4-XKA2 | - $-\infty \times 1$ | MC391462 |
| Connection cover, knock-out able, 4-pole for MC3 | MC3-4-XKSFA |  | MC394643 |
| Extra Cover for Remote Operator for MC3 4-pole | MC3-XAVPR | $+\infty=0$ | MC396678 |
| Screw connection 4-pole for MC3 | MC3-4-XKS |  | MC396780 |
| Box Terminal 4-pole for MC3 | MC3-4-XKC |  | MC396783 |
| Rear Connection 4-pole, MC3 | MC3-4-XKR |  | MC396795 |
| Terminal Cover 4-pole, MC3 | MC3-4-XKSA |  | MC396801 |
| IP2x Finger Protection for Box Terminal, 4-pole, MC3 | MC3-4-XIPK |  | MC396805 |
| IP2x Finger Protection for Terminal Cover, 4-pole, MC3 | MC3-4-XIPA |  | MC396809 |

## Rotary handles, door coupling handles, accessories

| Rotary Handle complete, lockable, black/grey for MC3 | MC3-XDV |  | MC390129 |
| :---: | :---: | :---: | :---: |
| Rotary Handle complete, lockable, red/yellow for MC3 | MC3-XDVR | -000-0, | MC390140 |
| Door Coupling Rotary Handle, lockable, black/grey, MC3 | MC3-XTVD | -000-n | MC390170 |
| Door Coupling Rotary Handle, lockable, black/grey 0/1, MC3 | MC3-XTVDV | -00\%-0, | MC390176 |
| Door Coupling Rotary Handle, lockable, red/yellow, MC3 | MC3-XTVDVR |  | MC390182 |
| Extension Shaft $600 \mathrm{~mm}, \mathrm{MC} 3 / 4$ | MC3/4-XV6 | -000-0, | MC390193 |
| Extension Shaft 400mm, MC3/4 | MC3/4-XV4 | $\begin{array}{rr} -\infty & -\infty \\ \hline \end{array}$ | MC391234 |
| Mechanical Interlock for MC3 | MC3-XMV |  | MC391583 |
| Mechanical Interlock for Remote Operator MC3/4 | MC3/4-XMVR |  | MC394546 |
| Mechanical Interlock for Remote Operator MC3, long | MC3-XMVRL | -000-9, | MC394550 |
| Mechanical Interlock for Remote Operator MC3/4, long | MC3/4-XMVRL |  | MC394551 |

## Load Switches MC

## Load Switches MC Size 3 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage release 24V AC for MC2/3 | MC2/3-XU24AC |  | MC299491 |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 |  | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 | - -8000 | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | -000-9, | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV |  | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - -0.0 | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | [-000-6 | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | $+\infty=0$ | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | -000-0, | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |
| Mechanical Interlock for Remote Operator for MC3 | MC3-XMVR |  | MC394545 |
| Remote Operator 24-30V DC for MC3 can be synchronised and interlocked | MC3-XR240DC | - $-0 \times 0$ | MC399854 |
| Remote Operator 48-60V DC for MC3 can be synchronised and interlocked | MC3-XR48-60DC |  | MC399856 |
| Remote Operator 208-240V AC for MC3 can be synchronised and interlocked | MC3-XR208-240AC | - $+0 \times 0$ | MC399850 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0, 3 | -600-9, | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | - -1000 | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer dm=20mm | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer $\mathrm{dm}=35 \mathrm{~mm}$ | FIR-WS-35 | $\begin{aligned} & -60 \\ & \hline 00 \\ & \hline \end{aligned}$ | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 | - -1000 | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 | $+\infty=0$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 | [-000-9, | MC900140 |
| Current Transformer dm=210mm | FIR-W-210 |  | MC900210 |
| Current Transformer 70×175mm | FIR-WR-175 | - -10000 | MC910175 |
| Current Transformer 115x305mm | FIR-WR-305 |  | MC910305 |
| Current Transformer 150×350mm | FIR-WR-350 |  | MC910350 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 | [-000-6 | MM216376 |
| NC contact block, front montage | M22-K01 | $+\infty 0$ | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 |  | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $\begin{array}{\|ccc} \hline-\infty 0 & -\infty \\ \hline \end{array}$ | MM107899 |
| NO+NC, Cage clamp | M22-CK 11 | $+\infty=0$ | MM107940 |

Load Switches MC Size 4-3-pole


Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Switching capacity $\mathrm{Icm}=53 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current $=$ rated current 800 A to 1600 A

| Rated current $I_{n}$ | without thermomagnetic release unit <br> $800-1600 \mathrm{~A}$ |
| :--- | :---: |
| Rated voltage $U_{e}$ | 440 VAC |
| Rated short-circuit making capacity | $\mathbf{5 3 k A}$ |
| $\mathbf{I}_{c m}$ at 415V 50/60Hz | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Ambient temperature (operation) | vertical and $90^{\circ}$ in all directions |
| Mounting position | IEC/EN $60947-3$ |
| Standards and regulations |  |

Load Switch 3-pole MC4.. 035 dimensions

A) Blow out area, minimum distance to other parts $\geq 100 \mathrm{~mm}$ up to 690 V ; $\geq 200 \mathrm{~mm}$ up to 1000 V
B) Minimum distance to other parts

Load Switches MC

Load Switches MC Size 4-3-pole

- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :--- | :--- | :--- | :--- |
| $\mathbf{8 0 0}$ to 1600A - Load Switches, remote releasable |  |  |  |
| Switch Disconnector, 3-pole, 800A for remote operation | MC4-N-800 | MC4-N-1000 | MC480035 |
| Switch Disconnector, 3-pole, 1000A for remote operation | MC4-N 1250 | MC410035 |  |
| Switch Disconnector, 3-pole, 1250A for remote operation | MC4-N-1600 | MC412035 |  |
| Switch Disconnector, 3-pole, 1600A for remote operation |  |  |  |

Load Switches MC Size 4-4-pole


Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Switching capacity $\mathrm{Icm}=53 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current $=$ rated current 800 A to 1600 A

| Rated current $I_{n}$ | without thermomagnetic release unit <br> $800-1600 \mathrm{~A}$ |
| :--- | :---: |
| Rated voltage $U_{e}$ | 440 VAC |
| Rated short-circuit making capacity | $\mathbf{5 3 k A}$ |
| $\mathbf{I}_{c m}$ at 415V 50/60Hz | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Ambient temperature (operation) | vertical and $90^{\circ}$ in all directions |
| Mounting position | IEC/EN $60947-3$ |
| Standards and regulations |  |

Load Switch 4-pole MC4.. 045 dimensions

A) Blow out area, minimum distance to other parts $\geq 100 \mathrm{~mm}$ up to 690 V ; $\geq 200 \mathrm{~mm}$ up to 1000 V
B) Minimum distance to other parts

Load Switches MC

Load Switches MC Size 4-4-pole
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{8 0 0}$ to 1600A - Load Switches, remote releasable |  |  |
| Switch Disconnector, 4-pole, 800A for remote operation | MC4-N-4-800 |  |
| Switch Disconnector, 4-pole, 1000A for remote operation | MC4-N-4-1000 |  |
| Switch Disconnector, 4-pole, 1250A for remote operation | MC4-N-4-1250 | MC410045 |
| Switch Disconnector, 4-pole, 1600A for remote operation | MC4-N-4-1600 | MC412045 |

Load Switches MC Size 4 - Accessories


MC491593


MC496614


MC900020
Schrack-Info

- Auxiliary contacts
- Door couplings
- Rotary handles
- Terminal covers
- Residual current release
- Remote operator
- Withdrawable modules


MC496837


MC496204


MC496685


MC496608


MC900003


MM216376

Load Switches MC

Load Switches MC Size 4 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Main switch set for MC4 | MC4-XHB |  | MC491779 |
| Main switch set for MC4 with door interlock, Emergency-Stop, red/yellow, for MC4 | MC4-XHBR |  | MC491842 |
| Early-Make auxiliary contact, MC4 | MC4-XHIV |  | MC496172 |
| Door Sealing Frame for MC4 | MC4-XBR |  | MC494646 |
| Connecting technic, accessories |  |  |  |
| Connection Width Extension 3-pole 1600A, long, MC4 | MC4-XKV110 | - $0 \times 0$ | MC491593 |
| Connection Width Extension 4-pole 1600A, long, MC4 | MC4--4XKV 120 |  | MC491594 |
| Connection Width Extension 4-pole 1600A, MC4 | MC4-4-XKV95 |  | MC496827 |
| Connection cover, knock-out able, 3-pole for MC4 | MC4-XKSFA |  | MC492193 |
| Connection cover, knock-out able, 4-pole for MC4 | MC4-4-XKSFA |  | MC492194 |
| Connection Extension 3-pole 1600A, MC4 | MC4-XKM2S-1600 | 0000 | MC494473 |
| Connection Extension 4-pole 1600A, MC4 | MC4-4-XKM2S-1600 |  | MC494474 |
| Module Plate 1 hole, MC4, 3-pole | MC4-XKM 1 | -000-0 | MC496814 |
| Module Plate 2 hole, MC4, 3-pole | MC4-XKM2 | -000-0, | MC496820 |
| Module Plate 1 hole, MC4, 4-pole | MC4-4-XKM 1 |  | MC496815 |
| Module Plate 2 hole, MC4, 4-pole | MC4-4-XKM2 |  | MC496821 |
| Connection Width Extension 3-pole 1600A, MC4 | MC4-XKS 4 |  | MC496826 |
| Flat Conductor Terminal 3-pole, MC4 | MC4-XKB | $\begin{array}{rr} \hline-000 & -\infty \\ \hline \end{array}$ | MC496829 |
| Flat Conductor Terminal 4-pole, MC4 | MC4-4-XKB |  | MC496831 |
| Tunnel Terminal 3-pole, $4 \times 240 \mathrm{~mm}^{2}$ for MC4 | MC4-XKA | - $0 \times 0-5$ | MC496836 |
| Tunnel Terminal 4-pole, $4 \times 240 \mathrm{~mm}^{2}$ for MC4 | MC4-4-XKA | $\begin{array}{lll} \hline-\infty 0 & -\infty \\ \hline \end{array}$ | MC496837 |
| Rear Connection 3-pole, MC4 | MC4-XKR |  | MC496842 |
| Rear Connection 4-pole, MC4 | MC4-4-XKR |  | MC496843 |
| Terminal Cover 3-pole, MC4 | MC4-XKC | $\begin{array}{rr} +\infty & \sigma=-\infty \\ \hline \end{array}$ | MC496846 |
| Terminal Cover 3-pole, MC4 | MC4-4-XKSA |  | MC496847 |
| Phase separator plates for MC4, 3-pole | MC4-XKP | $\begin{array}{rrr} \hline-\infty 0 & 0-6 \\ \hline \end{array}$ | MC496873 |
| Phase separator plates for MC4, 4-pole | MC4-4-XKP |  | MC496874 |

## Rotary handles, door coupling handles, accessories

| Mechanical Interlock for MC4 | MC4-XMV | -800-980 | MC491584 |
| :---: | :---: | :---: | :---: |
| Mechanical Interlock for Remote Operator for MC4 | MC4-XMVR | - | MC494547 |
| Mechanical Interlock for Remote Operator for MC4, long | MC4-XMVRL |  | MC494552 |
| Rotary handle direct, lockable, black/grey | MC4-XDV | -700\%-9, | MC496608 |
| Rotary handle direct, lockable, red/yellow | MC4-XDVR |  | MC496610 |
| Door coupling rotary handle, lockable, black/grey | MC4-XTVD |  | MC496614 |
| Door coupling rotary handle, $2 \times$ lockable, black/grey | MC4-XTVDV | -000-0, | MC496616 |
| Door coupling rotary handle, $2 \times$ lockable, red/yellow | MC4-XTVDVR | - +0000 | MC496618 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage Release 24VAC for MC4 | MC4-XU24AC | - +000 | MC496189 |
| Undervoltage Release 110-130VAC for MC4 | MC4-XU110-130AC |  | MC496192 |
| Undervoltage Release 208-240VAC for MC4 | MC4-XU208-240AC |  | MC496193 |
| Undervoltage Release 380-440VAC for MC4 | MC4-XU380-440AC |  | MC496194 |
| Undervoltage Release 24VDC for MC4 | MC4-XU24DC |  | MC496204 |
| Undervoltage Release 220-250VDC for MC4 | MC4-XU220-250DC |  | MC496208 |
| Undervoltage Release with 2 early make contacts, 230VAC, MC4 | MC4-XUHIV208-240 |  | MC496221 |
| Undervoltage Release with 2 early make contacts, 400VAC, MC4 | MC4-XUHIV380-440 |  | MC496222 |
| Undervoltage release for time-delay unit, for MC4 | MC4-XUV |  | MC496588 |
| Shunt trip 24 VAC/DC for MC4 | MC4-XA24AC/DC | - $-0 \times 0$ | MC496447 |
| Shunt trip 110-130V AC/DC for MC4 | MC4-XA110-130AC/DC |  | MC496450 |
| Shunt trip 208-250V AC/DC for MC4 | MC4-XA208-250AC/DC | - -200 | MC496451 |
| Shunt trip with early make contact 24VAC/DC for MC4 | MC4-XAVHI24AC/DC |  | MC496471 |

[^6]Load Switches MC Size 4 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Shunt trip with early make contact 230VAC/DC for MC4 | MC4-XAVHI230AC/DC |  | MC496475 |
| Remote Operator 24-30V DC for MC4, can be synchronised and interlocked | MC4-XR240DC |  | MC496686 |
| Remote Operator 48-60V DC for MC4, can be synchronised and interlocked | MC4-XR48-60DC | [-000] | MC496687 |
| Remote Operator 208-240V AC for MC4, can be synchronised and interlocked | MC4-XR208-240AC |  | MC496685 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 | - $-\infty \times 0$ | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | -000-6 | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer dm=20mm | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer $\mathrm{dm}=35 \mathrm{~mm}$ | FIR-WS-35 | -000-n | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 |  | MC900070 |
| Current Transformer dm $=105 \mathrm{~mm}$ | FIR-W-105 | $+\infty 0 \div 0$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 |  | MC900140 |
| Current Transformer $\mathrm{dm}=210 \mathrm{~mm}$ | FIR-W-210 | $+600 \%-\infty$ | MC900210 |
| Current Transformer 70x175mm | FIR-WR-175 | $0 \times 0$ | MC910175 |
| Current Transformer $115 \times 305 \mathrm{~mm}$ | FIR-WR-305 |  | MC910305 |
| Current Transformer 150x350mm | FIR-WR-350 |  | MC910350 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 | - $-\infty \times 0$ | MM216376 |
| NC contact block, front montage | M22-K01 | $+\infty=0-\infty$ | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 |  | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $+5006$ | MM107899 |
| NO+NC, Cage clamp | M22-CK11 | -0000] | MM107940 |

Load Switches MC for 1000VDC, fix installed


MC220045DC


MC340045DC


MC480045DC

- Load break switches type MC 1000VDC, size 2-4, 4-pole, 63-1600A, fix installed

Load Switches MC Size 2


## Schrack-Info

- Load-Break Switches without release unit, for voltages up to 1000VDC
- Fitted with screw-connections
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Recommended serial connectors have to be used
- Switching capacity Icw $=3 \mathrm{kA}$ at 1000 VDC
- According IEC/EN 60947-3
- Rated continuous current = rated current up to 200 A
without thermomagnetic release unit
\(\left.\begin{array}{l|c} \& without thermomagnetic release unit <br>

Rated current I_{n} \& 160-200 \mathrm{~A}\end{array}\right]\)| Rated voltage $U_{e}$ |
| :--- |
| Rated short-time withstand current $t=0.1 \mathrm{~s}$ |
| $\mathbf{I}_{\mathrm{cw}}$ at $\mathbf{1 0 0 0 V D C}$ |
| Ambient temperature (operation) |
| Mounting position |
| Standards and regulations |

Load Switches MC Size 2
Load Switch 4-pole MC2..045DC dimensions

A) Blow out area, minimum distance to other parts

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :---: |
| up to 200A, remote releasable |  |  |
| Switch Disconnector, 2/4-pole, 160A for remote operation, 1 kVDC | MC2-N-4-160-DC |  |
| Switch Disconnector, 2/4-pole, 200A for remote operation | MC2-N-4-200-DC | MC216045DC |

## Load Switches MC Size 2 - Accessories



MC290602
$\stackrel{+}{\mathrm{Page}}$
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MC296720V2


MC296872



MC290032


MC299832


MC290038


MC290137


MM216376

## Schrack-Info

- Serial connector containing parts for upper side of 4-pole switches
- MC2-N...-S1-DC, in 2-pole use for DC
- Serial connectors joining 2 current-paths in series
- Incoming feed from top or bottom possible
- Auxiliary contacts
- Door couplings
- Rotary handles and plug in sockets
- Terminal covers
- Residual current release
- Remote operator

Load Switches MC Size 2 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Serial connector |  |  |  |
| Serial Connector size 2, 4/2-pole, including cover | MC2-4-XKV2P |  | MC290602 |
| General accessories |  |  |  |
| Toggle Lever Locking Device for MC2 | MC2/3-XKAV |  | MC290201 |
| Clip Plate 75 mm for MC2 | MC2-XC75 |  | MC290215 |
| Main switch set with door interlock, black/grey, MC2 | MC2-XHB |  | MC296627 |
| Main switch set with door interlock, red/yellow, MC2 | MC2-XHBR |  | MC296633 |
| Early make auxiliary contact, MC2/3 | MC2/3-XHIV | -000-9000, | MC299430 |
| Connecting technic, accessories |  |  |  |
| Terminal Cover 3-pole, MC2 | MC2-XKSA |  | MC290038 |
| Extra Cover for Remote Operator for MC2 4-pole | MC2-XAVPR | -000-6 | MC296677 |
| Control Circuit Terminal for screw connection, MC2 | MC2-XSTS | [000-0.0) | MC290156 |
| Door Sealing Frame for MC2 | MC2-XBR |  | MC290197 |
| Tunnel Terminal $185 \mathrm{~mm}^{2}$, 3-pole for MC2 | MC2-XKA |  | MC291457 |
| Tunnel Terminal $1 \times 185 \mathrm{~mm}^{2}$, 4-pole for MC2 | MC2-4-XKA | - $700-7$ | MC291458 |
| Box Terminal 160A for MC2 (3 pcs.) | MC2-160-XKC | [-000-70 | MC292240 |
| Box Terminal 250A for MC2 (3 pcs.) | MC2-250-XKC |  | MC292244 |
| Box Terminal 160A for MC2 (4 pcs.) | MC2-4-160-XKC |  | MC296755 |
| Box Terminal 250A for MC2-4 (4 pcs.) | MC2-4-250-XKC | [-000-0, | MC296756 |
| Connection Cover 3-pole, MC2 | MC2-XKSFA |  | MC294640 |
| Connection Cover 4-pole, MC2 | MC2-4-XKSFA | - $+0 \times-1$ | MC294641 |
| Rear Connection 3-pole, MC2 | MC2-XKR |  | MC296765 |
| Rear Connection 4-pole, MC2 | MC2-4-XKR |  | MC296768 |
| Phase separator plates for MC2, 3-pole | MC2-XKP |  | MC296871 |
| Phase separator plates for MC2, 4-pole | MC2-4-XKP |  | MC296872 |
| Cable Lug $95 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS95 |  | MC299775 |
| Cable Lug $120 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS 120 |  | MC299776 |
| Cable Lug $150 \mathrm{~mm}^{2} \mathrm{MC2}$ | MC2-XKS 150 |  | MC299777 |
| Cable Lug $185 \mathrm{~mm}^{2} \mathrm{MC} 2$ | MC2-XKS 185 | -000-n | MC290032 |
| Screw Terminal 3-pole for MC2 | MC2-XKS |  | MC290030 |
| Screw Terminal 4-pole for MC2 | MC2-4-XKS |  | MC296750 |
| Terminal Cover 4-pole, MC2 | MC2-4-XKSA | 0 | MC296770 |
| IP2x finger protection for terminal cover, 3-pole, MC2 | MC2-XIPA |  | MC296777 |
| IP2x-protection cover for terminals, 3-pole, for MC2 | MC2-XIPK | -000-0080 | MC296773 |
| IP2x-protection cover for terminals, 4-pole, for MC2 | MC2-4-XIPK |  | MC296774 |
| IP2x finger protection for terminal cover, 4-pole, MC2 | MC2-4-XIPA |  | MC296778 |
| Control Circuit Unit for auxiliary contact, MCl $/ 2, \mathrm{MCl} / 2-\mathrm{N}$ | MC2-XSVHI |  | MC296705 |
| Control Circuit Unit for remote operator | MC2-XSVR |  | MC296706 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable for MC2 | MC2-XDV | -000-0.0) | MC290127 |
| Rotary Handle with door interlock, black/grey for MC2 | MC2-XDTV |  | MC290133 |
| Rotary Handle red/yellow lockable | MC2-XDVR | -000-000 | MC290137 |
| Rotary Handle emergency stop with door interlock | MC2-XDTVR |  | MC290144 |
| Door Coupling Rotary Handle, lockable, black/grey, MC2 | MC2-XTVD |  | MC290168 |
| Door Coupling Rotary Handle, lockable, black/grey 0/1, MC2 | MC2-XTVDV | -700-0-6 | MC290174 |
| Door Coupling Rotary Handle, lockable, red/yellow, MC2 | MC2-XTVDVR | [000-0, | MC290180 |
| Mechanical Interlock for MC2 | MC2-XMV | [-80-0 | MC291582 |
| Mechanical Interlock for Remote Operator for MC2 | MC2-XMVR |  | MC294543 |
| Mechanical Interlock for Remote Operator for MC2/3 | MC2/3-XMVR | -600-6 | MC294544 |
| Mechanical Interlock for Remote Operator for MC2, long | MC2-XMVRL | $\begin{array}{lll} -\infty & -\infty \\ \hline \infty \end{array}$ | MC294548 |
| Mechanical Interlock for Remote Operator for MC2/3, long | MC2/3-XMVRL |  | MC294549 |

## Load Switches MC

Load Switches MC Size 2 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Extension Shaft $600 \mathrm{~mm}, \mathrm{MCl} / 2$ | $\mathrm{MC1} / 2-\mathrm{XV6}$ | - 0 | MC190191 |
| Spacer, MC1/2 | $\mathrm{MCl} / 2-X A B$ | - | MC190203 |
| Extension Shaft $400 \mathrm{~mm}, \mathrm{MCl} / 2$ | MC1/2-XV4 |  | MC191232 |
| Door coupling for MC2 60mm | MC2-XTVDVR-60 |  | MC191513 |
| Bowden Cable 225 mm | MC-XBZ225 |  | MC191585 |
| Bowden Cable 600mm | MC-XBZ600 | - $-\times-8$ | MC191586 |
| Bowden Cable 1000mm | MC-XBZ1000 |  | MC191587 |

Undervoltage release units, shunt-trips, motor operators and accessories

| Undervoltage release 24 V AC for $\mathrm{MC} 2 / 3$ | MC2/3-XU24AC | - -100 | MC299491 |
| :---: | :---: | :---: | :---: |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 | [-00000 | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 | - -1 | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | - -1000 | MC299509 |
| Undervoltage release of time-delay unit for $\mathrm{MC} 2 / 3$ | MC2-XUV | - -100 | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - | MC299591 |
| Undervoltage release 400 V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | - | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | - $-\infty$ | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA 130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | - 000 | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |
| Remote Operator 24-30V DC for MC2 can be synchronised and interlocked | MC2-XR240DC | - -80 | MC299836 |
| Remote Operator 24-30V DC for MC2 can not be synchronised and interlocked | MC2-XRD240DC | [-800] | MC299837 |
| Remote Operator 48-60V DC for MC2 can be synchronised and interlocked | MC2-XR48-60DC | $+\infty$ | MC299838 |
| Remote Operator 208-240V AC for MC2 can be synchronised and interlocked | MC2-XR208-240AC | $\left[\begin{array}{lll} -\infty & 0 & -8 \\ \hline \end{array}\right.$ | MC299832 |
| Remote Operator 208-240V AC for MC2 can not be synchronised and interlocked | MC2-XRD208-240A | $\begin{array}{rrr} -\infty & \infty \\ \hline \infty & \infty \\ \hline \end{array}$ | MC299833 |
| Residual current release units and accessories |  |  |  |
| RCD 4-pole for MC2, 30mA, pulse current sensitivity version 2 | MC2-4-XFI30 V2 |  | MC296719V2 |
| RCD 4-pole for MC2, 0.1-1A, pulse current sensitivity version 2 | MC2-4-XFI | $-\infty$ | MC296720V2 |
| RCD 4-pole for MC2, 30mA, AC/DC current sensitivity version 2 | MC2-4-XFIA30 V2 | $\begin{aligned} &-\infty 0 \\ & \hline-\infty \\ & \hline \end{aligned}$ | MC292345V2 |
| RCD 4-pole for MC2, 0.3-1A, AC/DC current sensitivity version 2 | MC2-4-XFIA V2 | $+\infty$ | MC292346V2 |

Auxiliary contacts

| NO contact block, front montage | M22-K10 | M22-K01 |
| :--- | :--- | :--- |
| NC contact block, front montage | M22-CK20 | M22-CK02 |
| Double NO contact, Cage clamp | M22-CK11 | MM216376 |
| Double NC contact, Cage clamp | MM107898 |  |
| NO+NC, Cage clamp |  |  |

## Load Switches MC Size 3



## Schrack-Info

- Load-Break Switches without release unit, for voltages up to 1000VDC
- Fitted with screw-connections
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Recommended serial connectors have to be used
- Switching capacity $\mathrm{Icw}=5 \mathrm{kA}$ at 1000 VDC
- According IEC/EN 60947-3
- Rated continuous current = rated current up to 500A

|  | without thermomagnetic release unit <br> Rated current $I_{n}$ |
| :--- | :---: |
| Rated voltage $U_{e}$ | $1000-500 \mathrm{VDC}$ |
| Rated short-time withstand current $t=0.1 \mathrm{~s}$ | 5 kkA |
| $\mathbf{I}_{\mathrm{cw}}$ at 1000 VDC | $-25^{\circ} \mathrm{C}$ to $+65^{\circ} \mathrm{C}$ |
| Ambient temperature (operation) | vertical and $90^{\circ}$ in all directions |
| Mounting position | IEC/EN $60947-3$ |
| Standards and regulations |  |

Load Switch 4-pole MC3..045DC dimensions

A) Blow out area, minimum distance to other parts

Load Switches MC

Load Switches MC Size 3
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| up to 500A, remote releasable |  |  |
| Switch Disconnector 2/4-pole, 320A for remote operation, 1 kVDC | MC3-N-4-320-DC |  |
| Switch Disconnector, 2/4-pole, 400A for remote operation, 1kVDC | MC3-N-4-400-DC | MC332045DC |
| Switch Disconnector, 2/4-pole, 500A for remote operation, 1kVDC | MC3-N-4-500-DC | MC340045DC |

## Load Switches MC Size 3 - Accessories



MC390599


MC391460



## MC390211



MC396804



MC390042


MC391583



MC390140


MC394545


MM107899

## Schrack-Info

- Serial connector containing parts for upper side of 4-pole switches
- MC2-N...-S1-DC, in 2-pole use for DC
- Serial connectors joining 2 current-paths in series
- Incoming feed from top or bottom possible
- Auxiliary contacts
- Door couplings
- Rotary handles and plug in sockets
- Terminal covers
- Residual current release
- Remote operator

Load Switches MC

Load Switches MC Size 3 - Accessories


[^7]Load Switches MC Size 3 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Mechanical Interlock for Remote Operator MC3, long | MC3-XMVRL | -000-9, | MC394550 |
| Mechanical Interlock for Remote Operator MC3/4, long | MC3/4-XMVRL |  | MC394551 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage release 24V AC for MC2/3 | MC2/3-XU24AC | $+\infty=0$ | MC299491 |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 | -000-9, | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 | $+\infty=0$ | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | -000-9, | MC299509 |
| Undervoltage release of time-delay unit for $\mathrm{MC} 2 / 3$ | MC2-XUV | $\begin{array}{\|ccc} \hline-00 & -\infty \\ \hline \end{array}$ | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | -000-6 | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | $+000$ | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | $+\infty 0$ | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA130AC/D |  | MC299760 |

Shunt trip 208-250V AC/DC for MC2/3
Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3
Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3

| Mechanical Interlock for Remote Operator for MC3 | MC3-XMVR | MC3-XR240DC |
| :--- | :--- | :--- |
| Remote Operator 24-30V DC for MC3 can be synchronised and interlocked | MC3-XR48-60DC | MC394545 |
| Remote Operator 48-60V DC for MC3 can be synchronised and interlocked | MC3-XR208-240AC |  |
| Remote Operator 208-240V AC for MC3 can be synchronised and interlocked |  |  |
| Residual current release units and accessories |  |  |

Earth Leakage Release 0.03A
Earth Leakage Release 0.3 A
Earth Leakage Release $0.03-5 \mathrm{~A}, 0.02-5 \mathrm{~s}, 1 \mathrm{CO}$
Magnetic Shielding for Core balance transformer MC900035
Magnetic Shielding for Core balance transformer MC900070
Magnetic Shielding for Core balance transformer MC900105
Magnetic Shielding for Core balance transformer MC900140
Current Transformer dm $=20 \mathrm{~mm}$
Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$
Current Transformer dm $=35 \mathrm{~mm}$
Current Transformer dm=70mm
Current Transformer dm=105mm
Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$
Current Transformer dm $=210 \mathrm{~mm}$
Current Transformer 70×175mm
Current Transformer $115 \times 305 \mathrm{~mm}$
Current Transformer $150 \times 350 \mathrm{~mm}$

## Auxiliary contacts

| NO contact block, front montage | M22-K10 | M22-K01 |
| :--- | :--- | :--- |
| NC contact block, front montage | M22-CK20 | M22-CK02 |
| Double NO contact, Cage clamp | M22-CK11 | MM216378 |
| Double NC contact, Cage clamp | MM107898 |  |
| NO+NC, Cage clamp |  |  |

Load Switches MC Size 4


MC410045DC

## Schrack-Info

- Load Break Switches without release unit for voltages up to 1000VDC
- Screw terminals as standard
- Types for remote trip can be fitted with auxiliary contacts, remote operator, undervoltage- and shunt release
- Incoming feed from top or bottom possible
- Switching capacity lcw $=25 \mathrm{kA}$ at 1000 VDC
- Meets IEC/EN 60947-3
- Rated uninterrupted current $=$ Rated current 800 up to 1400 A

|  | without thermomagnetic release unit <br> Rated current $I_{n}$ <br> Rated voltage $U_{e}$ |
| :--- | :---: |
| Rated short-time withstand current $t=0.1 \mathrm{~s}$ | 1000 VDC |
| $\mathbf{I}_{\mathrm{cw}}$ at 1000 VDC | $\mathbf{2 5 k A}$ |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+65^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN $60947-3$ |

Load Switch 4-pole MC4..045DC dimensions

A) Blow out area, minimum distance to other parts $\geq 100 \mathrm{~mm}$ up to 690 V ; $\geq 200 \mathrm{~mm}$ up to 1000 V
B) Minimum distance to other parts

Load Switches MC Size 4
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| up to 1400A, remote releasable |  |  |
| Switch Disconnector, 2/4-pole, 800A for remote operation, 1 kVDC | MC4-N-4-800-DC |  |
| Switch Disconnector, 2/4-pole, 1000A for remote operation, 1kVDC | MC4-N-4-1000-DC |  |
| Switch Disconnector, 2/4-pole, 1250A for remote operation, 1kVDC | MC4-N-4-1250-DC | MC480045DC |
| Switch Disconnector, 2/4-pole, 1400A for remote operation, 1kVDC | MC4-N-4-1400-DC | MC410045DC |

Load Switches MC

## Load Switches MC Size 4 - Accessories



MC490602


MC496608



MC491593


MC900020


MC496820


MC491584



MC496837


MC496204


MC496685

## Schrack-Info

- Serial connector containing parts for upper side of 4-pole switches
- MC2-N...-S1-DC, in 2-pole use for DC
- Serial connectors joining 2 current-paths in series
- Incoming feed from top or bottom possible
- $\geq 1250 \mathrm{~A}$ : at $65^{\circ} \mathrm{C}$ ambient temperature, infeed from bottom by use of module plates MC4-4-XKM2S-1600
- Auxiliary contacts
- Door couplings
- Rotary handles
- Terminal covers
- Residual current release
- Remote operator
- Withdrawable modules


## Load Switches MC Size 4 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Serial connector |  |  |  |
| Serial Connector Size 4, 4/2-pole, including cover, 1250A | MC4-4-XKV2P |  | MC490602 |
| General accessories |  |  |  |
| Main switch set for MC4 | MC4-XHB |  | MC491779 |
| Main switch set for MC4 with door interlock, Emergency-Stop, red/yellow, for MC4 | MC4-XHBR |  | MC491842 |
| Early-Make auxiliary contact, MC4 | MC4-XHIV |  | MC496172 |
| Door Sealing Frame for MC4 | MC4-XBR |  | MC494646 |
| Connecting technic, accessories |  |  |  |
| Connection Width Extension 3-pole 1600A, long, MC4 | MC4-XKV110 | - $+\cdots \times 0$ | MC491593 |
| Connection Width Extension 4-pole 1600A, long, MC4 | MC4--4XKV 120 |  | MC491594 |
| Connection Width Extension 4-pole 1600A, MC4 | MC4-4-XKV95 |  | MC496827 |
| Connection cover, knock-out able, 3-pole for MC4 | MC4-XKSFA |  | MC492193 |
| Connection cover, knock-out able, 4-pole for MC4 | MC4-4-XKSFA |  | MC492194 |
| Connection Extension 3-pole 1600A, MC4 | MC4-XKM2S-1600 |  | MC494473 |
| Connection Extension 4-pole 1600A, MC4 | MC4-4-XKM2S-1600 |  | MC494474 |
| Module Plate 1 hole, MC4, 3-pole | MC4-XKM1 |  | MC496814 |
| Module Plate 2 hole, MC4, 3-pole | MC4-XKM2 | -000-0, | MC496820 |
| Module Plate 1 hole, MC4, 4-pole | MC4-4-XKM 1 |  | MC496815 |
| Module Plate 2 hole, MC4, 4-pole | MC4-4-XKM2 |  | MC496821 |
| Connection Width Extension 3-pole 1600A, MC4 | MC4-XKS4 | - $-\cdots \times 0$ | MC496826 |
| Flat Conductor Terminal 3-pole, MC4 | MC4-XKB | -000-m | MC496829 |
| Flat Conductor Terminal 4-pole, MC4 | MC4-4-XKB |  | MC496831 |
| Tunnel Terminal 3-pole, $4 \times 240 \mathrm{~mm}^{2}$ for MC4 | MC4-XKA |  | MC496836 |
| Tunnel Terminal 4-pole, $4 \times 240 \mathrm{~mm}^{2}$ for MC4 | MC4-4-XKA | [000-9, | MC496837 |
| Rear Connection 3-pole, MC4 | MC4-XKR |  | MC496842 |
| Rear Connection 4-pole, MC4 | MC4-4-XKR |  | MC496843 |
| Terminal Cover 3-pole, MC4 | MC4-XKC | - $+0 \times 5$ | MC496846 |
| Terminal Cover 3-pole, MC4 | MC4-4-XKSA |  | MC496847 |
| Phase separator plates for MC4, 3-pole | MC4-XKP | - $+0 \times 0$ | MC496873 |
| Phase separator plates for MC4, 4-pole | MC4-4-XKP |  | MC496874 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Mechanical Interlock for MC4 | MC4-XMV |  | MC491584 |
| Mechanical Interlock for Remote Operator for MC4 | MC4-XMVR | - +000 | MC494547 |
| Mechanical Interlock for Remote Operator for MC4, long | MC4-XMVRL |  | MC494552 |
| Rotary handle direct, lockable, black/grey | MC4-XDV | -000-0, | MC496608 |
| Rotary handle direct, lockable, red/yellow | MC4-XDVR |  | MC496610 |
| Door coupling rotary handle, lockable, black/grey | MC4-XTVD | [-000-n | MC496614 |
| Door coupling rotary handle, $2 \times$ lockable, black/grey | MC4-XTVDV | [00-0, | MC496616 |
| Door coupling rotary handle, $2 \times$ lockable, red/yellow | MC4-XTVDVR | -000-m | MC496618 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage Release 24VAC for MC4 | MC4-XU24AC | - $+\cdots 0$ | MC496189 |
| Undervoltage Release 110-130VAC for MC4 | MC4-XU110-130AC |  | MC496192 |
| Undervoltage Release 208-240VAC for MC4 | MC4-XU208-240AC | - +000 | MC496193 |
| Undervoltage Release 380-440VAC for MC4 | MC4-XU380-440AC |  | MC496194 |
| Undervoltage Release 24VDC for MC4 | MC4-XU24DC | - +000 | MC496204 |
| Undervoltage Release 220-250VDC for MC4 | MC4-XU220-250DC |  | MC496208 |
| Undervoltage Release with 2 early make contacts, 230VAC, MC4 | MC4-XUHIV208-240 |  | MC496221 |
| Undervoltage Release with 2 early make contacts, 400VAC, MC4 | MC4-XUHIV380-440 |  | MC496222 |
| Undervoltage release for time-delay unit, for MC4 | MC4-XUV |  | MC496588 |
| Shunt trip 24 VAC/DC for MC4 | MC4-XA24AC/DC | [000-9, | MC496447 |
| Shunt trip 110-130V AC/DC for MC4 | MC4-XA 110-130AC/D |  | MC496450 |

[^8]Stнрасккік

## Load Switches MC

Load Switches MC Size 4 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |

Undervoltage release units, shunt-trips, motor operators and accessories

| Shunt trip 208-250V AC/DC for MC4 | MC4-XA208-250AC/DC |  | MC496451 |
| :---: | :---: | :---: | :---: |
| Shunt trip with early make contact 24VAC/DC for MC4 | MC4-XAVHI24AC/DC |  | MC496471 |
| Shunt trip with early make contact 230VAC/DC for MC4 | MC4-XAVHI230AC/DC |  | MC496475 |
| Remote Operator 24-30V DC for MC4, can be synchronised and interlocked | MC4-XR240DC | - -1000 | MC496686 |
| Remote Operator 48-60V DC for MC4, can be synchronised and interlocked | MC4-XR48-60DC | [-000-9, | MC496687 |
| Remote Operator 208-240V AC for MC4, can be synchronised and interlocked | MC4-XR208-240AC | $+\infty=0$ | MC496685 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 |  | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | - $-\cdots$ - | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer dm $=20 \mathrm{~mm}$ | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer dm $=35 \mathrm{~mm}$ | FIR-WS-35 | $+50-\pi$ | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 | [-0000, | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 | - $-0 \times 10$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 | $+\infty=0$ | MC900140 |
| Current Transformer $\mathrm{dm}=210 \mathrm{~mm}$ | FIR-W-210 | $+\infty=0$ | MC900210 |
| Current Transformer 70×175mm | FIR-WR-175 | $+\infty=0$ | MC910175 |
| Current Transformer 115x305mm | FIR-WR-305 |  | MC910305 |
| Current Transformer 150x350mm | FIR-WR-350 |  | MC910350 |

Auxiliary contacts

| NO contact block, front montage | M22-K10 | [-00-0.0] | MM216376 |
| :---: | :---: | :---: | :---: |
| NC contact block, front montage | M22-K01 |  | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 |  | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | -600-0 | MM107899 |
| NO+NC, Cage clamp | M22-CK11 | $\begin{array}{r} -000 \div 0 \\ \hline \end{array}$ | MM107940 |

- Moulded Case Circuit Breakers MC, plug-in/drive-out


MC163131S


MC225333S-


MC340232A


MC412342A-

## Schrack-Info

- MCCB Type MC, size 1-4, 3 or 4-pole, 16-1600A, plug-in / withdrawable
- MCCB MC Size 1-3-pole, 25kA, plug-in


MC120131S

## Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x $\ln$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 25 kA at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 125 A

| Rated current I | with thermomagnetic release unit $20-125 \mathrm{~A}$ |
| :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 400VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{n} \text { 20A, 25A, 32A: fix, 350A } \\ I_{n} \text { 40A: } 8-10 \times \mathrm{I}_{n} \\ I_{n} 63 \mathrm{~A}-125 \mathrm{~A}: 6-10 \times \mathrm{I}_{n} \end{gathered}$ |
| Rated short-circuit breaking capacity ${ }_{c c u} / I_{\text {cs }}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{c v}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{l}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| $\mathrm{I}_{\text {s }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |
| $\mathrm{I}_{\text {cs }}$ at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

## Load Switches MC

MCCB MC Size 1-3-pole, 25kA, plug-in
MCCB 3-pole MC1..131S dimensions

(mm)

1) max. 2 padlocks

- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| 20 to 125A with thermomagnetic release unit |  | ORDER NO. |
| Moulded Case Circuit Breaker type A 3-pole, 25kA, 20A + plug-in | MC1B-A20-SVE |  |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 25A + plug-in | MC1B-A25-SVE | MC120131S |
| Moulded Case Circuit Breaker type A, 3-pole 25kA, 32A + plug-in | MC1B-A32-SVE | MC125131S |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 40A + plug-in | MC1B-A40-SVE | MC132131S |
| Moulded Case Circuit Breaker type A, 3-pole 25kA, 50A + plug-in | MC1B-A50-SVE | MC140131S |
| Moulded Case Circuit Breaker type A, 3-pole 25kA, 63A + plug-in | MC1B-A63-SVE | MC150131S |
| Moulded Case Circuit Breaker type A, 3-pole 25kA, 80A + plug-in | MC1B-A80-SVE | MC163131S |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 100A + plug-in | MC1B-A100-SVE | MC180131S |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 125A + plug-in | MC1B-A125-SVE | MC110131S |

- MCCB MC Size 1-3-pole, 50kA, plug-in


Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x $\ln$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 20 A to 125 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit $20-125 \mathrm{~A}$ |
| :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC |
| Adjustable overload release I, | 0.8-1× ${ }_{\text {n }}$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} \mathrm{I}_{n} \text { 20A, 25A, 32A: fix, 350A } \\ I_{n} 40 \mathrm{~A}: 8-10 \times \mathrm{I}_{n} \\ \mathrm{I}_{n} 63 \mathrm{~A}-125 \mathrm{~A}: 6-10 \times \mathrm{I}_{n} \\ \hline \end{gathered}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cv}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 10kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 7.5 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |


(mm)

1) max. 2 padlocks

Load Switches MC
MCCB MC Size 1-3-pole, 50kA, plug-in
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| 20 to 125A with thermomagnetic release unit |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 20A + plug-in | MC1N-A20-SVE |  |
| Moulded Case Circuit Breaker type A, 3-pole 50kA, 25A + plug-in | MC1N-A25-SVE | MC120231S |
| Moulded Case Circuit Breaker type A, 3-pole 50kA, 32A + plug-in | MC1N-A32-SVE | MC125231S |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 40A + plug-in | MC1N-A40-SVE | MC132231S |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 50A + plug-in | MC1N-A50-SVE | MC140231S |
| Moulded Case Circuit Breaker type A 3-pole 50kA, 63A + plug-in | MC1N-A63-SVE | MC150231S |
| Moulded Case Circuit Breaker type A, 3-pole 50kA, 80A + plug-in | MC1N-A80-SVE | MC163231S |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 100A + plug-in | MC1N-A100-SVE | MC180231S |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 125A + plug-in | MC1N-A125-SVE | MC110231S |

## MCCB MC Size 1 - Accessories



MC196777


MC199471


MC190125



MC196626



MC199432


MM 107899

- Schrack-Info
- Auxiliary contacts
- Terminal covers
- Plug-in socket

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Socket base 3-pole for MC1 | MC1-XSVS |  | MC196777 |
| Door Sealing Frame for MCl | MC1-XBR |  | MC190195 |
| Toggle Lever Locking Device for MC1 | MC1-XKAV |  | MC190199 |
| Main switch set for MC1 with door interlock, black/grey, MC1 | MC1-XHB |  | MC196626 |
| Early make auxiliary contact, MCl | MCI-XHIVL | - -200 | MC199432 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable for MCl | MCI-XDV | -600-9 | MC190125 |
| Undervoltage release units, shunt-trips and accessories |  |  |  |
| Undervoltage Release 24VAC for MC1, included 3m cable | MC1-XUL24AC |  | MC199462 |
| Undervoltage Release 208-240VAC for MC1, included 3m cable | MC1-XUL208-240 | - $+0 \times 0$ | MC199471 |
| Undervoltage Release 380-440VAC for MC1, included 3m cable | MC1-XUL380-440 |  | MC199473 |
| Undervoltage Release 24VDC for MCl , included 3m cable | MC1-XUL24DC | [-000-9, | MC199481 |
| Undervoltage Release 220-250VDC for MC1, included 3m cable | MC1-XUL220-250 |  | MC199489 |
| Undervoltage Release with 2 early make Contacts, 230VAC, MC1 | MC1-XUHIV208-240 | - +0000 | MC199565 |
| Undervoltage Release with 2 early make Contacts, 400VAC, MC1 | MCI-XUHIV380-440 |  | MC199567 |
| Time-delay unit for MC1-MC4 | MC-UVU | - | MC190154 |
| Undervoltage Release for time-delay unit, MC1 | MC1-XUVL |  | MC191607 |
| Shunt trip 24V AC/DC with 3 m cable for MC1 | MC1-XAL24VAC/DC | -60\%-9 | MC199736 |
| Shunt trip 115V AC/DC with 3 m cable for MC1 | MCI-XALI10-130 |  | MC199742 |
| Shunt trip 208-250V AC/DC with 3m cable for MC1 | MC1-XAL208-250 | $+\infty$ | MC199744 |
| Shunt trip 24V AC/DC with 1 early make auxiliary contact and 3m cable for MC1 | MC1-XAHIVL24 |  | MC199792 |
| Shunt trip 230V AC/DC with 1 early make auxiliary contact and 3m cable for MC1 | MC1-XAHIVL208-250 |  | MC199800 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 |  | MM216376 |
| NC contact block, front montage | M22-K01 | $-\infty 0 \div 0$ | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 | $+\infty=0$ | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $\begin{array}{rr} \hline-\infty 0 & -\infty \\ \hline \end{array}$ | MM107899 |
| NO+NC, Cage clamp | M22-CK11 | $+\infty 0$ | MM107940 |

Order no. blue: on stock, usually ready for delivery on the day of order
SCHRACK

Load Switches MC

MCCB MC Size 2-3-pole, 25kA, plug-in


MC216136S

- Schrack-Info
- For System and Line Protection, Motor Protection
- Adjustable overload release 0.8-1 x In
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 25 kA at $400 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current $=$ rated current 160 A to 250 A

| Rated current $I_{\text {n }}$ | with thermomagnetic release unit $160-250 \mathrm{~A}$ | with motor protection 160A |
| :---: | :---: | :---: |
| Rated voltage Ue | 400VAC | 400VAC |
| Adjustable overload release I, | $0.8-1 \times 1$ | $0.8-1 \times{ }_{0}$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $6-10 \times 1$ | $8-14 \times{ }^{\text {n }}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / I_{\text {cs }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at 400V 50/60Hz | 25kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA |  |
| $\mathrm{I}_{\text {cs }}$ at 400V $50 / 60 \mathrm{~Hz}$ | 25kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB MC Size 2-3-pole, 25 kA , plug-in
MCCB 3-pole MC2.. 131 S/MC2.. 136 dimensions


Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{1 6 0}$ to 250A with thermomagnetic release unit |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 160A + plug-in | MC2B-A 160-SVE | MC2B-A200-SVE |
| Moulded Case Circuit Breaker type A, 3-pole, 25kA, 200A + plug-in | MC2B-A250-SVE |  |
| Moulded Case Circuit Breaker type A, 3-pole 25kA, 250A + plug-in | MC216131 S |  |
| 160A with motor protection | MC2B-M 160-SVE | MC220131S |
| Moulded Case Circuit Breaker type M, 3-pole, 25kA, 160A + plug-in |  |  |

MCCB MC Size 2-3-pole, 36kA, plug-in


MC216431S

## Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x $\ln$
- Adjustable short circuit release 6-10 x In
- Box terminals standard, screw connections as option
- Switching capacity 36 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 160 A to 250 A
$\left.\begin{array}{l|c}\text { Rated current } I_{n} & \text { with thermomagnetic release unit } \\ 160-250 \mathrm{~A}\end{array}\right)$

MCCB MC Size 2-3-pole, 36kA, plug-in
MCCB 3-pole MC2..431S dimensions


Wiring diagram


DESCRIPTION
160 to 250A with thermomagnetic release unit

| Moulded Case Circuit Breaker type A, 3-pole 36kA, 160A + plug-in | MC2C-A160-SVE | MC216431S |
| :--- | :--- | :--- |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 200A + plug-in | MC2C-A200-SVE | MC220431S |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 250A + plug-in | MC2C-A250-SVE | MC225431S |

MCCB MC Size 2-3-pole, 50kA, plug-in


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 160 A to 250 A

MC216233S
$\left.\begin{array}{l|c|c} & \text { with thermomagnetic release unit } \\ \text { Rated current } I_{n} & \text { with delayed electronic release unit } \\ 160-250 \mathrm{~A}\end{array}\right)$

MCCB MC Size 2-3-pole, 50kA, plug-in
MCCB 3-pole MC2..231S/MC2..233S dimensions


Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{1 6 0}$ to 250A with thermomagnetic release unit |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 160A + plug-in | MC2N-A160-SVE |  |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 200A + plug-in | MC2N-A200-SVE | MC216231S |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 250A + plug-in | MC2N-A250-SVE | MC220231S |

160A with delayed electronic release unit
Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 160A + plug-in.

MCCB MC Size 2-3-pole, 150kA, plug-in


Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 32 A to 250 A

| Rated current I | with thermomagnetic release unit $32-100 \mathrm{~A}$ | with delayed electronic release unit $100-250 \mathrm{~A}$ | with electronic motor protection $140 \mathrm{~A}$ |
| :---: | :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times 1$ | 0.5-1×10 | 0.5-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{aligned} & I_{n} \text { to } 32 \mathrm{~A}: \text { fix, } 350 \mathrm{~A} \\ & I_{n} \text { 40A: } 8-10 \times I_{n} \\ & I_{n} 50 \mathrm{~A}-250 \mathrm{~A}: 6-10 \times I_{n} \\ & I_{n} 300 \mathrm{~A}: 2000-2500 \mathrm{~A} \end{aligned}$ | fix, $12 \times{ }_{\text {n }}$ | $2-14 \times{ }^{\text {n }}$ |
| Rated short-circuit breaking capacity ${ }_{\text {cul }} / \mathrm{I}_{\mathrm{cs}}$ |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{l}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 20kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\text {s }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 5 kA |  |
| Ambient temperature (operation) |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations |  | IEC/EN 60947-2, VDE 0660 |  |

MCCB MC Size 2-3-pole, 150kA, plug-in
MCCB 3-pole MC2..331 S/MC2..333S/MC2..337S dimensions


Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{3 2}$ to 100A with thermomagnetic release unit |  | ORDER NO. |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 32A + plug-in | MC2H-A32-SVE |  |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 50A + plug-in | MC2H-A50-SVE | MC232331S |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 80A + plug-in | MC2H-A80-SVE | MC250331S |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 100A+ plug-in | MC2H-A100-SVE | MC280331S |
| $\mathbf{1 0 0}$ to 250A with delayed electronic release unit |  | MC210331S |
| Moulded Case Circuit Breaker type VE, 3-pole, 150kA, 100A + plug-in | MC2H-VE100-SVE | MC2H-VE 160-SVE |
| Moulded Case Circuit Breaker type VE, 3-pole, 150kA, 160A + plug-in | NZMH2-VE250-SVE | MC216333S |
| Moulded Case Circuit Breaker type A, 3-pole, 150kA, 250A + plug-in |  | MC225333S |
| $\mathbf{1 4 0 A}$ with electronic motor protection | MC2H-ME140-SVE |  |
| Moulded Case Circuit Breaker type ME, 3-pole, 100kA, 140A + plug-in |  | MC214337S |

MCCB MC Size 2-4-pole, 50kA, plug-in


MC210243S

Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Fixed short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 100 A to 250 A

| Rated current $I_{\text {I }}$ | with delayed electronic release unit $100-250 \mathrm{~A}$ |
| :---: | :---: |
| Rated voltage Ue | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$ In |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | fix, $12 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{I}_{\text {cs }}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20kA |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 5 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB MC Size 2-4-pole, 50kA, plug-in
MCCB 4-pole MC2..243S dimensions


Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 100 to 250A with delayed electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 100A + plug-in | MC2N-4-VE100-SVE | - -8000 | MC210243S |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 160A + plug-in | MC2N-4-VE160-SVE | -600-6 | MC216243S |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 250A + plug-in | MC2N-4-VE250-SVE | $\begin{array}{rrr} \hline-000 & -\infty \\ \hline \end{array}$ | MC225243S |

MCCB MC Size 2-4-pole, 150kA, plug-in


MC210341S

## Schrack-Info

- For System and Line Protection
- Adjustable overload release 0.8-1 x $\ln$
- Fixed or adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 32 A to 100 A

| Rated current ${ }_{\text {I }}$ | with thermomagnetic release unit $32-100 A$ |
| :---: | :---: |
| Rated voltage Ue | 690VAC |
| Adjustable overload release I, | 0.8-1 x ${ }_{\text {n }}$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{gathered} I_{n} \text { 32A: fix, 350A } \\ I_{n} \text { 40A: } 8-10 x I_{n} \\ I_{n} 50-100 A: 6-10 x I_{n} \end{gathered}$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cv}} / \mathrm{l}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |
| $\mathrm{I}_{\text {cu }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 150kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20kA |
| $\mathrm{l}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 150kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 5 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB MC Size 2-4-pole, 150kA, plug-in
MCCB 4-pole MC2..341S dimensions


Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{3 2}$ to 100A with thermomagnetic release unit |  |  |
| Moulded Case Circuit Breaker type A, 4-pole, 150kA, 32A + plug-in | MC2H-4-A32-SVE | MC2H-4-A50-SVE |
| Moulded Case Circuit Breaker type A, 4-pole, 150kA, 50A + plug-in | MC2H-4-A100 | MC232341S |
| Moulded Case Circuit Breaker type A, 4-pole, 150kA, 100A + plug-in | MC250341S |  |

Load Switches MC

## MCCB MC Size 2, plug-in - Accessories



MC296699



MC299832


MC900003


MC299499


MC900105


MC299754


MM216376

Schrack-Info

- Auxiliary contacts
- Door coupling rotary handles
- Rotary handle
- Terminal covers
- Remote operator
- Plug-in socket

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Socket 3-pole for MC2 | MC2-XSVS |  | MC296699 |
| Socket 4-pole for MC2 | MC2-4-XSVS |  | MC296700 |
| Toggle Lever Locking Device for MC2 | MC2/3-XKAV |  | MC290201 |
| Main switch set with door interlock, black/grey, MC2 | MC2-XHB |  | MC296627 |
| Main switch set with door interlock, red/yellow, MC2 | MC2-XHBR |  | MC296633 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable for MC2 | MC2-XDV | - -8 | MC290127 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage release 24 V AC for $\mathrm{MC} 2 / 3$ | MC2/3-XU24AC |  | MC299491 |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 | - + - 0 | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 |  | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | - | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV | [-80-80 | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - | MC299591 |
| Undervoltage release 400 V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | [80-8080 | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | $-\infty$ | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | $\begin{array}{rrr} -\infty & 0-8 \\ \hline \infty & 0 \\ \hline \end{array}$ | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |
| Remote Operator 24-30V DC for MC2 can be synchronised and interlocked | MC2-XR240DC | $\begin{array}{rrr} -\infty & \infty \\ -\infty & \infty \\ \hline \infty \end{array}$ | MC299836 |
| Remote Operator 24-30V DC for MC2 can not be synchronised and interlocked | MC2-XRD240DC |  | MC299837 |

MCCB MC Size 2, plug-in - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |
| Remote Operator 48-60V DC for MC2 can be synchronised and interlocked | MC2-XR48-60DC | MC2-XR208-240AC |
| Remote Operator 208-240V AC for MC2 can be synchronised and interlocked | MC2-XRD208-240A | MC299838 |
| Remote Operator 208-240V AC for MC2 can not be synchronised and interlocked | MC29982 |  |

Residual current release units and accessories

| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| :---: | :---: | :---: | :---: |
| Earth Leakage Release 0.3A | FIR-0,3 |  | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | - -6000 | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer dm $=20 \mathrm{~mm}$ | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer $\mathrm{dm}=35 \mathrm{~mm}$ | FIR-WS-35 |  | MC900035 |
| Current Transformer dm=70mm | FIR-W-70 | $+\infty=-\infty$ | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 |  | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 | $+50 \div 0$ | MC900140 |
| Current Transformer $\mathrm{dm}=210 \mathrm{~mm}$ | FIR-W-210 | -000-9, | MC900210 |
| Current Transformer 70x 175mm | FIR-WR-175 | $+\infty 0 \div 0$ | MC910175 |
| Current Transformer $115 \times 305 \mathrm{~mm}$ | FIR-WR-305 |  | MC910305 |
| Current Transformer 150×350mm | FIR-WR-350 |  | MC910350 |
| Auxiliary contacts |  |  |  |
| NO contact block, front montage | M22-K10 | $+60 \div-\infty$ | MM216376 |
| NC contact block, front montage | M22-K01 | $+\infty 0 \div 0$ | MM216378 |
| Double NO contact, Cage clamp | M22-CK20 | $+\infty=0$ | MM107898 |
| Double NC contact, Cage clamp | M22-CK02 | $+5000$ | MM107899 |
| $\underline{\mathrm{NO}+\mathrm{NC}, ~ C a g e ~ c l a m p ~}$ | M22-CK11 | $+50 \div-\infty$ | MM107940 |

Load Switches MC

- MCCB MC Size 3-3-pole, 50kA, withdrawable


MC340232A

Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.8-1 x $\ln (0.5-1 \times \ln )$
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 220 A to 630 A

| Rated current $I_{\text {n }}$ | with thermomagnetic release unit $400-500 \mathrm{~A}$ | with electronic release unit $400-630 \mathrm{~A}$ | with delayed electronic release unit 400-630A | with electronic motor protection $220-350 \mathrm{~A}$ |
| :---: | :---: | :---: | :---: | :---: |
| Rated voltage Ue | 690VAC | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.8-1 $\times$ In | 0.5-1 $\times 1$ | 0.5-1 x ${ }_{0}$ | 0.5-1 $\times 1$. |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $6-10 \times 1$ | $\begin{aligned} & I_{n} \text { 400A: } 2-11 \times I_{n} \\ & I_{n} \text { 630A: } 2-8 \times I_{n} \end{aligned}$ | $\begin{aligned} & I_{n} \text { 400A: } 2-11 \times I_{n} \\ & I_{n} \text { 630A: } 2-8 \times I_{n} \end{aligned}$ | $2-14 \times I_{n}$ |
| Rated short-circuit breaking capacity $\left.\right\|_{c u} /\left.\right\|_{c s}$ |  |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |  |  |
| $\mathrm{I}_{\text {cv }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |  |  |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20 kA |  |  |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85 kA |  |  |  |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |  |  |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 5 kA |  |  |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |  |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |  |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |  |  |

MCCB 3-pole MC3..231A/MC3..232A/MC3..233A/MC3..237A dimensions


[^9]- MCCB MC Size 3-3-pole, 50kA, withdrawable

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 400 to 500A with thermomagnetic release unit |  |  |  |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 400A + withdrawable module | MC3N-AE400-AVE |  | MC340231A |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 500A | MC3N-A500-AVE |  | MC350231A |
| 400 to 630A with electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 400A + withdrawable module | MC3N-AE400-AVE |  | MC340232A |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 630A + withdrawable module | MC3N-AE630-AVE | $0 \times 0$ | MC363232A |
| 400 to 630A with delayed electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 400A + withdrawable module | MC3N-VE400-AVE |  | MC340233A |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 630A + withdrawable module | MC3N-VE630-AVE | $+\infty 00$ | MC363233A |
| 220 to 350A with electronic motor protection |  |  |  |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 220A + withdrawable module | MC3N-ME220-AVE |  | MC322237A |
| Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 350A + withdrawable module | MC3N-ME350-AVE |  | MC335237A |

Load Switches MC

- MCCB MC Size 3-3-pole, 150kA, withdrawable


MC340333A

## Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 220 A to 630 A

| Rated current $I_{n}$ | with electronic release unit | with delayed electronic release unit <br> $400-630 \mathrm{~A}$ |
| :--- | :---: | :---: |
| wated voltage $U_{e}$ | 690 VAC | $400-630 \mathrm{~A}$ |

■ MCCB 3-pole MC3..332A/MC3..333A/MC3..337A dimensions


1) 3-pole
2) 4 -pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

MCCB MC Size 3-3-pole, 150kA, withdrawable
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{4 0 0}$ to 630A with electronic release unit |  |  |
| Moulded Case Circuit Breaker type AE, 3-pole, 150kA, 400A + withdrawable module | MO. |  |
| Moulded Case Circuit Breaker type AE, 3-pole, 150kA, 630A + withdrawable module | MC3H-AE400-AVE |  |
| $\mathbf{4 0 0}$ to 630A with delayed electronic release unit |  | MC363332A |
| Moulded Case Circuit Breaker type VE, 3-pole, 150kA, 400A + withdrawable module | MC3H-VE400-AVE |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 150kA, 630A + withdrawable module | MC340333A |  |
| $\mathbf{2 2 0}$ to 350A with electronic motor protection | MC3H-VE630-AVE | MC363333A |
| Moulded Case Circuit Breaker type ME, 3-pole, 150kA, 220A + withdrawable module |  | MC322337A |
| Moulded Case Circuit Breaker type ME, 3-pole, 150kA, 350A + withdrawable module | MC3H-ME350-AVE | MC335337A |

Load Switches MC

- MCCB MC Size 3-4-pole, 50kA, withdrawable


MC340242A

Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 400 A to 630 A

| Rated current ${ }_{\text {I }}$ | with electronic release unit $400-630 \mathrm{~A}$ | with delayed electronic release unit 400-630A |
| :---: | :---: | :---: |
| Rated voltage U ${ }_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release ${ }_{\text {I }}$ | 0.5-1 x ${ }_{0}$ | 0.5-1 x ${ }_{0}$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{aligned} & I_{n} \text { 400A: } 2-11 \times I_{n} \\ & I_{n} \text { 630A: } 2-8 \times I_{n} \\ & \hline \end{aligned}$ | $\begin{aligned} & I_{n} \text { 400A: } 2-11 \times I_{n} \\ & I_{n} \text { 630A: } 2-8 \times I_{n} \end{aligned}$ |
| Rated short-circuit breaking capacity $\mathrm{l}_{c v} / \mathrm{l}_{c s}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} \mathrm{50/60Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20kA |  |
| $\mathrm{I}_{\text {s }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 5 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC3..242A/MC3..243A dimensions


1) 3-pole
2) 4-pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

- MCCB MC Size 3-4-pole, 50kA, withdrawable
$\square$ Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{4 0 0}$ to 630A with electronic release unit |  |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 50kA, 400A + withdrawable module | MC3N-4-AE400-AVE |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 50kA, 630A + withdrawable module | MC3N-4-AE630-AVE |  |
| $\mathbf{4 0 0}$ to 630A with delayed electronic release unit |  | MC363242A |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 400A + withdrawable module | MC3N-4-VE400-AVE |  |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 630A + withdrawable module | MC3N-4-VE630-AVE | MC340243A |

400 to 630A with electronic release unit

Load Switches MC

- MCCB MC Size 3-4-pole, 150kA, withdrawable


MC340342A

Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release
- Box terminals standard, screw connections as option
- Switching capacity 150 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 400 A to 630 A

| Rated current ${ }_{\text {I }}$ | with electronic release unit $400-630 \mathrm{~A}$ | with delayed electronic release unit 400-630A |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$ | 0.5-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $\begin{aligned} & \mathrm{I}_{n} \text { 400A: } 2-11 \times \mathrm{I}_{\mathrm{n}} \\ & \mathrm{I}_{n} 630 \mathrm{~A}: 2-8 \times \mathrm{I}_{n} \end{aligned}$ | $\begin{aligned} & I_{n} \text { 400A: } 2-11 \times I_{n} \\ & I_{n} \text { 630A: } 2-8 \times I_{n} \end{aligned}$ |
| Rated short-circuit breaking capacity $\mathrm{l}_{\mathrm{cv}} / \mathrm{I}_{\mathrm{cs}}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |  |
| $\mathrm{I}_{\text {cv }}$ at 415V $50 / 60 \mathrm{~Hz}$ | 150kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 35 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} \mathrm{50/60Hz}$ | 150kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 9 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC3..342A/MC3..343A dimensions


1) 3-pole
2) 4-pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

- MCCB MC Size 3-4-pole, 150kA, withdrawable

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{4 0 0}$ to 630A with electronic release unit |  |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 150kA, 400A + withdrawable module | MC3H-4-AE400-AVE |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 150kA, 630A + withdrawable module | MC3H-4-AE630-AVE |  |
| $\mathbf{4 0 0}$ to 630A with delayed electronic release unit |  | MC363342A |
| Moulded Case Circuit Breaker type VE, 4-pole, 150kA, 400A + withdrawable module | MC3H-4-VE400-AVE |  |
| Moulded Case Circuit Breaker type VE, 4-pole, 150kA, 630A + withdrawable module | MC3H-4-VE630-AVE | MC340343A |

400 to 630A with electronic release unit

Load Switches MC

- MCCB MC Size 3, withdrawable - Accessories



MC399850


MC900003


MC299499


MC900105


MC299754


MM216378

MC390129
Schrack-Info

- Auxiliary contacts
- Door coupling rotary handles
- Rotary handle, drive-out socket
- Terminal covers
- Residual current release
- Remote operator

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Socket Base 3-pole, MC3 | MC3-XAVS | - -1000 | MC396711 |
| Socket Base 4-pole, MC3 | MC3-4-XAVS |  | MC396712 |
| Spacer, MC3 | МСЗ-XAB | -000-9, | MC390211 |
| Door Sealing Frame for MC3 | MC3-XBR |  | MC394645 |
| Main switch set with door interlock, black/grey, MC3 | МСЗ-XHB |  | MC396628 |
| Main switch set with door interlock, red/yellow, MC3 | MC3-XHBR |  | MC396634 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable, black/grey for MC3 | MC3-XDV |  | MC390129 |
| Rotary Handle complete, lockable, red/yellow for MC3 | MC3-XDVR | [-000-9, | MC390140 |

Undervoltage release units, shunt-trips, motor operators and accessories

| Undervoltage release 24V AC for MC2/3 | MC2/3-XU24AC | - $-80-8$ | MC299491 |
| :---: | :---: | :---: | :---: |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 | -500-6, | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 | [00-0, | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | - $-0 \times 0$ | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV | [-0000] | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | - -8000 | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | -80\%-9, | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | -000-9, | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |

Order no. blue: on stock, usually ready for delivery on the day of order

MCCB MC Size 3, withdrawable - Accessories

| DESCRIPTION | TYPE NO. |
| :--- | :--- | AVAILABLE $\quad$ ORDER NO.

Undervoltage release units, shunt-trips, motor operators and accessories

| Mechanical Interlock for Remote Operator for MC3 | MC3-XMVR | - -100 | MC394545 |
| :---: | :---: | :---: | :---: |
| Remote Operator 24-30V DC for MC3 can be synchronised and interlocked | MC3-XR240DC | -000-8) | MC399854 |
| Remote Operator 48-60V DC for MC3 can be synchronised and interlocked | MC3-XR48-60DC |  | MC399856 |
| Remote Operator 208-240V AC for MC3 can be synchronised and interlocked | MC3-XR208-240AC |  | MC399850 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 | - $0-0$ | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | $\left[\begin{array}{ccc} -\infty & 0 & 0 \\ \hline \end{array}\right.$ | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer dm=20mm | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer $\mathrm{dm}=35 \mathrm{~mm}$ | FIR-WS-35 | $+\infty$ | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 | [-000] 0 | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 |  | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 | $\begin{array}{rr} -\infty & 0-6 \\ \hline \end{array}$ | MC900140 |
| Current Transformer $\mathrm{dm}=210 \mathrm{~mm}$ | FIR-W-210 | $x_{-\infty}$ | MC900210 |
| Current Transformer 70x175mm | FIR-WR-175 | $\left[\begin{array}{lll} -\infty & 0 & -\infty \\ \hline \end{array}\right.$ | MC910175 |
| Current Transformer $115 \times 305 \mathrm{~mm}$ | FIR-WR-305 |  | MC910305 |
| Current Transformer 150×350mm | FIR-WR-350 |  | MC910350 |

## Auxiliary contacts

| NO contact block, front montage | M22-K10 | M22-K01 |
| :--- | :--- | :--- |

MCCB MC Size 4-3-pole, 50kA, withdrawable


MC412232A

Schrack-Info

- For System and Line Protection, Motor Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release 2-12x $\ln (2-14 \times \ln )$
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current $=$ rated current 630 A to 1600 A

| Rated current $\mathrm{I}_{n}$ | with electronic release unit $630-1600 \mathrm{~A}$ | with delayed electronic release unit $630-1600 \mathrm{~A}$ | with electronic motor protection 1400A |
| :---: | :---: | :---: | :---: |
| Rated voltage Ue | 690VAC | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$ n | 0.5-1 $\times 1{ }_{n}$ | 0.5-1 $\times 1$ |
| Adjustable short circuit release $\mathrm{I}_{\mathrm{i}}$ | $2-12 \times 1$ n | $2-12 \times 1$ | $2-14 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{l}_{\text {cs }}$ |  |  |  |
| $\mathrm{I}_{c u}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 50kA |  |
| $\mathrm{I}_{c v}$ at $415 \mathrm{~V} \mathrm{50/60Hz}$ |  | 50kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 20kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 37 kA |  |
| $\mathrm{I}_{\text {cs }}$ at 415V $50 / 60 \mathrm{~Hz}$ |  | 37kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |  | 15kA |  |
| Ambient temperature (operation) |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations |  | IEC/EN 60947-2, VDE 0660 |  |

MCCB MC Size 4-3-pole, 50kA, withdrawable
MCCB 3-pole MC4..232A/MC4..233A/MC4..237A dimensions


1) 3-pole
2) 4 -pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

Load Switches MC

- MCCB MC Size 4-3-pole, 50kA, withdrawable

Wiring diagram


| DESCRIPTION | TYPE NO. |
| :--- | :--- |
| $\mathbf{6 3 0}$ to 1600A with electronic release unit | AVAILABLE |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 630A + withdrawable module | MC4N-AE630-AVE |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 800A + withdrawable module | MC4N-AE800-AVE |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 1000A + withdrawable module | MC463232A |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 1250A + withdrawable module | MC4N-AE1000-AVE |
| Moulded Case Circuit Breaker type AE, 3-pole, 50kA, 1600A + withdrawable module | MC4N-AE1250-AVE |

630 to 1600A with delayed electronic release unit

| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 630A + withdrawable module | MC4N-VE630-AVE |  | MC463233A |
| :---: | :---: | :---: | :---: |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 800A + withdrawable module | MC4N-VE800-AVE |  | MC480233A |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 1000A + withdrawable module | MC4N-VE1000-AVE | - -80 | MC410233A |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 1250A + withdrawable module | MC4N-VE 1250-AVE |  | MC412233A |
| Moulded Case Circuit Breaker type VE, 3-pole, 50kA, 1600A + withdrawable module | MC4N-VE1600-AVE | $0$ | MC416233A |

1400A with electronic motor protection
Moulded Case Circuit Breaker type ME, 3-pole, 50kA, 1400A

- MCCB MC Size 4-3-pole, 85 kA , withdrawable


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release 2-12 x $\ln$
- Box terminals standard, screw connections as option
- Switching capacity 85 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current = rated current 630 A to 1600 A

MC463332A

| Rated current ${ }^{\text {I }}$ | with electronic release unit $630-1600 \mathrm{~A}$ | with delayed electronic release unit $630-1600 \mathrm{~A}$ |
| :---: | :---: | :---: |
| Rated voltage U | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$. | 0.5-1 $\times 1$ ] |
| Adjustable short circuit release I, | $2-12 \times 1$ | $2-12 \times 1$. |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{I}_{\text {cs }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 125kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{l}_{c v}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 63kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 43kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 37 kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

Load Switches MC

MCCB MC Size 4-3-pole, 85kA, withdrawable
MCCB 3-pole MC4..332A/MC4..333A dimensions


1) 3-pole
2) 4 -pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

- MCCB MC Size 4-3-pole, 85 kA , withdrawable

Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 630 to 1600A with electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 630A + withdrawable module | MC4H-AE630-AVE |  | MC463332A |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 800A + withdrawable module | MC4H-AE800-AVE |  | MC480332A |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 1000A + withdrawable module | MC4H-AE1000-AVE |  | MC410332A |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 1250A + withdrawable module | MC4H-AE 1250-AVE |  | MC412332A |
| Moulded Case Circuit Breaker type AE, 3-pole, 85kA, 1600A + withdrawable module | MC4H-AE1600-AVE |  | MC416332A |
| 630 to 1600A with delayed electronic release unit |  |  |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 630A + withdrawable module | MC4H-VE630-AVE |  | MC463333A |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 800A + withdrawable module | MC4H-VE800-AVE |  | MC480333A |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 1000A + withdrawable module | MC4H-VE1000-AVE |  | MC410333A |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 1250A + withdrawable module | MC4H-VE 1250-AVE |  | MC412333A |
| Moulded Case Circuit Breaker type VE, 3-pole, 85kA, 1600A + withdrawable module | MC4H-VE 1600-AVE |  | MC416333A |

- MCCB MC Size 4-4-pole, 50kA, withdrawable


Schrack-Info

- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release 2-12 x $\ln$
- Box terminals standard, screw connections as option
- Switching capacity 50 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current $=$ rated current 800 A to 1600 A

| Rated current $\mathrm{I}_{\text {r }}$ | with electronic release unit $800-1600 \mathrm{~A}$ | with delayed electronic release unit $800-1600 \mathrm{~A}$ |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$. | 0.5-1 $\times 1$. |
| Adjustable short circuit release I | $2-12 \times 1$ | $2-12 \times 1$ |
| Rated short-circuit breaking capacity $\mathrm{I}_{\text {cu }} / \mathrm{I}_{\text {cs }}$ |  |  |
| $\mathrm{I}_{\text {cu }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA |  |
| $\mathrm{l}_{c v}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 20kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 37kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 37 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 15kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB MC Size 4-4-pole, 50kA, withdrawable
MCCB 4-pole MC4..242A/MC4..243A dimensions


1) 3-pole
2) 4 -pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

## Load Switches MC

MCCB MC Size 4-4-pole, 50kA, withdrawable

- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{8 0 0}$ to 1600A with electronic release unit |  | ORDER NO. |
| Moulded Case Circuit Breaker type AE, 4-pole, 50kA, 800A + withdrawable module | MC4N-4-AE800-AVE |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 50kA, 1000A + withdrawable module | MC4N-4-AE 1000-AVE | MC480242A |
| Moulded Case Circuit Breaker type AE, 4-pole, 50kA, 1250A + withdrawable module | MC4N-4-AE 1250-AVE | MC410242A |
| Moulded Case Circuit Breaker type AE, 4-pole, 50kA, 1600A + withdrawable module | MC4N-4-AE 1600-AVE |  |
| $\mathbf{6 3 0}$ to 1600A with delayed electronic release unit |  | MC416242A |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 800A + withdrawable module | MC4N-4-VE800-AVE | MC480243A |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 1000A + withdrawable module | MC4N-4-VE1000-AVE | MC410243A |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 1250A + withdrawable module | MC4N-4-VE 1250-AVE | MC412243A |
| Moulded Case Circuit Breaker type VE, 4-pole, 50kA, 1600A + withdrawable module | MC4N-4-VE1600-AVE | MC416243A |

MCCB MC Size 4-4-pole, 85kA, withdrawable


- Schrack-Info
- For System and Line Protection, Selective and Generator Protection
- Adjustable overload release 0.5-1 x $\ln$
- Adjustable short circuit release 2-12 x $\ln$
- Box terminals standard, screw connections as option
- Switching capacity 85 kA at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-2
- Rated continuous current $=$ rated current 800 A to 1600 A

| Rated current ${ }_{\text {I }}$ | with electronic release unit $800-1600 \mathrm{~A}$ | with delayed electronic release unit $800-1600 \mathrm{~A}$ |
| :---: | :---: | :---: |
| Rated voltage $U_{\text {e }}$ | 690VAC | 690VAC |
| Adjustable overload release I, | 0.5-1 $\times 1$ | 0.5-1 $\times 1$. |
| Adjustable short circuit release $\mathrm{I}_{\text {, }}$, | $2-12 \times 1$ | $2-12 \times 1$. |
| Rated short-circuit breaking capacity $\left.\right\|_{c v} /\left.\right\|_{c s}$ |  |  |
| $\mathrm{I}_{c u}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 125kA |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |  |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50 kA |  |
| $\mathrm{I}_{\text {cs }}$ at $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 63kA |  |
| $\mathrm{I}_{\text {cs }}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 43kA |  |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 37kA |  |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

MCCB 4-pole MC4..342A/MC4..343A dimensions


1) 3-pole
2) 4-pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

Load Switches MC

MCCB MC Size 4-4-pole, 85kA, withdrawable

- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{8 0 0}$ to 1600A with electronic release unit |  | ORDER NO. |
| Moulded Case Circuit Breaker type AE, 4-pole, 85kA, 800A + withdrawable module | MC4H-4-AE800-AVE |  |
| Moulded Case Circuit Breaker type AE, 4-pole, 85kA, 1000A + withdrawable module | MC4H-4-AE1000-AVE | MC480342A |
| Moulded Case Circuit Breaker type AE, 4-pole, 85kA, 1250A + withdrawable module | MC4H-4-AE1250-AVE | MC410342A |
| Moulded Case Circuit Breaker type AE, 4-pole, 85kA, 1600A + withdrawable module | MC4H-4-AE1600-AVE |  |
| $\mathbf{8 0 0}$ to 1600A with delayed electronic release unit |  | MC416342A |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 800A + withdrawable module | MC4H-4-VE800-AVE | MC480343A |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 1000A + withdrawable module | MC4H-4-VE1000-AVE | MC410343A |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 1250A + withdrawable module | MC4H-4-VE1250-AVE | MC412343A |
| Moulded Case Circuit Breaker type VE, 4-pole, 85kA, 1600A + withdrawable module | MC4H-4-VE1600-AVE | MC416343A |

- MCCB MC Size 4, withdrawable - Accessories


Schrack-Info

- Auxiliary contacts
- Door coupling rotary handles
- Rotary handle
- Terminal covers
- Residual current release
- Remote operator
- Drive-out socket

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Socket Base 3-pole, MC4 | MC4-XAVS | [-80 0 | MC496713 |
| Socket Base 4-pole, MC4 | MC4-4-XAVS |  | MC496714 |
| Main switch set for MC4 | MC4-XHB |  | MC491779 |
| Main switch set for MC4 with door interlock, Emergency-Stop, red/yellow, for MC4 | MC4-XHBR |  | MC491842 |
| Early-Make auxiliary contact, MC4 | MC4-XHIV |  | MC496172 |
| Door Sealing Frame for MC4 | MC4-XBR |  | MC494646 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary handle direct, lockable, black/grey | MC4-XDV | - + - $0^{-1}$ | MC496608 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage Release 24VAC for MC4 | MC4-XU24AC | - -80 | MC496189 |
| Undervoltage Release 110-130VAC for MC4 | MC4-XU 110-130AC |  | MC496192 |
| Undervoltage Release 208-240VAC for MC4 | MC4-XU208-240AC | - -1000 | MC496193 |
| Undervoltage Release 380-440VAC for MC4 | MC4-XU380-440AC |  | MC496194 |
| Undervoltage Release 24VDC for MC4 | MC4-XU24DC | -80-8 | MC496204 |
| Undervoltage Release 220-250VDC for MC4 | MC4-XU220-250DC |  | MC496208 |
| Undervoltage Release with 2 early make contacts, 230VAC, MC4 | MC4-XUHIV208-240 |  | MC496221 |
| Undervoltage Release with 2 early make contacts, 400VAC, MC4 | MC4-XUHIV380-440 |  | MC496222 |
| Undervoltage release for time-delay unit, for MC4 | MC4-XUV |  | MC496588 |
| Shunt trip 24 VAC/DC for MC4 | MC4-XA24AC/DC | - 0 | MC496447 |
| Shunt trip 110-130V AC/DC for MC4 | MC4-XA 110-130AC/DC |  | MC496450 |
| Shunt trip 208-250V AC/DC for MC4 | MC4-XA208-250AC/DC | - -100 | MC496451 |
| Shunt trip with early make contact 24VAC/DC for MC4 | MC4-XAVHI24AC/DC |  | MC496471 |

[^10]SCHRACK

## Load Switches MC

MCCB MC Size 4, withdrawable - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Shunt trip with early make contact 230VAC/DC for MC4 | MC4-XAVHI230AC/DC |  | MC496475 |
| Remote Operator 24-30V DC for MC4, can be synchronised and interlocked | MC4-XR240DC | [-80-8 | MC496686 |
| Remote Operator 48-60V DC for MC4, can be synchronised and interlocked | MC4-XR48-60DC |  | MC496687 |
| Remote Operator 208-240V AC for MC4, can be synchronised and interlocked | MC4-XR208-240AC | -80-4 | MC496685 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 | - -8 | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | $\begin{array}{\|cc\|} \hline-\infty & \infty-\infty \\ \hline \end{array}$ | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer $\mathrm{dm}=20 \mathrm{~mm}$ | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer $\mathrm{dm}=35 \mathrm{~mm}$ | FIR-WS-35 | $\begin{array}{\|cc} +\infty & \infty \\ \hline-\infty \\ \hline \end{array}$ | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 | $\left[\begin{array}{rrr} -\infty & 0 & 0 \\ \hline & 0 \end{array}\right.$ | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 | $\begin{array}{rrr} \hline-\infty & 0-8 \\ \hline \end{array}$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 | $4$ | MC900140 |
| Current Transformer dm=210mm | FIR-W-210 | $\left[\begin{array}{ll} \infty & 0 \\ \hline \infty & 0-\infty \\ \hline \end{array}\right.$ | MC900210 |
| Current Transformer $70 \times 175 \mathrm{~mm}$ | FIR-WR-175 | $\begin{array}{rr} -\infty & \infty \\ \hline \end{array}$ | MC910175 |
| Current Transformer $115 \times 305 \mathrm{~mm}$ | FIR-WR-305 |  | MC910305 |
| Current Transformer 150x350mm | FIR-WR-350 |  | MC910350 |

## Auxiliary contacts

| NO contact block, front montage | M22-K10 | M22-K01 |
| :--- | :--- | :--- |
| NC contact block, front montage | M22-CK20 | MM216376 |
| Double NO contact, Cage clamp | M22-CK02 | M22-CK11 |
| Double NC contact, Cage clamp | MM216378 |  |
| NO + NC, Cage clamp |  | MM107898 |

## Load Switches MC, plug-in/drive-out



MC216045S


MC363035A


MC410035A


MC410045A

Schrack-Info

- Load break switches type MC, size 2-4, 3 or 4-pole, 160-1600A, plug-in / withdrawable

Load Switches MC Size 2-4-pole, plug-in


MC216045S

## Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections, box-terminals as option
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=5,5 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 160 A

| Rated current $I_{n}$ | without thermomagnetic release unit |
| :--- | :---: |
| 160 A |  |$|$| Rated voltage $U_{e}$ |
| :--- |
| Rated short-circuit making capacity |
| $\mathbf{I}_{\mathrm{cm}}$ at 415V 50/60Hz |
| Ambient temperature (operation) |
| Mounting position |
| Standards and regulations |

## Load Switches MC

Load Switches MC Size 2-4-pole, plug-in
Load Switch 4-pole MC2..045S dimensions


Wiring diagram

|  |  |  |  |
| :---: | :---: | :---: | :---: |
| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| 160A Load Switch, plug-in |  |  |  |
| Switch Disconnector, 4-pole, 160A for remote operation + plug-in | MC2-N-4-160-SVE |  | MC216045S |

Load Switches MC Size 2 - Accessories


MC296699



MC299832


MC900003


MC299499


MC900105


MC299754


MM216376

Schrack-Info

- Auxiliary contacts
- Door couplings
- Rotary handles
- Terminal covers
- Remote operator
- Plug in sockets

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Socket 3-pole for MC2 | MC2-XSVS | - 0 | MC296699 |
| Socket 4-pole for MC2 | MC2-4-XSVS |  | MC296700 |
| Toggle Lever Locking Device for MC2 | MC2/3-XKAV | - $0 \times 0$ | MC290201 |
| Clip Plate 75 mm for MC2 | MC2-XC75 |  | MC290215 |
| Main switch set with door interlock, black/grey, MC2 | MC2-XHB |  | MC296627 |
| Main switch set with door interlock, red/yellow, MC2 | MC2-XHBR |  | MC296633 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable for MC2 | MC2-XDV | - $+\cdots$ | MC290127 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage release 24 V AC for MC2/3 | MC2/3-XU24AC | - | MC299491 |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 |  | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 |  | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC |  | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV | $\begin{array}{rrr} -\infty & 0 & -\infty \\ \hline \end{array}$ | MC299527 |
| Undervoltage release 230 V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - 0 | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | - $\square^{-\infty} 000$ | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | $+\infty$ | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA 130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | $\begin{array}{rrr} \hline-\infty & \infty \\ \hline \infty & \infty \\ \hline \end{array}$ | MC299763 |
| Shunt trip $24 \mathrm{VAC} / \mathrm{DC}$ with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |
| Remote Operator 24-30V DC for MC2 can be synchronised and interlocked | MC2-XR240DC | - 0 | MC299836 |

## Load Switches MC

Load Switches MC Size 2 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |

Undervoltage release units, shunt-trips, motor operators and accessories

| Remote Operator 24-30V DC for MC2 can not be synchronised and interlocked | MC2-XRD240DC | [-8080 0 | MC299837 |
| :---: | :---: | :---: | :---: |
| Remote Operator 48-60V DC for MC2 can be synchronised and interlocked | MC2-XR48-60DC | - | MC299838 |
| Remote Operator 208-240V AC for MC2 can be synchronised and interlocked | MC2-XR208-240AC | - 0 | MC299832 |
| Remote Operator 208-240V AC for MC2 can not be synchronised and interlocked | MC2-XRD208-240A | - | MC299833 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 | $+\infty$ | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | $x_{-\infty}+\infty$ | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer $\mathrm{dm}=20 \mathrm{~mm}$ | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer dm=35mm | FIR-WS-35 | -80-3 | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 | - $-0-7$ | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 | $\square$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 |  | MC900140 |
| Current Transformer dm=210mm | FIR-W-210 | $\begin{aligned} &-\infty \infty \\ & \hline \infty \infty \\ & \hline \end{aligned}$ | MC900210 |
| Current Transformer 70×175mm | FIR-WR-175 | $\left[\begin{array}{lll} -\infty & 0 & -\infty \\ \hline \end{array}\right.$ | MC910175 |
| Current Transformer $115 \times 305 \mathrm{~mm}$ | FIR-WR-305 |  | MC910305 |
| Current Transformer 150x350mm | FIR-WR-350 |  | MC910350 |

## Auxiliary contacts

| NO contact block, front montage | M22-K10 | M22-K01 |
| :--- | :--- | :--- |

## Load Switches MC Size 3-3-pole, withdrawable



Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections, box-terminals as option
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=25 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 400 A to 630 A
\(\left.\begin{array}{l|c}Rated current I_{n} \& without thermomagnetic release unit <br>

400-630 \mathrm{~A}\end{array}\right]\)| Rated voltage $U_{e}$ |
| :--- |
| Rated short-circuit making capacity |

Load Switch 3-pole MC3..035A diagram


1) 3-pole
2) 4-pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

Load Switches MC

Load Switches MC Size 3-3-pole, withdrawable
Wiring diagram

|  |  |  |  |
| :---: | :---: | :---: | :---: |
| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| 400-630A Load Switches, withdrawable |  |  |  |
| Switch Disconnector, 3-pole, 400A for remote operation + withdrawable module | MC3-N-400-AVE |  | MC340035A |
| Switch Disconnector, 3-pole, 630A for remote operation + withdrawable module | MC3-N-630-AVE |  | MC363035A |

Load Switches MC Size 3-4-pole, withdrawable


## Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections, box-terminals as option
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=25 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current $=$ rated current 400 A to 630A
\(\left.\begin{array}{l|c}Rated current I_{n} \& without thermomagnetic release unit <br>

400-630 \mathrm{~A}\end{array}\right]\)| Rated voltage $U_{e}$ |
| :--- |
| Rated short-circuit making capacity |
| $\mathbf{I}_{\mathrm{cm}}$ at 415V 50/60Hz |
| Ambient temperature (operation) |
| Mounting position |

Load Switch 4-pole MC3..045A dimensions


1) 3-pole
2) 4 -pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

Load Switches MC

Load Switches MC Size 3-4-pole, withdrawable
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :---: |
| 400-630A Load Switches, withdrawable |  |  |
| Switch Disconnector, 4-pole, 400A for remote operation + withdrawable module | MC3-N-4-400-AVE |  |
| Switch Disconnector, 4-pole, 630A for remote operation + withdrawable module | MC3-N-4-630-AVE | MC340045A |

Load Switches MC Size 3 - Accessories


Schrack-Info

- Auxiliary contacts
- Door couplings
- Rotary handles and plug in sockets
- Terminal covers
- Residual current release
- Remote operator

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Socket Base 3-pole, MC3 | MC3-XAVS | - -1000 | MC396711 |
| Socket Base 4-pole, MC3 | MC3-4-XAVS |  | MC396712 |
| Spacer, MC3 | МСЗ-XAB | -000-9, | MC390211 |
| Door Sealing Frame for MC3 | MC3-XBR |  | MC394645 |
| Main switch set with door interlock, black/grey, MC3 | MC3-XHB |  | MC396628 |
| Main switch set with door interlock, red/yellow, MC3 | MC3-XHBR |  | MC396634 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary Handle complete, lockable, black/grey for MC3 | MC3-XDV |  | MC390129 |
| Rotary Handle complete, lockable, red/yellow for MC3 | MC3-XDVR | [-000-9, | MC390140 |

Undervoltage release units, shunt-trips, motor operators and accessories

| Undervoltage release 24V AC for MC2/3 | MC2/3-XU24AC | -000-0) | MC299491 |
| :---: | :---: | :---: | :---: |
| Undervoltage release 208-240V AC for MC2/3 | MC2/3-XU208-240 | - -5000 | MC299499 |
| Undervoltage release 380-440V AC for MC2/3 | MC2/3-XU380-440 | - $-0 \times 0$ | MC299501 |
| Undervoltage release 24V DC for MC2/3 | MC2/3-XU24DC | $+\infty=-n$ | MC299509 |
| Undervoltage release of time-delay unit for MC2/3 | MC2-XUV | [-0000] | MC299527 |
| Undervoltage release 230V AC with 2 early make auxiliary contacts for MC2/3 | MC2/3-XUHIV208 | - -6 | MC299591 |
| Undervoltage release 400V AC with 2 early make auxiliary contacts for $\mathrm{MC} 2 / 3$ | MC2/3-XUHIV380 |  | MC299594 |
| Time-delay unit for MC1-MC4 | MC-UVU | - -600 | MC190154 |
| Shunt trip 24V AC/DC for MC2/3 | MC2/3-XA24AC/DC | $+\infty 0-0$ | MC299754 |
| Shunt trip 110-130V AC/DC for MC2/3 | MC2/3-XA130AC/D |  | MC299760 |
| Shunt trip 208-250V AC/DC for MC2/3 | MC2/3-XA208-250 | -000-9, | MC299763 |
| Shunt trip 24 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV24 |  | MC299810 |
| Shunt trip 230 VAC/DC with 1 early make auxiliary contact for MC2/3 | MC2/3-XAHIV208- |  | MC299818 |

## Load Switches MC

Load Switches MC Size 3 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |

Undervoltage release units, shunt-trips, motor operators and accessories

| Mechanical Interlock for Remote Operator for MC3 | MC3-XMVR | - 0 | MC394545 |
| :---: | :---: | :---: | :---: |
| Remote Operator 24-30V DC for MC3 can be synchronised and interlocked | MC3-XR240DC | - | MC399854 |
| Remote Operator 48-60V DC for MC3 can be synchronised and interlocked | MC3-XR48-60DC |  | MC399856 |
| Remote Operator 208-240V AC for MC3 can be synchronised and interlocked | MC3-XR208-240AC | - | MC399850 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 | $+\infty$ | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | $x_{-\infty}+\infty$ | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer $\mathrm{dm}=20 \mathrm{~mm}$ | FIR-WS-20 |  | MC900020 |
| Current Transformer $\mathrm{dm}=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer dm=35mm | FIR-WS-35 | -80-3 | MC900035 |
| Current Transformer $\mathrm{dm}=70 \mathrm{~mm}$ | FIR-W-70 | - $-0-7$ | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 | $\square$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 |  | MC900140 |
| Current Transformer dm=210mm | FIR-W-210 | $\begin{aligned} &-\infty \infty \\ & \hline \infty \infty \\ & \hline \end{aligned}$ | MC900210 |
| Current Transformer 70×175mm | FIR-WR-175 | $\left[\begin{array}{lll} -\infty & 0 & -\infty \\ \hline \end{array}\right.$ | MC910175 |
| Current Transformer 115x305mm | FIR-WR-305 |  | MC910305 |
| Current Transformer 150x350mm | FIR-WR-350 |  | MC910350 |

## Auxiliary contacts

| NO contact block, front montage | M22-K10 | M22-K01 |
| :--- | :--- | :--- |

Load Switches MC Size 4-3-pole, withdrawable


Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=53 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 800A to 1600 A
\(\left.\begin{array}{l|c}Rated current I_{n} \& without thermomagnetic release unit <br>

800-1600 \mathrm{~A}\end{array}\right]\)| Rated voltage $U_{e}$ |
| :--- |
| Rated short-circuit making capacity |

Load Switch 3-pole MC4..035A dimensions


1) 3-pole
2) 4 -pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

Load Switches MC

Load Switches MC Size 4-3-pole, withdrawable
Wiring diagram

|  |  |  |  |
| :---: | :---: | :---: | :---: |
| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| 800-1600A Load Switches, remote releasable and withdrawable |  |  |  |
| Switch Disconnector, 3-pole, 800A for remote operation + withdrawable module | MC4-N-800-AVE |  | MC480035A |
| Switch Disconnector, 3-pole, 1000A for remote operation + withdrawable module | MC4-N-1000-AVE |  | MC410035A |
| Switch Disconnector, 3-pole, 1250A for remote operation + withdrawable module | MC4-N-1250-AVE |  | MC412035A |
| Switch Disconnector, 3-pole, 1600A for remote operation + withdrawable module | MC4-N-1600-AVE |  | MC416035A |

Load Switches MC Size 4-4-pole, withdrawable


Schrack-Info

- Load-Break Switches without release unit
- Fitted with screw-connections
- Types for remote release are retrofit able with auxiliary contacts, motor operator, undervoltage and shunt release
- Not remote releasable types only auxiliary contacts retrofit
- Switching capacity $\mathrm{Icm}=53 \mathrm{kA}$ at $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$
- According IEC/EN 60947-3
- Rated continuous current = rated current 800A to 1600 A

|  | without thermomagnetic release unit |
| :--- | :---: |
| Rated current $\mathrm{I}_{n}$ | $800-1600 \mathrm{~A}$ |
| Rated voltage $U_{e}$ | 440 VAC |
| Rated short-circuit making capacity |  |
| $\mathbf{I}_{c m}$ at $\mathbf{4 1 5 \mathrm { V } 5 0 / 6 0 \mathrm { Hz }}$ | $\mathbf{5 3 \mathrm { kA }}$ |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $90^{\circ}$ in all directions |
| Standards and regulations | IEC $/ \mathrm{EN} 60947-3$ |

Load Switch 4-pole MC4..045A dimensions


1) 3-pole
2) 4 -pole
3) max. 3 U-locks
4) extended
5) test
6) retracted

Load Switches MC

Load Switches MC Size 4-4-pole, withdrawable
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{8 0 0} \mathbf{- 1 6 0 0 A}$ Load Switches, remote releasable and withdrawable |  |  |
| Switch Disconnector, 4-pole, 800A for remote operation + withdrawable module | MC4-N-4-800-AVE |  |
| Switch Disconnector, 4-pole, 1000A for remote operation + withdrawable module | MC4-N-4-1000-AVE |  |
| Switch Disconnector, 4-pole, 1250A for remote operation + withdrawable module | MC4-N-1250-AVE | MC410045A |
| Switch Disconnector, 4-pole, 1600A for remote operation + withdrawable module | MC4-N-4-1600-AVE | MC412045A |

Load Switches MC Size 4 - Accessories


MC496714


MC496608
Schrack-Info

- Auxiliary contacts
- Door couplings
- Rotary handles
- Terminal covers
- Residual current release
- Remote operator
- Withdrawable modules


MC496685


MC900002


MC496451


MC910175


MC496193


MM216378

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| General accessories |  |  |  |
| Socket Base 3-pole, MC4 | MC4-XAVS | - 0 | MC496713 |
| Socket Base 4-pole, MC4 | MC4-4-XAVS |  | MC496714 |
| Main switch set for MC4 | MC4-XHB |  | MC491779 |
| Main switch set for MC4 with door interlock, Emergency-Stop, red/yellow, for MC4 | MC4-XHBR |  | MC491842 |
| Early-Make auxiliary contact, MC4 | MC4-XHIV |  | MC496172 |
| Door Sealing Frame for MC4 | MC4-XBR |  | MC494646 |
| Rotary handles, door coupling handles, accessories |  |  |  |
| Rotary handle direct, lockable, black/grey | MC4-XDV | - 0 | MC496608 |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Undervoltage Release 24VAC for MC4 | MC4-XU24AC | - | MC496189 |
| Undervoltage Release 110-130VAC for MC4 | MC4-XU 110-130AC |  | MC496192 |
| Undervoltage Release 208-240VAC for MC4 | MC4-XU208-240AC | -8000 | MC496193 |
| Undervoltage Release 380-440VAC for MC4 | MC4-XU380-440AC |  | MC496194 |
| Undervoltage Release 24VDC for MC4 | MC4-XU24DC |  | MC496204 |
| Undervoltage Release 220-250VDC for MC4 | MC4-XU220-250DC |  | MC496208 |
| Undervoltage Release with 2 early make contacts, 230VAC, MC4 | MC4-XUHIV208-240 |  | MC496221 |
| Undervoltage Release with 2 early make contacts, 400VAC, MC4 | MC4-XUHIV380-440 |  | MC496222 |
| Undervoltage release for time-delay unit, for MC4 | MC4-XUV |  | MC496588 |
| Shunt trip 24 VAC/DC for MC4 | MC4-XA24AC/DC | - $0 \times 0$ | MC496447 |
| Shunt trip 110-130V AC/DC for MC4 | MC4-XA 110-130AC/DC |  | MC496450 |
| Shunt trip 208-250V AC/DC for MC4 | MC4-XA208-250AC/DC | [-808 0 | MC496451 |
| Shunt trip with early make contact 24VAC/DC for MC4 | MC4-XAVHI24AC/DC |  | MC496471 |

[^11]SCHRACKM

## Load Switches MC

Load Switches MC Size 4 - Accessories

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Undervoltage release units, shunt-trips, motor operators and accessories |  |  |  |
| Shunt trip with early make contact 230VAC/DC for MC4 | MC4-XAVHI230AC/DC |  | MC496475 |
| Remote Operator 24-30V DC for MC4, can be synchronised and interlocked | MC4-XR240DC |  | MC496686 |
| Remote Operator 48-60V DC for MC4, can be synchronised and interlocked | MC4-XR48-60DC | [-0000] | MC496687 |
| Remote Operator 208-240V AC for MC4, can be synchronised and interlocked | MC4-XR208-240AC | $+00 \div 0$ | MC496685 |
| Residual current release units and accessories |  |  |  |
| Earth Leakage Release 0.03A | FIR-0,03 |  | MC900001 |
| Earth Leakage Release 0.3A | FIR-0,3 |  | MC900002 |
| Earth Leakage Release 0.03-5A, 0.02-5s, 1 CO | FIR-5 | - -0.0 | MC900003 |
| Magnetic Shielding for Core balance transformer MC900035 | FIR-WMA-35 |  | MC900010 |
| Magnetic Shielding for Core balance transformer MC900070 | FIR-WMA-70 |  | MC900011 |
| Magnetic Shielding for Core balance transformer MC900105 | FIR-WMA-105 |  | MC900012 |
| Magnetic Shielding for Core balance transformer MC900140 | FIR-WMA-140 |  | MC900013 |
| Magnetic Shielding for Core balance transformer MC900210 | FIR-WMA-210 |  | MC900014 |
| Current Transformer dm=20mm | FIR-WS-20 |  | MC900020 |
| Current Transformer dm $=30 \mathrm{~mm}$ | FIR-WS-30 |  | MC900030 |
| Current Transformer dm $=35 \mathrm{~mm}$ | FIR-WS-35 | $\begin{array}{\|ccc} \hline-\infty 0 & -\infty \\ \hline \end{array}$ | MC900035 |
| Current Transformer dm=70mm | FIR-W-70 |  | MC900070 |
| Current Transformer $\mathrm{dm}=105 \mathrm{~mm}$ | FIR-W-105 | $+50-6$ | MC900105 |
| Current Transformer $\mathrm{dm}=140 \mathrm{~mm}$ | FIR-W-140 | $+000-8$ | MC900140 |
| Current Transformer $\mathrm{dm}=210 \mathrm{~mm}$ | FIR-W-210 | $\begin{array}{\|cc\|} \hline-\infty 0 & -\infty \\ \hline \end{array}$ | MC900210 |
| Current Transformer 70x175mm | FIR-WR-175 | $+\infty=0$ | MC910175 |
| Current Transformer 115x305mm | FIR-WR-305 |  | MC910305 |
| Current Transformer $150 \times 350 \mathrm{~mm}$ | FIR-WR-350 |  | MC910350 |

## Auxiliary contacts

| NO contact block, front montage | M22-K10 | M22-K01 |
| :--- | :--- | :--- |
| NC contact block, front montage | M22-CK20 | MM216376 |
| Double NO contact, Cage clamp | M22-CK02 | M22-CK11 |
| Double NC contact, Cage clamp | MM216378 |  |
| NO + NC, Cage clamp |  | MM107898 |

- General data, mechanical data, withstand voltage MC
- General data - MC1

| Standards and regulations | IEC/EN 60947, VDE 0660 |
| :--- | :---: |
| Protection against accidental contact | Finger and back-of-hand proof to VDE 0106 Part 100 |
| Climate resistance | Damp heat, constant to IEC 60068-2-78 |
| Ambient temperature | Damp heat, cyclical to IEC $60068-2-30$ |
| Storage | $-25^{\circ} \mathrm{C} \ldots+70^{\circ} \mathrm{C}$ |
| Operation | $-25^{\circ} \mathrm{C} \ldots+70^{\circ} \mathrm{C}$ |
| Impact resistance (IEC/EN $60068-2-27)$ | $20($ half-sinusoidal shock 20 ms$)$ |
| Safe isolation to EN 61140 | 500 CAC |
| between auxiliary contacts and main circuits | 300 VAC |
| between auxiliary contacts |  |

- Mechanical data-MC1

| Mounting position |  | vertical and $90^{\circ}$ in all directions with residual-current release <br> $M C 1, N 1$ : vertical and $90^{\circ}$ in all directions |
| :---: | :---: | :---: |
| Direction of power supply |  | ny |
| Degree of protection |  |  |
| Device | in region of compo | 20 (basic degree of protection) |
| Housing | with insulating surround: IP40 |  |
|  | with door coupling rotary handle: IP66 |  |
| Connectors | Tunnel terminal: IP10 |  |
|  | Phase isolator and strip terminal: IPO0 |  |

Withstand voltage MC1

|  | Max. rated uninterrupted current 160A |  |  |
| :---: | :---: | :---: | :---: |
|  | MC1B | MCIN | $\mathrm{MC1H}$ |
| Rated impulse withstand voltage $\mathbf{U}_{\text {imp }}$ |  |  |  |
| Main circuits | 6000 V | 6000 V | 6000 V |
| Auxiliary circuits | 6000 V | 6000 V | 6000 V |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}$ | 440 V AC | 690 V AC | 690 V AC |
| Rated operational voltage breaking via 3 conductors | - | $500 \mathrm{VDC}{ }^{11}$ | $500 \mathrm{VDC}{ }^{11}$ |
| Surge protection/pollution degree | III/3 | III/3 | III/3 |
| Rated insulation voltage $\mathrm{U}_{\mathrm{i}}$ | 690 V | 690 V | 690 V |
| Range of application in IT networks | 440 V | 690 V | 690 V |

Notes:
${ }^{11}$ for rated operational voltage breaking via 3 conductors, the following applies: DC correction factor for instantaneous release response value: $M C 1: 1.25, M C 2$ : 1.35 Setting for li at $D C=$ setting li $A C /$ correction factor $D C$ value applies to 3 -pole protection devices with thermomagnetic release $(H) 1(2)$-A...

Wiring diagram

$1^{*}$ Breaking one pole via two circuits in series
2* Breaking one pole via three circuits in series

## Technical data MC

General data, mechanical data, withstand voltage MC

- General data - MC2, MC3, MC4

| Standards and regulations | IEC/EN 60947, VDE 0660 |  |
| :--- | ---: | :---: |
| Protection against accidental contact | Finger and back-of-hand proof to VDE 0106 Part 100 |  |
| Climate resistance | Damp heat, constant to IEC 60068-2-78 |  |
| Ambient temperature | Damp heat, cyclical to IEC $60068-2-30$ |  |
| Storage |  |  |
| Operation | $-25^{\circ} \mathrm{C} . .+70^{\circ} \mathrm{C}$ |  |
| Impact resistance (IEC/EN $60068-2-27)$ | $-25^{\circ} \mathrm{C} \ldots+70^{\circ} \mathrm{C}$ |  |
| Safe isolation to EN 61140 | $20($ half-sinusoidal shock 20 ms$)$ |  |
| between auxiliary contacts and main circuits |  |  |
| between auxiliary contacts | 500 VAC |  |


| Mounting position |  | vertical and $90^{\circ}$ in all directions with plug-in adapter MC2, N2: vertical, $90^{\circ}$ right/left, with withdrawable unit MC3, N3: vertical, $90^{\circ}$ left MC4, N4: vertical, with remote operator: MC2, N2,N3, 4, N4: vertical and $90^{\circ}$ in all directions with residual-current release MC2: vertical and $90^{\circ}$ in all directions |
| :---: | :---: | :---: |
| Direction of power supply | any |  |
| Degree of protection |  |  |
| Device | in region of component parts: IP20 (basic degree of protection) |  |
| Housing | with insulating surround: IP40 |  |
|  | with door coupling rotary handle: IP66 |  |
| Connectors | Tunnel terminal: IP10 |  |
|  | Phase isolator and strip terminal: IPOO |  |

Withstand voltage MC2, MC3, MC4

| Rated impulse withstand voltage $\mathbf{U}_{\text {imp }}$ | Max. rated uninterrupted current 250A |  |  | Max. rated uninterrupted current 630A |  | Max. rated uninterrupted current 1600A |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MC2B | MC2N | MC2H | MC3N | MC3H | MC4N | MC4H |
| Main circuits | 8000 V | 8000V | 8000V | 8000 V | 8000V | 8000 V | 8000 V |
| Auxiliary circuits | 6000 V | 6000 V | 6000 V | 6000 V | 6000 V | 6000 V | 6000 V |
| Rated operational voltage $U_{\text {e }}$ | 440 V AC | 690 V AC | 690 V AC | 690 V AC | 690 V AC | 690 V AC | 690 V AC |
| Rated operational voltage breaking via 3 conductors | - | $750 \mathrm{~V} \mathrm{DC}^{11}$ | $750 \mathrm{~V} \mathrm{DC}^{11}$ | $750 \mathrm{~V} \mathrm{Cl}^{11}$ | $750 \mathrm{~V} \mathrm{Cl}^{11}$ | - | - |
| Surge protection/pollution degree | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage $\mathrm{U}_{\mathrm{i}}$ | $1000 \mathrm{~V}^{21}$ | 1000 V | 1000V | 1000V | 1000 V | 1000 V | 1000V |
| Range of application in IT networks | 440 V | 690 V | 690 V | 690 V | 690 V | 525 V | 525 V |

Notes:
${ }^{1 /}$ For rated operational voltage breaking via 3 conductors, the following applies: $D C$ correction factor for instantaneous release response value:
MC1: 1.25, MC2: 1.35, Setting for li at $D C=$ setting li AC/correction factor DC
Value applies to 3 -pole protection devices with thermomagnetic release $(\mathrm{H}) 1(2)$-A...
${ }^{2)}$ For 3-pole protection devices, the following applies: 690 V
Screws and torques for MC1,2,3 and 4

| MCCB | Screw for connecting cable lug or bus-bar | torque |
| :--- | :--- | :---: |
| MC1 | When box terminal is removed, $M 6 \times 14 /$ hexagon socket screw, <br> key size 4 mm | 9 Nm |
| MC2 | $M 8 \times 22 /$ hexagon socket screw, key size 5 mm | 14 Nm |
| MC3 | $M 10 \times 30 /$ hexagon socket screw, key size 8 mm | 30 Nm |
| MC4 | $2 \times M 10 \times 50 /$ open ended wrench, size 16 mm | each 50 Nm |


| MCCB | Terminal screw of box-terminal BT or tunnel-terminal TT | torque | Screw for fixing tunnel terminal to MCCB | torque |
| :---: | :---: | :---: | :---: | :---: |
| MC1 | BT, $1 \times 70 \mathrm{~mm}^{2}$, built in, hexagon socket screw, key size 4 mm | 9 Nm | M6x14/ heal --- | --- |
|  | TT, $1 \times 95 \mathrm{~mm}^{2}$, hexagon socket screw, key size 5 mm | 15 Nm | M6x 14 / hexagon socket screw, key size 4mm | 9 Nm |
| MC2 | When box terminal is installed, $1 \times 185 \mathrm{~mm}^{2}$, hexagon socket screw, key size 5 mm | 30 Nm | --- | --- |
|  | TT, 1 $\times 185 \mathrm{~mm}^{2}$, hexagon socket screw, key size 8 mm | 30 Nm | M8x22 / hexagon socket screw, key size 5mm | 14Nm |
| MC3 | TT, $1 \times 185 \mathrm{~mm}^{2}$, hexagon socket screw, key size 8 mm | 30 Nm | M10x30 / hexagon socket screw, key size 8 mm | 30 Nm |
|  | TT, $2 \times 240 \mathrm{~mm}^{2}$, hexagon socket screw, key size 8 mm | each 30Nm |  |  |
| MC4 | TT, $4 \times 240 \mathrm{~mm}^{2}$, hexagon socket screw, key size 8 mm | each 31 Nm | $2 \times \mathrm{M10} \mathrm{\times 60} / \mathrm{open}$ ended wrench, size 16 mm | each 50Nm |

Breaking capacity, service life MC

- Breaking capacity, service life MC1, MC2

|  |  |  | Max. rated uninterrupted current 160A |  |  | Max. rated uninterrupted current 300A |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MC1B | MCIN | MCIH | MC2B | MC2N | MC2H |
| Rated short-circuit breaking capacity values $\mathrm{I}_{\mathrm{cm}}$ |  |  |  |  |  |  |  |  |
| 240 V |  |  | 63 kA | 187kA | 220kA | 63kA | 187kA | 330kA |
| 400/415V |  |  | 53 kA | 105kA | 220kA | 53 kA | 105kA | 330 kA |
| 440 V |  |  | 53 kA | 74kA | 74 kA | 53 kA | 74 kA | 286kA |
| 525 V |  |  | - | 40 kA | 40kA | - | 53 kA | 105kA |
| 690 V |  |  | - | 17kA | 17kA | - | 40kA | 40kA |
| Rated short-circuit breaking capacity value $\mathrm{I}_{\mathrm{cu}} \mathrm{I}_{\mathrm{cs}}$ |  |  |  |  |  |  |  |  |
| Icu meets IEC/EN 60947 |  | $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA | 85kA | 100kA | 30kA | 85kA | 150kA |
| Breaking sequence O-t-CO |  | $400 / 415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25 kA | 50 kA | 100kA | 25 kA | 50 kA | 150kA |
|  |  | $440 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25 kA | 35 kA | 35 kA | 25 kA | 35 kA | 130kA |
|  |  | $525 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | 20kA | 20kA | - | 25 kA | 50kA |
|  |  | $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | 10kA | 10kA | - | 20 kA | 20 kA |
|  |  | 500VDC | - | 15kA | 30kA | - | 30 kA | 60kA |
|  |  | 750VDC | - | - | - | - | 30kA | 60kA |
| Ics meets IEC/EN 60947 |  | $240 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 30kA | 85kA | 100kA | 30kA | 85 kA | 150kA |
| Breaking sequence O-t-CO-t-CO |  | $400 / 415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 25 kA | 50 kA | 50 kA | 25 kA | 50 kA | 150kA |
|  |  | $440 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 18,5kA | 35kA | 35 kA | 18.5kA | 35 kA | 130kA |
|  |  | $525 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | 10kA | 10kA | - | 25 kA | 37.5 kA |
|  |  | $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | 7.5 kA | 7.5kA | - | 5 kA | 5 kA |
| Maximum HBC fuse 51600 A |  |  | MC1-...20...100: 200A gG/gL MC1-...125, 160: 315A gG/gL |  |  | 355 A gG/gl | 355 A g $/ \mathrm{gl}$ | 355 A gG/gL |
| Utilization category to IEC/EN 60 |  |  | A | A | A | A | A | A |
| Rated short-time withstand current $\mathrm{I}_{\mathrm{cw}}$ |  |  |  |  |  |  |  |  |
|  |  | $\mathrm{t}=0.3 \mathrm{~s}$ | - | - | - | - | 1.9 kA | 1.9 kA |
|  |  | $t=1 \mathrm{~s}$ | - | - | - | - | 1.9 kA | 1.9 kA |
| Rated making and breaking capacity $\mathrm{I}_{\text {e }}$ |  |  |  |  |  |  |  |  |
| Rated operating current | AC-1 | $400 / 415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 160A | 160A | 160A | 250A | 250A | 250A |
|  |  | $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 160A | 160A | 160A | 250A | 250A | 250A |
|  | AC-3 | $400 / 415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 160A | 160A | 160A | 250A | 250A | 250A |
|  |  | $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 160A | 160A | 160A | 250A | 250A | 250A |
|  | DC-1 | 500VDC with thermal release | - | 125A | 125A | - | 250A | 250A |
|  |  | 750VDC with thermal release | - | - | - | - | 250A | 250A |
|  | DC-3 | 500VDC with thermal release | - | 125A | 125A | - | 250A | 250A |
|  |  | 750VDC with thermal release | - | - | - | - | 250A | 250A |
| Service life, mechanical (operations) |  |  | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 |
| Maximum operating cycles |  |  | 120S/h | 120S/h | 120S/h | 120S/h | 120S/h | 120S/h |
| Service life, electrical |  |  |  |  |  |  |  |  |
|  | AC-1 | $\begin{aligned} & 400 / 415 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \end{aligned}$ | $10000^{11}$ | 10000 | 10000 | $10000^{\prime \prime}$ | 10000 | 10000 |
|  |  | $\begin{aligned} & 690 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \end{aligned}$ | - | 7500 | 7500 | - | 7500 | 7500 |
|  | AC-3 | $\begin{aligned} & 400 / 415 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \end{aligned}$ | $7500^{2)}$ | 7500 | 7500 | $6500^{21}$ | 6500 | 6500 |
|  |  | $\begin{aligned} & 690 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \end{aligned}$ | - | 5000 | 5000 | - | 5000 | 5000 |
|  | DC-1 | 500VDC with thermal release | - | 10000 | 10000 | - | 7500 | 75000 |
|  |  | 750VDC with thermal release | - | - | - | - | 7500 | 7500 |
|  | DC-3 | 500VDC with thermal release | - | 5000 | 5000 | - | 300 | 3000 |
|  |  | 750VDC with thermal release | - | - | - | - | 3000 | 3000 |
| Current heat loss per pole at lu ${ }^{3}$ |  |  | 16,7W | 16,7W | 16,7W | 19W | 19W | 19W |
| Total disconnecting time at short-circuit |  |  | < 10 ms | $<10 \mathrm{~ms}$ | < 10 ms | < 10 ms | $<10 \mathrm{~ms}$ | <10ms |

Notes:
${ }^{1 "}$ Maximum back-up fuse, if the expected short-circuit current at the installation location exceeds the breaking capacity of the circuit-breaker.
${ }^{2)}$ For 3-pole protection devices, the AC3 data does not apply
${ }^{3)}$ The current heat loss per pole ratings refer to the maximum current rating for the particular frame size.

## Technical data MC

Breaking capacity, service life MC

- Breaking capacity, service life MC3, MC4


[^12]- Weights MC
- Weights MC1, MC2, MC3, MC4

|  | Type | Weight |
| :---: | :---: | :---: |
| Circuit breaker |  |  |
|  | MCl- | 1.046 kg |
|  | MC1-4- | 1.325 kg |
|  | MC2- | 2.345 kg |
|  | MC2-4- | 3.5 kg |
|  | MC3- | 6.0 kg |
|  | MC3-4- | 7.5 kg |
|  | MC4- | 21 kg |
|  | MC4-4- / MC4-VE2000 | 27 kg |
| Plug-in adapter |  |  |
|  | +MC2-XSV | 4.7 kg |
|  | +MC2-4-XSV | 5.9 kg |
| Withdrawable unit |  |  |
|  | +MC3-XAV | 21 kg |
|  | +MC3-4-XAV | 27 kg |
|  | +MC4-XAV | 52 kg |
|  | +MC4-4-XAV | 65 kg |
| Switch disconnector |  |  |
|  | MC1-PN, MC1-N | 0.926 kg |
|  | MC1-4-PN, MC1-4-N | 1.325 kg |
|  | MC2-PN, MC2-N | 2.15 kg |
|  | MC2-4-PN, MC2-4-N | 2.65 kg |
|  | MC3-PN, MC3-N | 5.7 kg |
|  | MC3-4-PN, MC3-4-N | 7.1 kg |
|  | MC4-N | 17kg |
|  | MC4-4-N | 22 kg |

Switch disconnector, technical data, breaking capacity MC
Switch disconnector - MC1, MC2, MC3, MC4

|  | MCI-PN, MCI-N max. 160A | MC2-PN, MC2-N max. 250A | MC3-PN, MC3-N max. 630A | $\begin{gathered} \text { MC4-N } \\ \max .1600 \mathrm{~A} \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| Rated impulse withstand voltage $\mathbf{U}_{\text {imp }}$ |  |  |  |  |
| Main circuits | 6000 V | 8000 V | 8000 V | 8000 V |
| Auxiliary circuits | 6000 V | 6000 V | 6000 V | 6000 V |
| Rated operational voltage $\mathrm{U}_{\text {e }}$ | 690VAC | 690VAC | 690VAC | 690VAC |
| Rated uninterrupted current, max. $\mathrm{I}_{\text {u }}$ |  |  |  |  |
| IEC/EN 60947-3 | 160A | 250A | 630A | 1600A |

- Technical data

| Technical data (lu), 125 A 160 A 550 A 1200 A differs from products destined for IEC market UL489, CSA 22.2 No. 5.1 | 125A | 160A | 550A | 1200A |
| :---: | :---: | :---: | :---: | :---: |
| Surge protection/pollution degree | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage Ui | 690VAC | 690VAC | 1000VAC | 1000VAC |
| For use in IT networks | 690 V | 690 V | 690 V | 525 V |

## Technical data MC

Switch disconnector, technical data, breaking capacity MC
Breaking capacity

|  | MC1-PN(N) | MC2-PN(N) | MC3-PN(N) | MC4-N |
| :---: | :---: | :---: | :---: | :---: |
| Rated short-circuit-breaking capacity values $\mathrm{I}_{\mathrm{cm}}$ | 2.8kA | 5.5kA | 25kA | 53kA |
| Rated short-time withstand current $\mathrm{I}_{\mathrm{cw}}$ |  |  |  |  |
| $t=0.3 \mathrm{~s}$ | 2kA | $3.5 \mathrm{kA}{ }^{\text {1/ }}$ | 12kA | 25 kA |
| $\mathrm{t}=1 \mathrm{~s}$ | 2 kA | $3.5 \mathrm{kA}{ }^{\text {" }}$ | 12kA | 25 kA |
| Rated short-circuit current |  |  |  |  |
| with back-up fuse | PN1(N1)-63...125A gG/gL PNI(N1)-160A gG/gL | PN2(N2)-160...250A gG/gL analogue | $\begin{gathered} \hline \mathrm{PN} 3(\mathrm{~N} 3)-400 \ldots . .630 \mathrm{AgG} / \mathrm{gL} \\ \text { analogue } \end{gathered}$ | N4-630...1600A gG/gL analogue |
| 400/415V | 100kA | 100kA | 100kA | 100kA |
| 690 V | 80kA | 80kA | 80kA | 80kA |
| with downstream fuse | PN1(N1)-63...125A gG/gL PN1(N1)-160A gG/gL | $\begin{gathered} \text { PN2(N2)- } 160 \ldots . .250 \mathrm{~A} \mathrm{gG} / \mathrm{gL} \\ \text { analogue } \end{gathered}$ | $\begin{gathered} \hline \mathrm{PN} 3(\mathrm{~N} 3)-400 \ldots . .630 \mathrm{~A} \mathrm{gG} / \mathrm{gL} \\ \text { analogue } \\ \hline \end{gathered}$ | $\mathrm{N} 4-630 \ldots 1600 \mathrm{AgG} / \mathrm{gL}$ analogue |
| 400/415V | 100kA | 100kA | 100kA | 100kA |
| 690 V | 80kA | 80kA | 80kA | 80kA |
| Rated making and breaking capacity $\mathrm{I}_{\text {e }}$ |  |  |  |  |
| Rated operating current AC-22/23A |  |  |  |  |
| 415 V | 160A | 250A | 630A | 1600A |
| 690 V | 160A | 250A | 630A | 1600A |
| Service life, mechanical (operations) | 20000 | 20000 | 15000 | 10000 |
| Maximum operating cycles | 120S/h | 120S/h | 60S/h | 605/h |
| Service life, electrical (operations) meets IEC/EN 60947-4-1 Section B |  |  |  |  |
| AC-1 |  |  |  |  |
| 400/415V | 10000 | $10000^{4 /}$ | 5000 | 3000 |
| 690 V | 7500 | $7500{ }^{4 /}$ | 3000 | 2000 |
| AC-3 |  |  |  |  |
| 400/415V | 7500 | $7500^{51}$ | 3000 | 2000 |
| 690 V | 5000 | $5000^{3 / 5}$ | 2000 | 1000 |
| Current heat loss per pole at $\mathrm{I}_{\mathrm{u}}{ }^{2 /}$ | 12.7W | 16W | 40W | 97W |

Notes:
${ }^{1)}$ The rated short-time withstand current with MC2-PN/MC2-N in connection with Residual-current release MC2-4-XFI... Icw $=1.5 \mathrm{kA}$
${ }^{2)}$ The current heat loss per pole ratings refer to the maximum current rating for the particular frame size.
${ }^{31}$ The following data applies to the service life, electrical AC-3 PN2/N2: 690V: max. 160 kW
${ }^{4)}$ For 3-pole switch disconnectors, the following applies: $400 / 415 \mathrm{~V} 7500$ operations; 690 V 5000 operations
${ }^{5)}$ For 3-pole switch disconnectors, the following applies: 400/415V 6000 operations; 690 V 4000 operations

## Temperature influences - thermomagnetic release MC

Response times for the overload release at temperatures diverging from the reference temperature $\left(40^{\circ} \mathrm{C}\right)$

| Device type | Temperature compensation coefficient |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $20^{\circ} \mathrm{C}$ | $30^{\circ} \mathrm{C}$ | $40^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $65^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| Thermomagnetic release ${ }^{\text {TM }}$ |  |  |  |  |  |  |  |
| System protection reference temperature $40^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |
| MC1(-4)-A15... 80 | 1.14 | 1.07 | 1 | 0.93 | 0.86 | 0.83 | 0.79 |
| MC1(-4)-A90... 125 | 1.14 | 1.07 | 1 | 0.93 | 0.86 | 0.83 | 0.79 |
| MC1(-4)-A160 | 1.08 | 1.04 | 1 | 0.96 | 0.92 | 0.90 | 0.88 |
| MC2(-4)-A $15 \ldots 200$ | 1.04 | 1.02 | 1 | 0.98 | 0.96 | 0.95 | 0.94 |
| MC2(-4)-A250 | 1.04 | 1.02 | 1 | 0.98 | 0.96 | 0.95 | 0.94 |
| MC2(-4)-A20... 200 with plug-in technology | 1.04 | 1.02 | 1 | 0.98 | 0.96 | 0.95 | 0.94 |
| MC2(-4)-A250 with plug-in technology | 1.04 | 1.02 | 1 | 0.98 | 0.96 | 0.95 | 0.94 |
| MC3(-4)-A250... 500 | 1.12 | 1.06 | 1 | 0.94 | 0.88 | 0.85 | 0.85 |
| MC3(-4)-A250... 500 with withdrawable units | 1.06 | 1 | 0.94 | 0.88 | 0.82 | 0.79 | 0.79 |
| Short-circuit/motor contactor reference temperature $40^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |
| MC1-M40... 80 | 1 | 0.98 | 0.95 | 0.93 | 0.90 | 0.89 | 0.88 |
| MC1-M100 | 1 | 0.98 | 0.95 | 0.93 | 0.90 | 0.89 | 0.88 |
| MC2-M20... 200 | 1 | 0.98 | 0.96 | 0.94 | 0.92 | 0.91 | 0.90 |
| MC2-M20...200 with plug-in technology | 1 | 0.98 | 0.96 | 0.94 | 0.92 | 0.91 | 0.90 |

Note:
A slight change to the overload protection properties occurs at temperatures which diverge from the reference temperature. Therefore, in order to calculate the tripping time using the tripping characteristics curve, the temperature compensation coefficients set out in the table must also be taken into account.
Example: An MC1-A 100 has been calibrated for a reference temperature of $40^{\circ} \mathrm{C}$. What happens when it is operated at an ambient temperature of $60^{\circ} \mathrm{C}$ ? At $60^{\circ} \mathrm{C}$, a reduced operating current of $\mathrm{Ir}=100 \mathrm{~A} \times 0.86=86 \mathrm{~A}$ must be taken account above the temperature coefficients.
In other words, at an ambient temperature of $60^{\circ} \mathrm{C}$, the $\mathrm{MCl}-\mathrm{Al} 100$ would trip as if it were set to 86 A .

- Reducing rated operational voltage (derating) under special ambient conditions (to IEC 947)

| Device type | Derating coefficient |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $20^{\circ} \mathrm{C}$ | $30^{\circ} \mathrm{C}$ | $40^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $65^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |

Thermomagnetic release ${ }^{\mathrm{TM}}$

| System protection reference temperature $40{ }^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MC1 (-4)-A15... 80 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC1(-4)-A90... 125 | 1 | 1 | 1 | 1 | 0.86 | 0.83 | 0.8 |
| MC1(-4)-A160 | 1 | 1 | 1 | 0.95 | 0.9 | 0.85 | 0.8 |
| MC2(-4)-A15... 200 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC2(-4)-A250 | 1 | 1 | 1 | 1 | 0.9 | 0.85 | 0.8 |
| MC2(-4)-A20...200 with plug-in technology | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC2(-4)-A250 with plug-in technology | 1 | 0.97 | 0.92 | 0.87 | 0.81 | - | - |
| MC3(-4)-A250...500 | 1 | 1 | 1 | 0.94 | 0.88 | 0.85 | 0.85 |
| MC3(-4)-A250... 500 with withdrawable units | 1 | 1 | 0.94 | 0.88 | 0.82 | 0.79 | 0.79 |

Short-circuit/motor contactor
reference temperature $40^{\circ} \mathrm{C}$

|  |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MC1-M40..80 | 1 | 1 | 1 | 1 | 1 | 1 |  |
| MC1-M100 | 1 | 1 | 1 | 1 | 0.86 | 0.83 | 0.8 |
| MC2-M20...200 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC2-M20...200 with plug-in technology | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

MC2-M20... 200 with plug-in technology

## Note:

To calculate the maximum permissible current load at different ambient operating temperatures, the derating coefficients must be taken into account as set out in the table.
Example: An MC2-A250 is to be used under an ambient operating temperature of $65^{\circ} \mathrm{C}$. How much is the permissible Rated operational voltage le? At $65^{\circ} \mathrm{C}$, the derating coefficient is 0.85 , in other words le $=250 \mathrm{~A} \times 0.85=212.5 \mathrm{~A}$. In other words, the MC2-A250 may be operated at a maximum le $=212.5 \mathrm{~A}$ under an ambient temperature of $65^{\circ} \mathrm{C}$.

## Technical data MC

## Temperature influences - electronic release MC

Reducing rated operational voltage (derating) under special ambient conditions (to IEC 947)

| Device type | Derating coefficient |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $20^{\circ} \mathrm{C}$ | $30^{\circ} \mathrm{C}$ | $40^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $65^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| Electronic release $€$ |  |  |  |  |  |  |  |
| System protection |  |  |  |  |  |  |  |
| MC3(-4)-AE250... 500 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3(-4)-AE550... 630 | 1 | 1 | 1 | 1 | 0.9 | 0.85 | 0.8 |
| MC3(-4)-AE250...400 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3(-4)-AE630 with withdrawable units | 0.96 | 0.92 | 0.87 | 0.83 | 0.78 | 0.75 | 0.73 |
| MC4(-4)-AE600... 1250 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4(-4)-AE 1600 | 1 | 1 | 1 | 1 | 0.87 | 0.85 | 0.82 |
| MC4(-4)-AE630... 1250 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4(-4)-AE1600 with withdrawable units | 1 | 0.98 | 0.93 | 0.89 | 0.85 | 0.83 | 0.8 |


| MC2(-4)-VE100... 175 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MC2(-4)-VE200... 250 | 1 | 1 | 1 | 1 | 0.9 | 0.85 | 0.8 |
| MC2(-4)-VE100... 160 with plug-in technology | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC2(-4)-VE250 with plug-in technology | 1 | 1 | 1 | 0.94 | 0.88 | 0.84 | 0.81 |
| MC3(-4)-VE250... 500 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3(-4)-VE550... 630 | 1 | 1 | 1 | 1 | 0.9 | 0.85 | 0.8 |
| MC3(-4)-VE250...400 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3(-4)-VE630 with plug-in technology | 0.96 | 0.92 | 0.87 | 0.83 | 0.78 | 0.75 | 0.73 |
| MC4(-4)-VE600... 1250 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4(-4)-VE1600 | 1 | 1 | 1 | 1 | 0.87 | 0.85 | 0.82 |
| MC4(-4)-VE630... 1250 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4(-4)-VE1600 with withdrawable units | 1 | 0.98 | 0.93 | 0.89 | 0.85 | 0.83 | 0.8 |

## Motor contactor

| MC2-ME(SE)90... 140 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MC2-ME(SE)220 | 1 | 1 | 1 | 1 | 0.9 | 0.85 | 0.8 |
| MC2-ME90... 140 with plug-in technology | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC2-ME220 with plug-in technology | 1 | 1 | 1 | 0.94 | 0.88 | 0.84 | 0.81 |
| MC3-ME(SE)220... 350 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3-ME(SE)450 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3-ME220... 350 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3-ME450 with withdrawable units | 0.96 | 0.92 | 0.87 | 0.83 | 0.78 | 0.75 | 0.73 |
| MC4-ME550... 875 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4-ME 1400 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4-ME550... 875 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4-ME 1400 with withdrawable units | 1 | 0.98 | 0.93 | 0.89 | 0.85 | 0.83 | 0.8 |

Note:
To calculate the maximum permissible current load at different ambient operating temperatures, the derating coefficients must be taken into account as set out in the table
Example: An MC2-ME220 is to be used under an ambient operating temperature of $70^{\circ} \mathrm{C}$.
How much is the permissible rated operational voltage le?
$\mathrm{At} 70^{\circ} \mathrm{C}$, the derating coefficient is 0.8 in other words le $=250 \mathrm{~A} \times 0.8=176 \mathrm{~A}$.
In other words, the MC2-ME220 may be operated at a maximum le $=176 \mathrm{~A}$ under an ambient temperature of $70^{\circ} \mathrm{C}$.

- Temperature influences - switch disconnector MC
- Reducing rated operational voltage (derating) under special ambient conditions (to IEC 947)

| Device type | Derating coefficient |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $20^{\circ} \mathrm{C}$ | $30^{\circ} \mathrm{C}$ | $40^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $65^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| Switch disconnector |  |  |  |  |  |  |  |
| MC1 (-4)-N-63, MC1 (-4)-PN-63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC1(-4)-N-100...125, MC1(-4)-PN-100... 125 | 1 | 1 | 1 | 1 | 0.86 | 0.83 | 0.8 |
| MC1 (-4)-N-160, MC1 (-4)-PN-160 | 1 | 1 | 1 | 0.95 | 0.9 | 0.85 | 0.8 |
| MC2(-4)-N-160...200, MC2(-4)-PN-160... 200 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC2(-4)-N-250, MC2(-4)-PN-200 | 1 | 1 | 1 | 1 | 0.9 | 0.85 | 0.8 |
| MC2(-4)-N-160...200 with plug-in technology | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC2(-4)-N-250 | 1 | 0.97 | 0.92 | 0.87 | 0.81 | - | - |
| MC3(-4)-N-400, MC3(-4)-PN-400 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3(-4)-N-630, MC3(-4)-PN-630 | 1 | 1 | 1 | 1 | 0.9 | 0.85 | 0.8 |
| MC3(-4)-N-400 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC3(-4)-N-630 with withdrawable units | 0.96 | 0.92 | 0.87 | 0.83 | 0.78 | 0.75 | 0.73 |
| MC4(-4)-N-630... 1250 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4(-4)-N-1600 | 1 | 1 | 1 | 1 | 0.87 | 0.85 | 0.82 |
| MC4(-4)-N-630... 1250 with withdrawable units | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MC4(-4)-N-1600 with withdrawable units | 1 | 0.98 | 0.93 | 0.89 | 0.85 | 0.83 | 0.8 |

Note:
To calculate the maximum permissible current load at different ambient operating temperatures, the derating coefficients must be taken into account as set out in the table.
Example: An MC2-ME220 is to be used under an ambient operating temperature of $70^{\circ} \mathrm{C}$.
How much is the permissible rated operational voltage le?
At $70^{\circ} \mathrm{C}$ the derating coefficient is 0.8 , in other words le $=250 \mathrm{~A} \times 0.8=176 \mathrm{~A}$.
In other words, the MC2-ME220 may be operated at a maximum le $=176 \mathrm{~A}$ under an ambient temperature of $70^{\circ} \mathrm{C}$.

## Technical data MC

## Effective power loss MC

- MC up to 500A with thermomagnetic release (3-/4-pole) MC1., MC2., MC3.

| $\mathrm{I}_{\mathrm{n}}$ [A] | Circuit breaker MC1 |  |  |  | Switch disconnector MC1-N, MC1-PN |  | Circuit breaker MC2 |  | Switch disconnector MC2-N, MC2-PN |  | Circuit breaker MC3 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | System protection |  | Motor contactor |  |  |  | System protection/Motor contactor |  | P | R | System protection |  |
|  | P | R | P | R | P | R | P | R |  |  | P | R |
|  | [W] | [ $\mu \mathrm{Ohm}$ ] | [W] | [ $\mu \mathrm{Ohm}$ ] | [W] | [ $\mu \mathrm{Ohm}$ ] | [W] | [ $\mu \mathrm{Ohm}$ ] | [W] | [ $\mu \mathrm{Ohm}$ ] | [W] | [ $\mu \mathrm{Ohm}$ ] |
| 20 | 9.8 | 8180 | - | - | - | - | 5.1 | 4250 | - | - | - | - |
| 25 | 8.8 | 4680 | - | - | - | - | 8 | 4250 | - | - | - | - |
| 26 | - | - | - | - | - | - | - | - | - | - | - | - |
| 30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | 9.1 | 3030 | - | - | - | - | 10 | 3140 | - | - | - | - |
| 33 | - | - | - | - | - | - | - | - | - | - | - | - |
| 35 | - | - | - | - | - | - | - | - | - | - | - | - |
| 40 | 11 | 2220 | 13.5 | 2810 | - | - | 13 | 2800 | - | - | - | - |
| 45 | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | 13.5 | 1760 | 15 | 1880 | - | - | 18 | 2270 | - | - | - | - |
| 60 | - | - | - | - | - | - | - | - | - | - | - | - |
| 63 | 14 | 1190 | 16.7 | 1250 | 6 | 380 | 20 | 1700 | - | - | - | - |
| 70 | - | - | - | - | - | - | - | - | - | - | - | - |
| 80 | 15.5 | 850 | 21.1 | 1085 | - | - | 22 | 1070 | - | - | - | - |
| 90 | - | - | - | - | - | - | - | - | - | - | - | - |
| 100 | 24 | 730 | 25 | 795 | 15 | 380 | 28 | 855 | - | - | - | - |
| 110 | - | - | - | - | - | - | - | - | - | - | - | - |
| 125 | 38 | 570 | - | - | 24 | 380 | 29 | 589 | - | - | - | - |
| 150 | - | - | - | - | - | - | - | - | - | - | - | - |
| 160 | 50 | 460 | - | - | 38 | 380 | 40 | 427 | 19.7 | 256 | - | - |
| 175 | - | - | - | - | - | - | - | - | - | - | - | - |
| 200 | - | - | - | - | - | - | 48 | 332 | 30.7 | 256 | - | - |
| 225 | - | - | - | - | - | - | - | - | - | - | - | - |
| 250 | - | - | - | - | - | - | 57 | 310 | 48 | 256 | 68 | 364 |
| 320 | - | - | - | - | - | - | - | - | - | - | 79 | 256 |
| 400 | - | - | - | - | - | - | - | - | - | - | 72 | 151 |
| 500 | - | - | - | - | - | - | - | - | - | - | 93 | 124 |

The ratings in the table apply for permanently installed 3 and 4 -pole devices which are loaded uniformly.
On 4-pole devices the current in the N conductor is equal to zero
The entire resistive load is for the measured three-pole or four-pole value
The total power leakage is the measured value for $\ln$ at $50 / 60 \mathrm{~Hz}$ for a 3 -pole or 4 -pole switch
The power leakage can be calculated using the formula: $P=3 \times R \times 12$
MC up to 1600A with electronic release (3-/4-pole) MC2., MC3., MC4.

| Circuit breaker | Switch <br> disconnector <br> MC2-N, <br> MC2-PN | Add-on | Plug-in unit | Circuit breaker | Switch <br> disconnector <br> MC3-N, <br> MC3-PN | Add-on <br> MC2 | Clug-in unit | MC4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Note:
The ratings in the table apply for 3 and 4-pole devices which are loaded uniformly.
On 4-pole devices the current in the N conductor is equal to zero.
The total resistive load is the measured value for a 3-pole or 4-pole switch (independent of In and the type of release).
The total resistive load for a switch in plug-in or withdrawable design is the result of: the resistive value for permanent installation + the resistive value for plug-in or withdrawable design
The power leakage can be calculated using the formula: $P=3 \times R \times 12$

## Terminal capacities MC

- Terminal capacities - MC1, MC2

|  |  | $\begin{gathered} \text { MC1, MC1-N, MC1-PN up } \\ \text { to } 160 \mathrm{~A} \end{gathered}$ | $\mathrm{I}_{\mathrm{n}}{ }^{1 /}$ | MC2, MC2-N, MC2-PN up $\text { to } 250(300) \mathrm{A}$ | $\mathrm{I}_{\mathrm{n}}{ }^{1 /}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Standard equipment | - | Boxterminal | - | Screw terminal | - |
| Accessories |  | Screw connection Tunnel terminals Rear-side connection |  | Boxterminal Tunnel terminals Rear-side connection |  |


| Cu-conductors, Cu-cable |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Boxterminal solid |  | $\begin{aligned} & 1 \times(10-16) \mathrm{mm}^{2} \\ & 2 \times(6-16) \mathrm{mm}^{2} \\ & \hline \end{aligned}$ | 160A | $\begin{aligned} & 1 \times(4-16) \mathrm{mm}^{2} \\ & 2 \times(4-16) \mathrm{mm}^{2} \end{aligned}$ | 250A |
| stranded |  | $\begin{gathered} 1 \times(25-70)^{3} \mathrm{~mm}^{2} \\ 2 \times 25 \mathrm{~mm}^{2} \\ \hline \end{gathered}$ |  | $\begin{aligned} & 1 \times(25-185) \mathrm{mm}^{2} \\ & 2 \times(25-70) \mathrm{mm}^{2} \\ & \hline \end{aligned}$ |  |
| Tunnel terminal $\quad$ solid |  | $1 \times 16 \mathrm{~mm}^{2}$ | 160A | $1 \times 16 \mathrm{~mm}^{2}$ | 250A |
|  | 1-hole | $1 \times(25-95) \mathrm{mm}^{2}$ |  | $1 \times(25-185) \mathrm{mm}^{2}$ |  |
|  | 2-hole | - | - | - |  |
|  | 4-hole | - | - | - |  |
| Screw connection und rear-side connection |  |  |  |  |  |
| directly on switch solid |  | $\begin{aligned} & 1 \times(10-16) \mathrm{mm}^{2} \\ & 2 \times(6-16) \mathrm{mm}^{2} \end{aligned}$ | 160A | $\begin{aligned} & 1 \times(4-16) \mathrm{mm}^{2} \\ & 2 \times(4-16) \mathrm{mm}^{2} \end{aligned}$ | 250A |
| stranded |  | $\begin{gathered} 1 \times(25-70)^{3} \mathrm{~mm}^{2} \\ 2 \times 25 \mathrm{~mm}^{2} \end{gathered}$ |  | $\begin{aligned} & 1 \times(25-185) \mathrm{mm}^{2} \\ & 2 \times(25-70) \mathrm{mm}^{2} \\ & \hline \end{aligned}$ |  |
| Module plate $\quad 1$-hole | min. | - | - | - | - |
|  | max. | - | - | - | - |
|  | min. | - | - | - | - |
|  | max. | - | - | - | - |
| Connection width extension |  | - | - | - | - |

Al-conductors, Al-cable

| Tunnel terminal $\quad$ solid |  | $1 \times 16 \mathrm{~mm}^{2}$ | 160A | $1 \times 16 \mathrm{~mm}^{2}$ | 250A |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1-hole | $1 \times(25-95) \mathrm{mm}^{2}$ |  | $1 \times(25-185) \mathrm{mm}^{2}$ |  |
|  | 2-hole | - | - | - | - |
|  | 4-hole | - | - | - | - |
| Screw connection und rear-side connection |  |  |  |  |  |
| directly on switch solid | solid | $1 \times(10-16) \mathrm{mm}^{2}$ | 160A | $1 \times(10-16) \mathrm{mm}^{2}$ | 250A |
|  |  | $2 \times(10-16) \mathrm{mm}^{2}$ |  | $2 \times(10-16) \mathrm{mm}^{2}$ |  |
| stranded |  | $1 \times(25-35) \mathrm{mm}^{2}$ |  | $1 \times(25-50) \mathrm{mm}^{2}$ |  |
|  |  | $2 \times(25-35) \mathrm{mm}^{2}$ |  | $2 \times(25-50) \mathrm{mm}^{2}$ |  |
| Module plate 1-hole | min. | - | - | - | - |
|  | max. | - | - | - | - |
| 2-hole |  | - | - | - | - |
| Connection width extension |  |  |  |  |  |
| Cu strip (number of segments x width x segment thickness) |  |  |  |  |  |
| Box terminal | min. | $2 \times 9 \times 0.8 \mathrm{~mm}$ | 160A | $2 \times 9 \times 0.8 \mathrm{~mm}$ | 300A |
|  | max. | $9 \times 9 \times 0.8 \mathrm{~mm}$ |  | $10 \times 16 \times 0.8 \mathrm{~mm}$ |  |
| Flat conductor terminal, basic | min. | - | - | - | - |
|  | max. | - | - | - | - |
| Module plate 1-hole |  | - | - | - | - |
| Screw connection und rear-side connection |  |  |  |  |  |
| Cu strip, with holes | min. | - | - | $2 \times 16 \times 0.8 \mathrm{~mm}$ | 300A |
| Cu strip, with holes | max. | - | - | $10 \times 16 \times 0.8 \mathrm{~mm}$ |  |
| Connection width extension |  | - | - | - |  |

Cu rail (width x thickness)

| Screw connection und rear-side connection |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Screw connection |  | M6 | - | M8 | - |
| directly on switch | min. | $12 \times 5 \mathrm{~mm}$ | 160A | $16 \times 5 \mathrm{~mm}$ | 300A |
|  | max. | $16 \times 5 \mathrm{~mm}$ |  | $20 \times 5 \mathrm{~mm}$ |  |
| Module plate 1-hole | min. | - | - | - |  |
|  | max. | - | - | - | - |
| Module plate 2-hole |  | - | - | - | - |
| Connection width extension | min. | - | - | - | - |
|  | max. | - | - | - | - |

## Notes

1) The rated currents In 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 purposes of orientation. The design standards which apply in each case must be observed.
2) Depending on the cable manufacturer up to $240 \mathrm{~mm}^{2}$ can be connected
3) Depending on the cable manufacturer up to $95 \mathrm{~mm}^{2}$ can be connected.

## Technical data MC

## - Terminal capacities MC

- Terminal capacities - MC3, MC4

|  | MC3, MC3-N, MC3-PN bis 630A | $\mathrm{I}^{1{ }^{1)}}$ | MC4, MC4-N up to 1600A | $\mathrm{I}^{1{ }^{1}}$ |
| :---: | :---: | :---: | :---: | :---: |
| Standard equipment | Screw connection |  | Screw terminal | - |
| Accessories | Box terminal Tunnel terminals Rear-side connection |  | Tunnel terminals <br> Rear-side <br> connection <br> Strip terminal |  |


| Cu-conductors, Cu-cable |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Boxterminal solid |  | $2 \times 16 \mathrm{~mm}^{2}$ | 500A | - | - |
| stranded |  | $\begin{aligned} & 1 \times(35-240) \mathrm{mm}^{2} \\ & 2 \times(25-120) \mathrm{mm}^{2} \\ & \hline \end{aligned}$ |  |  | - |
| Tunnel terminal $\quad$ solid |  | - | - | - | - |
|  | 1-hole | $1 \times(25-185) \mathrm{mm}^{2}$ | 350A | - | - |
|  | 2-hole | $\begin{aligned} & 1 \times(50-240) \mathrm{mm}^{2} \\ & 2 \times(50-240) \mathrm{mm}^{2} \end{aligned}$ | $\begin{gathered} 630 A \\ 2 \times 185^{2!} \end{gathered}$ |  | - |
|  | 4-hole | - | - | $4 \times(50-240) \mathrm{mm}^{2}$ | 1400A |

Screw connection und Rear-side connection

| directly on switch | solid |  | $\begin{aligned} & 1 \times 16 \mathrm{~mm}^{2} \\ & 2 \times 16 \mathrm{~mm}^{2} \end{aligned}$ | $630 \mathrm{~A} 2 \times 185^{2 /}$ |  | - |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | stranded |  | $\begin{aligned} & 1 \times(25-240) \mathrm{mm}^{2} \\ & 2 \times(25-240) \mathrm{mm}^{2} \end{aligned}$ |  | $\begin{aligned} & 1 \times(120-185) \mathrm{mm}^{2} \\ & 4 \times(50-185) \mathrm{mm}^{2} \end{aligned}$ | 1250A |
| Module plate | 1-hole | min. | - | - | $1 \times(120-300) \mathrm{mm}^{2}$ | 1000A |
|  |  | max. | - | - | $2 \times(95-300) \mathrm{mm}^{2}$ |  |
| Module plate | 2-hole | $\underline{m i n}$. | - | - | $2 \times(95-185) \mathrm{mm}^{2}$ | 1400A |
|  |  | max. | - | - | $4 \times(35-185) \mathrm{mm}^{2}$ |  |
| Connection width extension |  |  | $2 \times 300 \mathrm{~mm}^{2}$ | $\begin{gathered} 630 \\ 2 \times 185^{21} \end{gathered}$ | $\begin{gathered} 4 \times 300 \mathrm{~mm}^{2} \\ 6 \times(95-240) \mathrm{mm}^{2} \end{gathered}$ | $\begin{gathered} 1600 \mathrm{~A} \\ 4 \times 240^{21} \end{gathered}$ |

## Al-conductors, Al-cable



## Cu strip (number of segments x width x segment thickness)

| Box terminal | min. | $6 \times 16 \times 0.8 \mathrm{~mm}$ | 630A | - | - |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | max. | $\begin{gathered} 10 \times 24 \times 1.0 \mathrm{~mm} \\ +5 \times 24 \times 1.0 \mathrm{~mm} \\ (2 \times) 8 \times 24 \times 1.0 \mathrm{~mm} \\ \hline \end{gathered}$ |  | - | - |
| Flat conductor terminal, basic | $\min$. | - | - | $6 \times 16 \times 0.8 \mathrm{~mm}$ | 1100A |
|  | max. | - | - | (2x) $10 \times 32 \times 1.0 \mathrm{~mm}$ |  |
| Module plate | 1-hole | - | - | (2x) $10 \times 50 \times 1.0 \mathrm{~mm}$ | $\begin{gathered} 1250 \mathrm{~A} \\ (2 \times) 10 \times 40 \times 1.0 \\ \hline \end{gathered}$ |

Screw connection und Rear-side connection

|  | min. | $6 \times 16 \times 0.8 \mathrm{~mm}$ | 630A | (2x) $10 \times 50 \times 1.0 \mathrm{~mm}$ | 1600A |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Cu strip, with holes | max. | $\begin{array}{r} 10 \times 32 \times 1.0 \mathrm{~mm} \\ +5 \times 32 \times 1.0 \mathrm{~mm} \\ \hline \end{array}$ |  | (2x) $10 \times 50 \times 1.0 \mathrm{~mm}$ |  |
| Connection width extension |  | (2x) $10 \times 50 \times 1.0 \mathrm{~mm}^{2}$ |  | (2x) $10 \times 80 \times 1.0 \mathrm{~mm}$ | $\begin{gathered} 1600 \mathrm{~A} \\ 2 \times(10 \times 50 \times 1.0) \end{gathered}$ |

## Cu rail (width x thickness)

| Screw connection |  |  | M10 | - | M10 | - |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| directly on Switch |  | min. <br> max. | $20 \times 5 \mathrm{~mm}$ | 630A | $25 \times 5 \mathrm{~mm}$ | 1600A |
|  |  |  | $30 \times 10 \mathrm{~mm}$ |  | $2 \times(50 \times 10) \mathrm{mm}$ |  |
|  |  |  | $+30 \times 5 \mathrm{~mm}$ |  | $2 \times(80 \times 10) \mathrm{mm}$ |  |
| Module plate | 1-hole | min. | - | - | $25 \times 5 \mathrm{~mm}$ | 1250A |
|  |  | max. | - | - | $2 \times(50 \times 10) \mathrm{mm}$ | $2 \times(40 \times 10)$ |
|  | 2-hole |  | - | - | $2 \times(50 \times 10) \mathrm{mm}$ | 1600A |
| Connection width extension |  | min. max. | - | 630A | $60 \times 10 \mathrm{~mm}$ | 1600A |
|  |  |  | $2 \times(10 \times 50) \mathrm{mm}$ | $10 \times 40$ | $2 \times(80 \times 10) \mathrm{mm}$ | $2 \times(50 \times 10)$ |

## Notes:

1) The rated currents In 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 purposes of orientation. The design standards which apply in each case must be observed.
2) Depending on the cable manufacturer up to $240 \mathrm{~mm}^{2}$ can be connected
3) Depending on the cable manufacturer up to $95 \mathrm{~mm}^{2}$ can be connected.

Auxiliary contacts, contact sequence MC

- Auxiliary contacts M22-K..., XHIV

|  | $\begin{gathered} \text { Type } \\ \text { M22-K... } \\ \text { at } \mathrm{AC}=50 / 60 \mathrm{~Hz} \end{gathered}$ | Type <br> MC.-XHIV <br> at $\mathrm{AC}=50 / 60 \mathrm{~Hz}$ |
| :---: | :---: | :---: |
| Rated operational voltage $\mathrm{U}_{\text {e }}$ |  |  |
| AC | 500VAC | 500VAC |
| DC | 220VDC | 220VDC |
| Conventional thermal current $I_{t h}=I_{\text {e }}$ | 4A | 4A |
| Rated operational voltage $\mathrm{I}_{\text {e }}$ |  |  |
| AC-15 115V | 4A | 4A |
| 230 V | 4A | 4A |
| 400 V | 2A | 2A |
| 500 V | 1A | 1 A |
| DC-13 24V | 3A | 3A |
| 42 V | 1.7A | 1.5A |
| 60 V | 1.2A | 0.8A |
| 110 V | 0.8A | 0.5A |
| 220 V | 0.3 A | 0.2A |
| Short-circuit protection |  |  |
| Max. safety fuse | $10 \mathrm{AgG} / \mathrm{gl}$ | $10 \mathrm{AgG} / \mathrm{gl}$ |
| Max. miniature circuit breaker | BE5...(10A) | BM... (6A) |
| Early-make time compared to the main contacts during switch on and off <br> (breaking times with manual operation) | - | MCl : approx. 20 ms <br> MC2: approx. 20 ms <br> MC3: approx. 20 ms <br> MC4: approx. 90 ms <br> The HIV is not early closing on the MC4 |
| Terminal capacities |  |  |
| Solid or flexible conductor with end sleeve | $1 \times(0.75-2.5) \mathrm{mm}^{2}$ | $1 \times(0.75-2.5) \mathrm{mm}^{2}$ |
|  | $2 \times(0.75-2.5) \mathrm{mm}^{2}$ | $2 \times(0.75-2.5) \mathrm{mm}^{2}$ |

Contacting sequence of auxiliary contacts
(1)
$0 \rightarrow \mid$ Switch on $0 \leftarrow 1$ Switch off $\quad+\leftarrow 1$ Trip Contacts closed $\quad \square$ Contacts open

1) Standard auxiliary contact (HIN)
2) Early-make auxiliary contact (HIV)
3) Trip-indicating auxiliary contact (HIA)

Note: If early-make contacts are required in combination with shunt or undervoltage releases, please select the combination type from the section on "Releases".

## Technical data MC

Component installation with auxiliary contacts, time differences MC

- Maximum component installation and position of internal accessories


|  | 1) HIN | 2) HIA | 3) MC.-XHIV(2S) <br> -XA or -XU <br> (early-make) |
| :--- | :---: | :---: | :---: |
| (normal) | (triggered) | 1 |  |
| $M C 2, M C 1-N$ | 1 | 1 | 1 |
| $M C 3, M C 3-N$ | 2 | 1 | 1 |
| $M C 4, M C 4-N$ | 3 | 1 | 1 |
| $M C 1-P N$ | 3 | 2 | $1^{1 /}$ |
| $M C 2-P N$ | 1 | - | $1^{31}$ |
| $M C 3-P N$ | 2 | - | $1^{31}$ |
| $H I N=M 22-K$ |  |  |  |

Contacts per connection port HIA and HIN

1 NO
1 NC
2 NO
2 NC
1 NO, 1 NC
$\mathrm{NO}=$ normally-open
NC = normally-closed

|  | Time difference a (ms) |  |  |  |  |  | Time difference b (ms) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Manual operation |  |  | Motor operator |  |  | Manual operation |  |  | Motor operator |  |  |
|  | HIV | HIN |  | HIV | HIN |  | HIV | HIN |  | HIV | HIN |  |
|  |  | NO | NC |  | NO | NC |  | NO | NC |  | NO | NC |
| MC1 | $20^{21}$ | 0 | 2.5 | - | - | - | $20^{21}$ | 0 | 2.5 | - | - | - |
| MC2 | $20^{2)}$ | 3.5 | 6.5 | not permissible | 2.5 | 4.5 | $20^{2)}$ | 3 | 4.5 | not permissible | 3 | 4 |
| MC3 | $20^{21}$ | 4 | 8 | not permissible | 2 | 4 | $20^{2)}$ | 3.5 | 8 | not permissible | 3 | 6.5 |
| MC4 | $90^{21}$ | 7 | 11 | not permissible | upon request | upon request | $0^{1 / 21}$ | 12 | 15 | not permissible | upon request | upon request |

Notes

1) With MC4/N(S)4, the HIV is not early-make.
2) Minimum value, since it is dependent on the breaking speed

Time difference ON-OFF


Time difference MC1, MC2, MC3, MC4

1) Main contact
2) Auxiliary contact, early-make (HIV)
3) Auxiliary contact, normal (HIN)

■ Undervoltage release / shunt trip MC

- Undervoltage release MC.-XU

|  | MC1 $2 / 3)-X U . .$. | MC4-XU... |
| :---: | :---: | :---: |
| Rated control voltage $\mathrm{U}_{\mathbf{s}}$ |  |  |
| AC at $50 / 60 \mathrm{~Hz}$ | 24...600VAC | 24...600VAC |
| DC | 12...250VDC | 12...250VDC |
| Operating range |  |  |
| Operating range $\times \mathrm{U}_{5}$ | 0.35-0.7 | 0.35-0.7 |
| Pull-in voltage $\times \mathrm{U}_{\text {s }}$ | 0.85-1.1 | 0.85-1.1 |
| Power consumption |  |  |
| AC |  |  |
| Pull-in power AC | 1.5VA | 3.6 VA |
| Standby power AC | 1.5 VA | 3.6 VA |
| DC |  |  |
| Pull-in power DC | 0.8W | 2.5 W |
| Standby power DC | 0.8W | 2.5 W |
| Max. opening delay <br> (response time until the main circuits open) | 19 ms | 23 ms |
| Minimum command time | 10-15ms | 10-15ms |
| Terminal capacities |  |  |
| Solid or flexible conductor with end sleeve | $\begin{aligned} & 1 \times(0.75-2.5) \mathrm{mm}^{2} \\ & 2 \times(0.75-2.5) \mathrm{mm}^{2} \end{aligned}$ | $\begin{aligned} & 1 \times(0.75-2.5) \mathrm{mm}^{2} \\ & 2 \times(0.75-2.5) \mathrm{mm}^{2} \end{aligned}$ |

Undervoltage release, off-delay MC-UVU

|  | MC-UVU |
| :--- | :---: |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}$ |  |
| AC at $50 / 60 \mathrm{~Hz}$ | $24,220-550 \mathrm{VAC}$ |
| DC | 24 VDC |
| Peak inrush current $\mathrm{I}_{\mathrm{e}}$ | $<500 \mathrm{~mA}$ |
| Power consumption | 50 VA |
| Delay time tsd | $70-4000 \mathrm{~ms}$ |
| with additional external capacitor $90.000 \mu \mathrm{~F} 35 \mathrm{~V}$ | up to 16 s |
| with additional external capacitor $30.000 \mu \mathrm{~F} 35 \mathrm{~V}$ | up to 8 s |
| Terminal capacities |  |
| Solid or flexible conductor with end sleeve | $1 \times(0.5-2.5) \mathrm{mm}^{2}$ |

Shunt trip MC.-XA

|  | MC1 (2/3)-XA... | MC4-XA... |
| :---: | :---: | :---: |
| Rated control voltage $\mathrm{U}_{\text {s }}$ |  |  |
| AC | 12...440VAC | 12...440VAC |
| DC | 12...440VDC | 12...440VDC |
| Frequency range | $0-400 \mathrm{~Hz}$ | $0-400 \mathrm{~Hz}$ |
| Operating range |  |  |
| $A C \times U_{5}$ | 0.7...1.1 | 0.7...1.1 |
| $D C \times U$ e | 0.7...1.1 | 0.7...1.1 |
| Power consumption |  |  |
| Pull-in power AC/DC | 2.5VA/W | 2.5VA/W |
| Standby power AC/DC | 2.5VA/W | 2.5VA/W |
| Maximum current consumption at $110 \% \mathrm{U}_{5}(230 \mathrm{~V} 50 \mathrm{~Hz})$ | - | - |
| Max. opening delay <br> (response time until the main circuits open) | 20 ms | 22 ms |
| Maximum duty cover | * | * |
| Minimum command time | 10-15ms | 10-15ms |
| Terminal capacities |  |  |
| Solid or flexible conductor with end sleeve | $\begin{aligned} & 1 \times(0.75-2.5) \mathrm{mm}^{2} \\ & 2 \times(0.75-2.5) \mathrm{mm}^{2} \end{aligned}$ | $\begin{aligned} & 1 \times(0.75-2.5) \mathrm{mm}^{2} \\ & 2 \times(0.75-2.5) \mathrm{mm}^{2} \end{aligned}$ |

* No restriction, duty indefinitely


## Technical data MC

## Remote operator MC



## Residual current release relay MC

- Technical data - electrical

|  | FIR-003 | FIR-03 | FIR-5 |
| :---: | :---: | :---: | :---: |
| Standards and regulations | IEC/EN 60947-2, IEC 755, IEC 1008, IEC 1009 |  |  |
| Sensitivity | pulse current sensitive, type A |  |  |
| Rated control voltage $\mathrm{U}_{\text {S }}$ | 230VAC, $20 \%$ ( $50 / 60 \mathrm{~Hz}$ ) |  |  |
| Rated control voltage $\mathrm{P}_{\mathrm{e}}$ | 3W | 3W | 3W |
| Rated fault current $\mathrm{I}_{\Delta \mathrm{n}}$ | 0.03A | 0.3A | 0.03, 0.1, 0.3, 0.5, 1, 3, 5A |
| Delay time $\mathrm{tv}_{\mathrm{v}}$ | 0.02 s (not-delayed) | 0.02 s (not-delayed) | $0.02,0.1,0.3,0.5,1,3,5 \mathrm{~A}$ |
| Relay contacts | 1 integral C/O | 1 integral C/O | 1 integral C/O |
| Rated input voltage, relay contacts | 250/100VAC/DC | 250/100VAC/DC | 250/100VAC/DC |
| Rated current of the relay contacts | 6A | 6A | 6A |
| Fault current warning | - | - | $\begin{gathered} 0,5 \mathrm{~Hz}=25 \%-50 \% I_{\Delta n} \\ H z=50 \%-75 \% I_{\Delta n} \\ 2 H z=75 \%-100 \% I_{\Delta n} \\ \hline \end{gathered}$ |

Technical data-mechanical

| Front fitting width | 45 mm | 45 mm | 45 mm |
| :---: | :---: | :---: | :---: |
| Size of device base | 85 mm | 85 mm | 85 mm |
| Device width | 45 mm | 45 mm | 45 mm |
| Assembly | Snap fixing for top hat rail DIN 46277, EN 50022 |  |  |
| Terminals above and below | Box terminals |  |  |
| Terminal protection | Finger and back-of-hand proof to BGV A2, VDE 106 part 100 |  |  |
| Terminal capacities | $2 \times 0.75 \mathrm{~mm}^{2}-2.5 \mathrm{~mm}^{2}$ solid, $2 \times 0.75 \mathrm{~mm}^{2}-1.5 \mathrm{~mm}^{2}$ flexi-/ with sleeve |  |  |
| Lead-sealability of setting buttons | - | - | yes |

Core-balance transformer - dimensions


Rectangular core-balance transformer

| Type | $\mathbf{A}$ | $\mathbf{B}$ | $\mathbf{C}$ | $\mathbf{D}$ | $\mathbf{E}$ | $\mathbf{F}$ | $\mathbf{G}$ | $\mathbf{H}$ | $\mathbf{I}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| FIR-WR-175 | 70 | 175 | 225 | 85 | 22 | 46 | 261 | 176 | 7,5 |
| FIR-WR-305 | 115 | 305 | 360 | 116 | 25 | 55 | 402 | 240 | 8 |
| FIR-WR-350 | 150 | 350 | 415 | 140 | 28 | 55 | 460 | 285 | 8 |

Round core-balance transformer - maximum nominal current

| Max. nominal current |  | Diameter |  |
| :---: | :---: | :---: | :---: |
| Power distribution <br> (A) | Motor/capacitor <br> (A) | Transformer type <br> FIR-W-... d1 | Maximum conductor cross- <br> section <br> (mm) d2 |
| 50 | 50 | 20 | 13 |
| 150 | 100 | 30 | 20 |
| 150 | 100 | 35 | 23 |
| 400 | 200 | 70 | 47 |
| 600 | 250 | 105 | 70 |
| 1200 | 630 | 140 | 93 |
| 1800 | 800 | 210 | 140 |

## Technical data MC

Residual current release MC1, MC2

- Electrical data

|  | MC1(-4)-XFI30R | MC1 (-4)-XFI300R | MC1(-4)-XFIR | MC1(-4)-XFI30U | MC1 (-4)-XFI300U | MC1(-4)-XFIU |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Standards and regulations | IEC/EN 60947-2 | IEC/EN 60947-2 | IEC/EN 60947-2 | IEC/EN 60947-2 | IEC/EN 60947-2 | IEC/EN 60947-2 |
| Sensitivity | Pulse current sensitive accord. to core-balance principle |  |  |  |  |  |
| Min. operational voltage |  |  |  |  |  |  |
| for sensing residual currents Type A/AC | 80 V (independent of supply voltage) | 80V (independent of supply voltage) | 80 V (independent of supply voltage) | 80V (independent of supply voltage) | 80V (independent of supply voltage) | 80 V (independent of supply voltage) |
| for sensing residual currents Type B | - | - | - | - | - | - |
| Suitable for use | in three- and single-phase systems |  |  | in three-phase systems | in three-phase systems |  |
| Rated operational voltage $\mathrm{U}_{\text {e }}$ | 200...415V AC (3~) | 200...415V AC (3~) | 200...415V AC (3~) | 200...415V AC (1~) | 200...415V AC (1~) | 200...415V AC (1~) |
| Rated frequency f | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ |
| No. of poles | 2/4-pole | 3/4-pole | 3/4-pole | 3/4-pole | 3/4-pole | 3/4-pole |
| Rated current range $I_{n}$ | 15...125A | 15...125A | 15...125A | 15...100A | 15...100A | 15...100A |
| Rated fault currents $\mathrm{I}_{\Delta \mathrm{n}}$ | 0.03A | 0.3 A | 0.03..0.1...0.3...A | 0.03A | 0.3 A | 0.03...0.1...0.3...A |
|  |  |  | 0.5...1...3A |  |  | $0.5 \ldots 1 \ldots 3 \mathrm{~A}$ |
| Sensing range, fault current | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ |
| Rated making and breaking capacity $I_{\Delta m}$ | $=l_{\text {cu }}$ | $=l_{\text {cu }}$ | $=I_{\text {cu }}$ | $=I_{c u}$ | $=l_{\text {cu }}$ | $=l_{\text {cu }}$ |
| Fault current warning | $\geq 0.3 \times\left.\right\|_{\text {dn }}$ | $\geq 0.3 \times\left.\right\|_{\Delta n}$ | $\geq 0.3 \times \mathrm{I}_{\Delta \mathrm{n}}$ | $\geq 0.3 \times\left.\right\|_{\Delta n}$ | $\geq 0.3 \times \mathrm{I}_{\Delta n}$ | $\geq 0.3 \times\left.\right\|_{\Delta n}$ |
| Impact resistance (IEC 60068-2-27) | 20 (half-sinusoidal shock 20 ms ) |  |  |  |  |  |
| Service life, mechanical (operations) (of which $50 \%$ with fault current) | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 |


|  | MC2-4-XFI30 | MC2-4-XFI | MC2-4-XFIA30 | MC2-4-XFIA |
| :---: | :---: | :---: | :---: | :---: |
| Standards and regulations | IEC/EN 60947-2 | IEC/EN 60947-2 | IEC/EN 60947-2 | IEC/EN 60947-2 |
| Sensitivity | pulse current sensitive | pulse current sensitive | AC/DC current sensitivity (type B) | AC/DC current sensitivity (type B) |
| Min. operational voltage |  |  |  |  |
| for sensing residual currents <br> Type A/AC | OV (independent of supply voltage) | OV (independent of supply voltage) | OV (independent of supply voltage) | OV (independent of supply voltage) |
| for sensing residual currents Type B (SK) | - | - | 50V (independent of supply voltage) | 50V (independent of supply voltage) |
| Suitable for use | in three- and single-phase systems |  |  |  |
| Rated operational voltage $U_{\text {e }}$ | $\begin{gathered} 280 \ldots . .690 \mathrm{~V} \mathrm{AC} \\ (3 \sim / 1 \sim) \end{gathered}$ | $\begin{gathered} 280 \ldots 690 \mathrm{VAC} \\ (3 \sim / 1 \sim) \\ \hline \end{gathered}$ | $\begin{gathered} 50 \ldots 400 \mathrm{~V} \text { AC } \\ (3 \sim / 1 \sim) \end{gathered}$ | $\begin{gathered} 50 \ldots . .400 \mathrm{~V} \mathrm{AC} \\ (3 \sim / 1 \sim) \end{gathered}$ |
| Rated frequency f | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ |
| No. of poles | 4-pole | 4-pole | 4 -pole | 4-pole |
| Rated current range $I_{n}$ | 15...250A | 15...250A | 15...250A | 15...250A |
| Rated fault currents $\mathrm{I}_{\Delta \mathrm{n}}$ | 0.03 | 0.1...0.3...1...3A | 0.03A | 0.3...0.5...1A |
|  |  |  |  |  |
| Sensing range, fault current | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | 50/60 4-pole <br> 15 ... 2500.03 with AC: $0-100 \mathrm{kHz}$ with intermittent DC: 50 Hz | 50/60 4-pole <br> 15 ... 2500.03 with <br> AC: $0-100 \mathrm{kHz}$ <br> with intermittent DC: <br> 50 Hz |
| Rated making and | $=l_{\text {cu }}$ | $=l_{\text {cu }}$ | $=\mathrm{I}_{\mathrm{cu}}$ | $=\mathrm{I}_{\text {cu }}$ |
| breaking capacity $\mathrm{I}_{\Delta \mathrm{m}}$ |  |  |  |  |
| Fault current warning | - | - | - | - |
| Impact resistance (IEC 60068-2-27) | 20 (half-sinusoidal shock 20 ms ) |  |  |  |
| Service life, mechanical (operations) (of which $50 \%$ with fault current) | 2000 | 2000 | 2000 | 2000 |

Residual current release MC1, MC2

- Mechanical data

|  | MC1 (-4)-XFI30R | MC1 (-4)-XFI300R | MC1 (-4)-XFIR | MC1 (-4)-XFI30U | MC1 (-4)-XFI300U | MC1 (-4)-XFIU |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Front fitting width | 45 mm | 45 mm | 45 mm | 45 mm | 45 mm | 45 mm |
| Assembly | side, on right | side, on right | bottom | bottom | bottom | bottom |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |  |  |  |  |
| Power supply | MC1 from top | MC1 from top | MC1 from top | MC1 from top | MC1 from top | MC1 from top |
| Degree of protection | IP20 in the operating components area |  |  |  |  |  |
| Ambient operating temperature | $-5^{\circ} \mathrm{C} \ldots+40^{\circ} \mathrm{C}$ | $-5^{\circ} \mathrm{C} \ldots+40^{\circ} \mathrm{C}$ | $-5^{\circ} \mathrm{C} \ldots+40^{\circ} \mathrm{C}$ | $-5^{\circ} \mathrm{C} \ldots+40^{\circ} \mathrm{C}$ | $-5 \ldots+40^{\circ} \mathrm{C}$ | $-5 \ldots+40^{\circ} \mathrm{C}$ |
| Lead sealability | - | - | yes, setting buttons | - | - | yes, setting buttons |
| Terminal capacities |  |  |  |  |  |  |
| Flexible without end sleeve | as standard terminal MC1 |  |  |  | as standard terminal MC1 |  |
| Flexible with end sleeve | as standard terminal MC1 |  |  |  | as standard terminal MC1 |  |


|  | MC2-4-XFI30 | MC2-4-XFI | MC2-4-XFIA30 | MC2-4-XFIA |
| :---: | :---: | :---: | :---: | :---: |
| Front fitting width | 96 mm | 96 mm | 96 mm | 96 mm |
| Assembly | bottom | bottom | bottom | bottom |
| Mounting position | vertical and $90^{\circ}$ in all directions |  |  |  |
| Power supply | as required | as required | bottom | bottom |
| Degree of protection | IP20 in the operating components area |  |  |  |
| Ambient operating temperature | $-25 . .+70^{\circ} \mathrm{C}$ | $-25 \ldots+70^{\circ} \mathrm{C}$ | $-25 . . .+70^{\circ} \mathrm{C}$ | $-25 . . .+70^{\circ} \mathrm{C}$ |
| Lead sealability | - | - | yes, setting buttons | yes, setting buttons |
| Terminal capacities |  |  |  |  |
| Flexible without end sleeve | as MC2 standard connection |  |  |  |
| Flexible with end sleeve | as MC2 standard connection |  |  |  |

Frequency response - residual current release, size 2





## Technical data MC

## Dimensions MC1 - Accessories

■ Cover plates types MC1-XKSA, MC1-4-XKSA /
Screw fitting types MC1-XKS, MC1-4-XKS /IP2X Finger
protection for cover plate types MC1-XIPA, MC1-4-XIPA


1) 3-pole
2) 4 -pole

Tunnel terminal, types MC1-XKA, MC1-4-XKA


1) 3-pole
2) 4 -pole
$\triangle$ Dimensions MC1-Accessories
Rear connection, types MC1-XKR, MC1-4-XKR

3) 3-pole
4) 4 -pole
5) outbreaks in the mounting plate 3 -pole version
6) outbreaks in the mounting plate 4-pole version

## Control circuit terminal type MC-XSTK



1) 3-pole
2) 4 -pole

## Technical data MC

Dimensions MC1-Accessories

- IP2X Finger protection types MC1-XIPK,

MC1-4-XIPK


1) 3-pole
2) 4 -pole

Rotary operator, rotary handle on switch, types MC1-XDV, MC1-XDVR, MC1-XTVD

|  | $\begin{aligned} & \text { MC1-XDV } \\ & \text { MC1-XDVR } \end{aligned}$ | MC1-XDTV |
| :---: | :---: | :---: |
|  |  |  |

1) 3 -pole
2) 4 -pole
3) max. 3 padlocks

## Dimensions MC1-Accessories

Door coupling rotary handle type MC1-XTVD(V)®


1) max. 3 padlocks

Door coupling rotary handle with extension shaft, types MC1-XTVD(V)(R), MC1/2-XV4...6


| Type | $x$ |
| :--- | :---: |
| MC1/2-XV4 | $210-400$ |
| $M C 1 / 2-X V 6$ | $400-600$ |

[^13]
## Technical data MC

## Dimensions MC1-Accessories

Undervoltage release / shunt release / early make auxiliary contact MC1-XUL(XUVL), MC1-XAL, MC1-XHIVL, MC1-XUHIVL


1) Spacer type $M C 1 / 2-X A B, 2)$ Clip plate type MC1-XC35

$\triangle$ Dimensions MC1-Accessories
Door sealing frame type MC1-XBR

2) Mounting aperture

Rotary handle on switch type MC1-XDTV(R)


Toggle lever locking device type MC-XKAV


1) max. 3 padlocks

## Technical data MC

## Dimensions MC1 - Accessories

Mechanical interlock types MC1-XMV+MC1-XDV


1) 3-pole
2) 4-pole

Mechanical interlock types MC1-XMV+MC1-XTVD(V)(R)


| Type | $x$ |
| :--- | :---: |
| MC1/2-XV4 | $245-400$ |
| MC1/2-XV6 | $400-600$ |

Dimensions MC1 - Accessories

- Insulated enclosure types MC1-XCl23-T..., MC1-XCI43-T..., MC1-XCI43/2-T...


## MC1-XCI23-T...



MC1-XCI43-T...


MC1-XCI43/2-T...


Component adapter type 32570


1) max. 2 padlocks

## Technical data MC

Dimensions MC1 - Accessories
Earth leakage release FIR-0,03 FIR-0,3 FIR-5


1) Fixing on DIN rail TH35 according IEC / EN 60715

Terminal socket types MC1-XSVS MIT MC1-...-SVE, MC1-N-...-SVE


Dimensions MC1 - Accessories
Residual current release types MC1-XFI...R, MC1-4-XFI...R, MC1-XFI...U, MC1-4-XFI...U


## Technical data MC

## Dimensions MC2 - Accessories

■ Box terminal types MC2-...XKC, MC2-4-...XKC / IP2X
Finger protection types MC2-XIPK, MC2-4-XIPK


1) 3-pole
2) 4 -pole

Control circuit terminal types MC2-XSTS, MC-XSTK


1) 3 -pole
2) 4 -pole

## Dimensions MC2 - Accessories

Tunnel terminal types MC2-XKA, MC2-4-XKA


1) 3-pole
2) 4-pole

Cover plate types MC2-XKSA, MC2-4-XKSA / cable lug type MC2-XKS 185 / IP2X finger protection for cover plate types MC2-XIPA, MC2-4-XIPA


1) 3-pole
2) 4 -pole

## Technical data MC

Dimensions MC2 - Accessories
Rear connection types MC2-XKR, MC2-4-XKR


1) 3-pole
2) 4 -pole
3) Outbreaks in the mounting plate 3 -pole version
4) Outbreaks in the mounting plate 4 -pole version

## Dimensions MC2 - Accessories

- Rotary operator, rotary handle on switch, types MC2-XDV, MC2-XDVR, MC2-XDTV, MC2-XDTV2


1) 3-pole
2) 4-pole
3) max. 3 padlocks

Door coupling rotary handle type MC2-XTVD(V)(R)


[^14]
## Technical data MC

## Dimensions MC2 - Accessories

- Door coupling rotary handle with extension shaft, types MC2-XTVD(V)(R), MC1/2-XV4(6)


| Type | $x(\mathrm{~mm})$ |
| :--- | :--- |
| $\mathrm{MC1} / 2-X V 4$ | $210-400$ |
| $\mathrm{MC1} / 2-X V 6$ | $400-600$ |

1) Minimum distance, door coupling rotary handle and door pivot point

Toggle lever locking device type MC2/3-XKAV


1) max. 3 padlocks

| Type | a |
| :--- | :---: |
| MC2(-PN)(-N) | 52.5 |
| MC3(-PN)(-N) | 70 |

Dimensions MC2 - Accessories
Serial connector type MC2-4-XKV2P


1) Spacer type MC1/2-XAB
2) Clip plate type MC2-XC75


## Technical data MC

Dimensions MC2 - Accessories
Door sealing frame type MC2-XBR


1) Mounting aperture

Rotary handle on switch with door interlock type MC2-XTVD


1) Mounting aperture

## Dimensions MC2 - Accessories

Mechanical interlock types MC2-XMV+MC2-XD


1) 3-pole
2) 4-pole

## Mechanical interlock types MC2-XMV+MC2-XTVD(V)(R)



| Type | $\times(\mathrm{mm})$ |
| :--- | :--- |
| MC1/2-XV4 | $280-400$ |
| MC1/2-XV6 | $400-600$ |

## Technical data MC

## Dimensions MC2 - Accessories

Remote operator type MC2-XR...


1) max. 3 padlocks
2) Remote operator, folded

Insulated enclosure types MC2-XCI43-TVD(R), MC2-XCI45-TVD(R)


Component adapter type 32140


## Dimensions MC2 - Accessories

Plug-in style assembly types MC2-XSV, MC2-4-XSV - Base complete with module


1) 3-pole
2) 4-pole

Residual-current release types MC2-4-XFI..., MC2-4-XFIA...


## Technical data MC

## Dimensions MC3 - Accessories

B Box terminal types MC3-XKC, MC3-4-XKC / IP2X
Finger protection types MC3-XIPK, MC3-4-XIPK


1) 3-pole
2) 4 -pole

Control circuit terminal types MC3/4-XSTS, MC-XSTK


1) 3-pole
2) 4-pole

Dimensions MC3 - Accessories
Tunnel terminal types MC3-XKA 1 (2), MC3-4-XKA 1 (2)


1) 3-pole
2) 4 -pole

- Cover plate type MC3(-4)-XKSA/ cable lug type

MC3-XKS 185 / IP2X finger protection for Cover plate type MC3(-4)-XIPA


1) 3-pole
2) 4 -pole

## Technical data MC

Dimensions MC3 - Accessories

- Connection width extension types MC3-XKV70, MC3-4-XKV70 / Connection terminals types MC3-XK22X21, MC3-4-XK22X21, MC3-XK300, MC3-4-XK300


Dimensions MC3 - Accessories
Rear connection types MC3-XKR, MC3-4-XKR


1) 3-pole
2) 4-pole
3) Outbreaks in the mounting plate 3 -pole version
4) Outbreaks in the mounting plate 4 -pole version

## Technical data MC

Dimensions MC3 - Accessories

- 1) Phase isolator type MC3(-4)-XKP, 2) Spacer type MC3-XAB


3) 3-pole
4) 4-pole

Door sealing frame type MC3-XBR


1) Mounting aperture

## Dimensions MC3 - Accessories

Rotary operator, rotary handle on switch, types MC3-XDV, MC3-XDVR


1) 3-pole
2) 4-pole
3) max. 3 padlocks

Serial connector types MC3-4-XKV2P, MC3-4-XKV2P-K


## Technical data MC

Dimensions MC3 - Accessories
Serial connector types MC3-4-XKVI2P, MC3-4-XKVI2P-K


## Dimensions MC3 - Accessories

Door coupling rotary handle type MC3-XTVD(V)(R)...


1) max. 3 padlocks

## Technical data MC

Dimensions MC3 - Accessories
D Door coupling rotary handle with extension shaft, types MC3-XTVD(V)(R),
MC3/4-XV4(6)


| Type | $x$ |
| :--- | :--- |
| MC3/4-XV4 | $270-400$ |
| MC3/4-XV6 | $400-600$ |

[^15]Dimensions MC3 - Accessories

- Mechanical interlock types MC3-XMV+MC3-XDV(R)


1) 3-pole
2) 4 -pole

## Technical data MC

Dimensions MC3 - Accessories

- Mechanical interlock with door coupling rotary handle types MC3-XMV+MC3-XTVD(V)(R)


| Type | $\times(\mathrm{mm})$ |
| :--- | :--- |
| MC3/4-XV4 | $305-400$ |
| MC3/4-XV6 | $400-600$ |

Insulated enclosure type MC3-XCI48-TVD


Dimensions MC3 - Accessories
Component adapter type 32170


Remote operator type MC3-XR...


1) 3-pole
2) 4 -pole
3) max. 3 padlocks
4) Remote operator, folded

## Technical data MC

## Dimensions MC3 - Accessories

Withdrawable unit with control circuit plug unit type MC3-XR


1) 3-pole
2) 4-pole
3) extended
4) test
5) max. 3 padlocks
6) retracted

Dimensions MC4 - Accessories
Cover plate types MC4-XKSA, MC4-4-XKSA


1) 3-pole
2) 4 -pole
3) Clearance to conductive parts $\geq 100 \mathrm{~mm}$ to 690 V ; $\geq 200 \mathrm{~mm}$ at 1000 V

Tunnel terminal types MC4-XKA, MC4-4-XKA


1) 3-pole
2) 4 -pole
3) Clearance to conductive parts $\geq 100 \mathrm{~mm}$ to 690 V ; $\geq 200 \mathrm{~mm}$ at 1000 V

## Technical data MC

## Dimensions MC4 - Accessories

$\square$ Screw connection module plate 1 bore types MC4-XKM 1, MC4-4-XKM 1, bore types MC4-XKM2, MC4-4-XKM2 / ribbon cable types MC4-XKB, MC4-4-XKB


| Type | a | b |
| :--- | :---: | :---: |
| $M C 4(-4)-X K M 1$ | 36 | 47 |
| $M C 4(-4)-X K M 2$ | 32 | 40 |
| $M C 4(-4)-X K B$ | - | 47 |

1) 3-pole
2) 4 -pole
3) Clearance to conductive parts $\geq 100 \mathrm{~mm}$ to 690 V ; $\geq 200 \mathrm{~mm}$ at 1000 V

Dimensions MC4 - Accessories
Screw connection module plate 2 bore, vertical type MC4-(4)-XKM2S-1600


## Technical data MC

## Dimensions MC4 - Accessories

Connection width extension types MC4-XKV95, MC4-XKV110, MC4-4-XKV95, MC4-4-XKV120


MC4-XKV110


MC4-4-XKV95


MC4-4-XKV120


## Dimensions MC4 - Accessories

Rear connection types MC4-XKR, MC4-4-XKR


1) 3-pole
2) 4 -pole
3) Layout of mounting plate
4) Rear-side connection also possible with $90^{\circ}$ rotation (vertical)

Technical data MC

Dimensions MC4 - Accessories
Phase isolator types MC4-XKP, MC4-4-XKP


1) 3-pole
2) 4 -pole

Dimensions MC4 - Accessories

- Serial connector type MC4-4-XKV2P


Serial connector type MC4-4-XKV2P-1400


## Technical data MC

## Dimensions MC4 - Accessories

Rotary handle on switch type MC4-XDV(R)


1) 3-pole
2) 4 -pole
3) max. 3 padlocks

## Dimensions MC4 - Accessories

Door coupling rotary handle type MC4-XTVD(V)(R)...


1) max. 3 padlocks

Door coupling rotary handle with extension shaft, types MC4-XTVD(V)(R), MC3/4-XV4(6)


| Type | $\times(\mathrm{mm})$ |
| :---: | :--- |
| MC3/4-XV4 | $335-400$ |
| MC3/4-XV6 | $400-600$ |

[^16]
## Technical data MC

Dimensions MC4 - Accessories
Door sealing frame type MC4-XBR


1) Mounting aperture

Mechanical interlock with rotary handle types MC4-XMV+MC4-XTVD(V)®


1) 3-pole
2) 4-pole

Dimensions MC4 - Accessories

- Mechanical interlock types MC4-XMV + MC4-XTVD(V)(R)


| Type | $x(\mathrm{~mm})$ |
| :--- | :---: |
| MC3/4-XV4 | $335-400$ |
| MC3/4-XV6 | $400-600$ |

## Technical data MC

## Dimensions MC4 - Accessories

Remote operator type MC4-XR...


1) 3-pole
2) 4 -pole
3) max. 3 padlocks
4) Remote operator, folded

Dimensions MC4 - Accessories
Withdrawable unit with control circuit plug unit type MC4-XAV


1) 3-pole
2) 4 -pole
3) max. 3 padlocks
4) extended
5) test
6) retracted

## Technical data MC

Installation notes, project planning MC
Pipe cable luge


To press in the cable lugs, the K22, HK60/22 or EK22 pressing tool produced by Klauke is required with the following inserts: R22/95 for $95 \mathrm{~mm}^{2}$
R22/120 for $120 \mathrm{~mm}^{2}$
R22/150 for $150 \mathrm{~mm}^{2}$
R22/ 185 for $185 \mathrm{~mm}^{2}$
R22/240 for $240 \mathrm{~mm}^{2}$

| Cable lug Types | for use in | Nominal crosssection mm ${ }^{2}$ | Terminal bolts | Dimensions in mm |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | a | b | c | d | e | f | g | h | i |
| MC2-XKS95 | MC2 | 95 | M8 | 53+2 | 23 $\pm 0,5$ | 18土0,2 | $10 \pm 1$ | 19 | 8,5 | 25 | 13,5 | 4,4 |
| MC2-XKS 120 | MC2 | 120 | M8 | 56+2 | 23 $\pm 0,5$ | 19,5 $\pm 0,2$ | $10 \pm 1$ | 19 | 8,5 | 26 | 15 | 4,4 |
| MC2-XKS 150 | MC2 | 150 | M8 | $61+2$ | 23 $\pm 0,5$ | 21 $\pm 0,2$ | $10 \pm 1$ | 19 | 8,5 | 30 | 16,5 | 4,4 |
| MC2-XKS 185 | MC2 | 185 | M8 | $65 \pm 1,5$ | $22 \pm 1$ | 24 $\pm 0,3$ | $9^{9+1} \begin{aligned} & \text {-0,5 }\end{aligned}$ | $19 \begin{array}{r}+2,5 \\ -0,5\end{array}$ | $8,5 \begin{aligned} & +0,05 \\ & -0,1\end{aligned}$ | $30 \pm 2$ | 19士0,4 | 7 |
| MC3-XKS 185 | MC3, MC4 | 185 | M10 | 65 | 24,5 | 24 | 11,5 | 18 | 10,5 | 30 | 19 | 7,0 $\pm 0,8$ |
| MC3-XKS240 | MC3, MC4 | 240 | M10 | 72 | 31 | 26 | 11,5 | 19 | 10,5 | 35 | 21 | 5,0 $\pm 0,8$ |

Direction of blow-out for MC1, MC2, MC3, MC4


Installation notes, project planning MC

- Minimum clearances for MC1, MC2, MC3, MC4


Between two switches mounted side-by-side
Minimum clearance a in mm

|  | MC1 | MC2 | MC3 | MC4 |
| :--- | :---: | :---: | :---: | :---: |
| MC1 | 0 | 5 | 5 | 15 |
| MC2 | 5 | 5 | 5 | 15 |
| MC3 | 5 | 5 | 5 | 15 |
| MC4 | 15 | 15 | 15 | 15 |

Between switches and other parts
Mnimum clearance a in mm

|  | $\mathbf{b}$ |  | $\mathbf{c}$ |  | $\mathbf{d}$ |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\leq 690 \mathrm{~V}$ | 1000 V | $\geq 690 \mathrm{~V}$ | 1000 V | $\geq 690 \mathrm{~V}$ | 1000 V |
| MC1 | 0 | - | 60 | - | 0 | - |
| MC2 1) | 5 | 5 | 35 | 35 | 35 | 35 |
| MC3 | 5 | 5 | 60 | 60 | 60 | 60 |
| MC4 | 15 | 15 | 100 | 200 | 0 | 0 |

1) $M 2 B-A \ldots C=60 \mathrm{~mm}, d=0 \mathrm{~mm}$

Auxiliary contacts, trip-indicating contacts for MC1, MC2, MC3, MC4


1) Cut-outs on front
2) Cutout a Toggle lever
3) Cutout b Rotary handle, remote operator

|  | Clearance from the mounting plate and door cutout |  | Cutout a |  | Cutout b |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \mathbf{c} \\ {[\mathrm{mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{d} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{e} \\ {[\mathrm{mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{f} \\ {[\mathrm{mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{e} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{f} \\ {[\mathrm{mm}]} \end{gathered}$ |
| MC1 | 68.0 | 73.0 | 40 | 23 | 46 | 91 |
| MC2 | 103.0 | 108.0 | 79 | 36 | 96 | 101 |
| MC3 | 120.5 | 125.5 | 79 | 36 | 96 | 136 |
| MC4 | 138.0 | 146.0 | 101 | 105 | 118 | 204 |

## Technical data MC

Installation notes, project planning MC
Possible combinations, interlocking circuit variations types MC, MC...-XBZ-...


Max. switch clearance for MC-XBZ225, MC-XBZ600, MC-XBZ1000
$X_{3 P}=$ Switch clearance, 3-pole
$X_{4 \mathrm{P}}=$ Switch clearance, 4-pole

| MC-XBZ225 |  |  |  |  |  | Right switch |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Max. switch clearance |  | MC1 |  | MC2 |  | MC3 |  | MC4 |  |
| Left switch |  | $\begin{gathered} \mathbf{X}_{3 \mathrm{P}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{X}_{4 \mathrm{P}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{X}_{3 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{X}_{4 \mathrm{P}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{X}_{3 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{X}_{4 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{X}_{3 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{X}_{4 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ |
| MC1 | 3/4-pole | 135 | 105 | 120 | 85 | 135 | 90 | 125 | 80 |
| MC2 | 3/4-pole | 135 | 105 | 120 | 85 | 135 | 90 | 125 | 80 |
| MC3 | 3/4-pole | 90 | 75 | 75 | 35 | 85 | 40 | 80 | 45 |
| MC4 | 3/4-pole | 50 | 35 | 40 | 15 | 25 | - | 15 | - |


| MC-XBZ600 |  |  |  |  |  | Right switch |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Max. switch clearance |  | MC1 |  | MC2 |  | MC3 |  | MC4 |  |
|  |  | $\begin{gathered} \mathbf{X}_{3 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{X}_{4 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{X}_{3 \mathrm{p}} \\ {[\mathrm{~mm}]} \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{X}_{4 \mathrm{p}} \\ {[\mathrm{~mm}]} \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{X}_{3 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{X}_{4 \mathrm{p}} \\ {[\mathrm{~mm}]} \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{X}_{3 \mathrm{P}} \\ {[\mathrm{~mm}]} \\ \hline \end{gathered}$ | $\begin{gathered} \mathrm{X}_{4 \mathrm{p}} \\ {[\mathrm{~mm}]} \\ \hline \end{gathered}$ |
| MC1 | 3/4-pole | 510 | 480 | 495 | 460 | 510 | 465 | 475 | 405 |
| MC2 | 3/4-pole | 510 | 480 | 495 | 460 | 510 | 465 | 475 | 405 |
| MC3 | 3/4-pole | 460 | 430 | 450 | 410 | 460 | 415 | 460 | 390 |
| MC4 | 3/4-pole | 400 | 370 | 380 | 340 | 400 | 375 | 390 | 320 |


| 1000 |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ance |  |  |  |  |  |  |  |  |
|  |  | $\begin{gathered} \mathbf{X}_{3 \mathrm{P}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathbf{X}_{4 \mathrm{P}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{X}_{3 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{gathered} \mathrm{X}_{4 \mathrm{p}} \\ {[\mathrm{~mm}]} \end{gathered}$ | $\begin{aligned} & \mathrm{X}_{3 \mathrm{p}} \\ & \mathrm{~mm} \end{aligned}$ | $X_{4 p}$ $\mathrm{mm}$ | $x_{3 p}$ $\mathrm{mm}$ | $X_{4 P}$ mm |
| MC1 | 3/4-pole | 910 | 880 | 895 | 860 | 910 | 865 | 865 | 795 |
| MC2 | 3/4-pole | 910 | 880 | 895 | 860 | 910 | 865 | 865 | 795 |
| MC3 | 3/4-pole | 820 | 790 | 850 | 810 | 860 | 815 | 860 | 790 |
| MC4 | 3/4-pole | 750 | 720 | 730 | 700 | 800 | 775 | 790 | 720 |

Installation notes, project planning MC
Mechanical interlock, side-by-side mounting


Mechanical interlock XMVR and XMVRL
$X_{3 P}=$ Switch clearance, 3 -pole
$X_{4 P}=$ Switch clearance, 4 -pole

Mechanical interlock XMVR (Side-by-side mounting)

| MC.-XMVR |  |  | Right switch |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Max. switch clearance | MC2 |  | MC3 |  | MC4 |  |
|  | $\mathrm{X}_{3 \mathrm{P}}$ | $\mathrm{X}_{4 \mathrm{P}}$ | $\mathrm{X}_{3 \mathrm{P}}$ | $\mathrm{X}_{4 \mathrm{P}}$ | $\mathrm{X}_{3 \mathrm{P}}$ | $\mathrm{X}_{4 \mathrm{P}}$ |
| Left switch | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |
| MC2 3/4-pole | 130 | 95 | 95 | 50 | - | - |
| MC3 3/4-pole | - | - | 135 | 90 | 155 | 85 |
| MC4 3/4-pole | - | - | - | - | 120 | 50 |

Mechanical interlock XMVRL (Mounting in adjacent switch cabinet sections)

| MC.-XMVRL <br> Max. switch clearance | MC2 |  | Right switch |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MC3 |  | MC4 |  |
|  | $\mathrm{X}_{3 \mathrm{P}}$ | $\mathrm{X}_{4 \mathrm{P}}$ | $\mathrm{X}_{3 \mathrm{P}}$ | $\mathrm{X}_{4 \mathrm{P}}$ | $\mathrm{X}_{3 \mathrm{P}}$ | $\mathrm{X}_{4 \mathrm{P}}$ |
| Left switch | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |
| MC2 3/4-pole | 350 | 315 | 420 | 385 | - | - |
| MC3 3/4-pole | - | - | 400 | 365 | 460 | 390 |
| MC4 3/4-pole | - | - | - | - | 420 | 350 |

[^17]
## Technical data MC

Installation notes, project planning MC

- Mechanical interlock,
mounting on top of one another


Mechanical interlock XMVRL (mounting on top of one another)
Mechanical interlock XMVRL (mounting on top of one another)

| MC.-XMVRL | Switch top <br> MC2 | MC3 | MC4 |  |
| :--- | :---: | :---: | :---: | :---: |
|  | 3/4-pole | $3 / 4$-pole | $3 / 4$-pole |  |
| Max. switch clearance | Y | Y | Y |  |
| Bottom switch | mm | mm | mm |  |
| MC2 | 3/4-pole | 220 | 225 | - |
| MC3 | 3/4-pole | - | 220 | 230 |
| MC4 | 3/4-pole | - | - | 230 |
| Y |  |  |  |  |

$\mathrm{Y}=$ Max. switch clearance

Discrimination MC

- MC, BM-B(C), BE5/6



## Discrimination 415VAC

Between circuit breakers enables faulty system sections to be shut down separately.
There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker trips. System sections 3 and 4 remain operational.

Incoming circuit breaker (S1)

|  | Incoming circuit breaker (S1) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathrm{I}_{\mathrm{cu}}[\mathrm{kA}]$ |  | MC1.-A |  |  |  |  |  |  | MC2.-A |  |  |  |  |  |  |  |  |
|  |  |  | 25(36)(50)(100) |  |  |  |  |  |  | 25(36)(50)(150) |  |  |  |  |  |  |  |  |
|  | $\mathrm{I}_{\mathrm{n}}$ [A] |  | 20... 40 | 50 | 63 | 80 | 100 | 125 | 160 | 20... 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 |
| Outgoing circuit breaker (S2) | $\mathrm{In}_{[ }[\mathrm{A}]$ | $\mathrm{Icu}_{\text {cu }}(415 \mathrm{~V})$ | Discrimination limit Is [kA] for coordination between S2 and S1, overload- and short-circuit releases set to max. value |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | [A] | [kA] |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BM-B(C) | 0.5 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 1 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 2 | 15 | 2 | T | T | T | T | T | T | 3 | T | T | T | T | T | T | T | T |
|  | 3 | 15 | 1.2 | 2 | 3 | 3 | 10 | T | T | 1.5 | 1.5 | 3 | 5 | T | T | T | T | T |
|  | 4 | 15 | 1.2 | 2 | 3 | 3 | 8 | T | T | 1.2 | 1.5 | 3 | 4 | T | T | T | T | T |
|  | 6 | 15 | 1.2 | 2 | 2,5 | 3 | 5 | 10 | 10 | 1.2 | 1.5 | 2,5 | 3 | T | T | T | T | T |
|  | 10 | 15 | 1.2 | 1.5 | 2 | 2 | 4 | 10 | 10 | 1 | 1.5 | 2,5 | 3 | 10 | 10 | 10 | 10 | 10 |
|  | 13 | 15 | 1 | 1.5 | 2 | 2 | 4 | 10 | 10 | 1 | 1.2 | 2 | 3 | 10 | 10 | 10 | 10 | 10 |
|  | 16 | 15 | 1 | 1.2 | 1.5 | 2 | 3 | 8 | 8 | 1 | 1.2 | 1.5 | 2,5 | 10 | 10 | 10 | 10 | 10 |
|  | 20 | 15 | 0.8 | 1.2 | 1.5 | 1.5 | 3 | 8 | 8 | 1 | 1.2 | 1.5 | 2,5 | 10 | 10 | 10 | 10 | 10 |
|  | 25 | 15 | 0.7 | 1.2 | 1.5 | 1.5 | 3 | 7 | 7 | 0.8 | 1 | 1.5 | 2 | 10 | 10 | 10 | 10 | 10 |
|  | 32 | 15 | - | 1.2 | 1 | 1.5 | 2 | 6 | 6 | - | 1 | 1.5 | 2 | 8 | 8 | 8 | 8 | 10 |
|  | 40 | 15 | - | - | 1 | 1.5 | 2 | 5 | 5 | - | - | 1.2 | 1.5 | 7 | 7 | 7 | 7 | 10 |
|  | 50 | 15 | - | - | - | 1.2 | 1.5 | 4 | 4 | - | - | - | 1.5 | 6 | 6 | 6 | 6 | 10 |
|  | 63 | 15 | - | - | - | - | 1.5 | 3 | 3 | - | - | - | - | 6 | 6 | 6 | 6 | 10 |
| BE5 | 0.16 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 0.25 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 0.4 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 0.63 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 1 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 1.6 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 2.5 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 4 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 6.3 | 100 | 4 | 5 | 5 | T | T | T | T | 2 | 3 | 4 | 5 | T | T | T | T | T |
|  | 10 | 100 | 3 | 4 | 5 | 6 | 25 | T | T | 1.5 | 2.5 | 4 | 4 | T | T | T | T | T |
|  | 12 | 50 | 3 | 4 | 5 | 6 | 25 | T | T | 1.5 | 2.5 | 4 | 4 | T | T | T | T | T |
|  | 16 | 50 | 1.5 | 1.5 | 2 | 3 | 5 | 7 | T | 1 | 1.6 | 2 | 2.5 | T | T | T | T | T |
|  | 20 | 50 | 0.8 | 1.5 | 1.5 | 2 | 3 | 5 | T | 0.8 | 1.2 | 1.5 | 2 | T | T | T | T | T |
|  | 25 | 50 | - | 1 | 1.5 | 1.5 | 2.5 | 4 | T | - | 1 | 1.5 | 2 | 10 | T | T | T | T |
|  | 32 | 50 | - | - | 1 | 1 | 2 | 3.5 | T | - | - | 1 | 1.5 | 8 | 40 | T | T | T |
| BE6 | 16 | 100 | 0.5 | 0.8 | 0.8 | 0.8 | 2 | 5 | 5 | 0.5 | 0.8 | 0.8 | 0.8 | 2 | 5 | 5 | 5 | 5 |
|  | 25 | 100 | - | 0.7 | 0.8 | 0.8 | 1.5 | 5 | 5 | - | 0.7 | 0.8 | 0.8 | 1.5 | 5 | 5 | 5 | 5 |
|  | 32 | 50 | - | - | 0.8 | 0.8 | 1.5 | 4 | 4 | - | - | 0.8 | 0.8 | 1.5 | 4 | 4 | 4 | 4 |
|  | 40 | 50 | - | - | - | 0.8 | 1.5 | 3 | 3 | - | - | - | 0.8 | 1.5 | 3 | 3 | 3 | 3 |
|  | 50 | 50 | - | - | - | - | 1 | 2.5 | 2.5 | - | - | - | - | 1 | 2.5 | 2.5 | 2.5 | 2.5 |
|  | 58 | 50 | - | - | - | - | - | 2.5 | 2.5 | - | - | - | - | - | 2.5 | 2.5 | 2.5 | 2.5 |
|  | 63 | 50 | - | - | - | - | - | 2 | 2 | - | - | - | - | - | 2 | 2 | 2 | 2 |

Note: T - Total discrimination

## Technical data MC

## Discrimination MC

- MC, BM-B(C), BE5/6


Incoming circuit breaker

Outgoing circuit breaker

## Discrimination 415VAC

Between circuit breakers enables faulty system sections to be shut down separately.
There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker trips.
System sections 3 and 4 remain operational.

|  | Incoming circuit breaker (S1) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MC2.-VE |  |  | MC3.-AE |  |  | MC3.-VE |  |  | MC4.-AE |  |  |  |  | MC4.-VE |  |  |  |  |
|  | $\mathrm{I}_{\mathrm{cv}}[\mathrm{kA}]$ |  | 50(150) |  |  | 50(150) |  |  | 50(150) |  |  | 50(85) |  |  |  |  | 50(85) |  |  |  |  |
|  |  | [A] | 100 | 160 | 250 | 250 | 400 | 630 | 250 | 400 | 630 | 630 | 800 | 1000 | 1250 | 1600 | 630 | 800 | 1000 | 1250 | 1600 |
| Outgoing circuit breaker (S2) | $\mathrm{In}_{n}[\mathrm{~A}]$ | $\begin{aligned} & \begin{array}{l} \mathrm{I}_{\mathrm{cu}}(415 \mathrm{~V}) \\ {[\mathrm{kA]}} \end{array} \\ & \hline \end{aligned}$ | Discrimination limit Is [kA] for coordination between S2 and S1, overload- and short-circuit release set to maximum value |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BM-B(C) | 0.5 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 1 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 2 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 3 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 4 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 6 | 15 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 10 | 15 | 10 | 10 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 13 | 15 | 10 | 10 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 16 | 15 | 10 | 10 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 20 | 15 | 10 | 10 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 25 | 15 | 10 | 10 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 32 | 15 | 8 | 8 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 40 | 15 | 7 | 7 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 15 | 6 | 6 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 15 | 6 | 6 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| BE5 | 0.16 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 0.25 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 0.4 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 0.63 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 1 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 1.6 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 2.5 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 4 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 6.3 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 10 | 100 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 12 | 50 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 16 | 50 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 20 | 50 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 25 | 50 | 10 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 32 | 50 | 8 | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| BE6 | 16 | 100 | 5 | 5 | 6 | 6 | 16 | 45 | 6 | 16 | 45 | 45 | T | T | T | T | 45 | T | T | T | T |
|  | 25 | 100 | 5 | 5 | 3.3 | 3.3 | 10 | 25 | 3.3 | 10 | 25 | 25 | 42 | T | T | T | 25 | 42 | T | T | T |
|  | 32 | 50 | 4 | 4 | 3 | 3 | 8 | 18 | 3 | 8 | 18 | 18 | 30 | 45 | T | T | 18 | 30 | 45 | T | T |
|  | 40 | 50 | 3 | 3 | 3 | 3 | 8 | 18 | 3 | 8 | 18 | 18 | 30 | 45 | T | T | 18 | 30 | 45 | T | T |
|  | 50 | 50 | 2.5 | 2.5 | 3 | 3 | 8 | 18 | 3 | 8 | 18 | 18 | 30 | 45 | T | T | 18 | 30 | 45 | T | T |
|  | 58 | 50 | 2.5 | 2.5 | 2.5 | 2.5 | 6.5 | 15 | 2.5 | 6.5 | 15 | 15 | 25 | 40 | T | T | 15 | 25 | 40 | T | T |
|  | 63 | 50 | 2 | 2 | 2.5 | 2.5 | 6.5 | 15 | 2.5 | 6.5 | 15 | 15 | 25 | 40 | T | T | 15 | 25 | 40 | T | T |

Note: T - Total discrimination

## Discrimination MC

- MC - MC


Incoming circuit breaker

Outgoing circuit breaker

Discrimination 415VAC
Between circuit breakers enables faulty system sections to be shut down separately
There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker trips.
System sections 3 and 4 remain operational.

Incoming circuit breaker (S1)
MC1.-A
25(36)(50)(100)
cu (kA)
$I_{n}(A)$

|  |  |  | MC1.-A |  |  |  |  |  |  | MC2.-A |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\mathrm{cu}}(\mathrm{kA})$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 25(36)(50)(100) |  |  |  |  |  |  | 25(36)(50)(150) |  |  |  |  |  |  |  |  |
| $\mathrm{I}_{\mathrm{n}}(\mathrm{A})$ |  |  | 20... 40 | 50 | 63 | 80 | 100 | 125 | 160 | 20... 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 |
| Outgoing circuit breaker (S2) | $\begin{gathered} \hline \mathbf{I}_{\mathrm{n}} \\ {[\mathrm{~A}]} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline \mathrm{I}_{\mathrm{cv}}(415 \mathrm{~V}) \\ {[\mathrm{kA}]} \\ \hline \end{array}$ | Discrimination limit Is (kA). Set the overload- and short-circuit release of the incoming circuit breaker to the maximum value. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MC1.-A | 20... 40 | 25... 100 | - | - | 0.5 | 0.7 | 0.8 | 1.5 | 1.5 | - | - | 0.6 | 0.8 | 1.5 | 1.5 | 1.5 | 2 | 3 |
|  | 50 | 25... 100 | - | - | - | 0.6 | 0.8 | 1.5 | 1.5 | - | - | - | 0.8 | 1.5 | 1.5 | 1.5 | 2 | 3 |
|  | 63 | 25... 100 | - | - | - | - | 0.8 | 1.5 | 1.5 | - | - | - | - | 1.5 | 1.5 | 1.5 | 2 | 3 |
|  | 80 | 25... 100 | - | - | - | - | - | 1.5 | 1.5 | - | - | - | - | - | 1.5 | 1.5 | 2 | 3 |
|  | 100 | 25... 100 | - | - | - | - | - | - | 1.5 | - | - | - | - | - | - | 1.5 | 2 | 3 |
|  | 125 | 25... 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 3 |
|  | 160 | 25... 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 3 |
| MC2.-A | 20... 40 | 25...150 | - | - | 0.5 | 0.6 | 0.8 | 1 | 1 | - | - | 0.5 | 0.6 | 0.8 | 1 | 1.2 | 1.6 | 2 |
|  | 50 | 25...150 | - | - | - | 0.6 | 0.8 | 1 | 1 | - | - | - | 0.6 | 0.8 | 1 | 1.2 | 1.6 | 2 |
|  | 63 | 25...150 | - | - | - | - | 0.8 | 1 | 1 | - | - | - | - | 0.8 | 1 | 1.2 | 1.6 | 2 |
|  | 80 | 25...150 | - | - | - | - | - | 1 | 1 | - | - | - | - | - | 1 | 1.2 | 1.6 | 2 |
|  | 100 | 25...150 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1.2 | 1.6 | 2 |
|  | 125 | 25... 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.6 | 2 |
|  | 160 | 25...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 |
|  | 200 | 25...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 250 | 25...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC1.-M | 40 | 25(50) | - | - | - | - | 0.8 | 1 | 1 | - | - | - | - | 0.8 | 1 | 1.2 | 1.6 | 2 |
|  | 50 | 25(50) | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1.2 | 1.6 | 2 |
|  | 63 | 25(50) | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1.2 | 1.6 | 2 |
|  | 80 | 25(50) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.6 | 2 |
|  | 100 | 25(50) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 |
| MC2.-M | 20...125 | 25(50) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 160 | 25(50) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 200 | 25(50) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC2.-VE | 100 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.2 | 1.6 | 2 |
|  | 160 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 250 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC2.-ME | 90 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.2 | 1.6 | 2 |
|  | 140 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 220 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC3.-A | 250 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 400 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 630 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC3.-VE | 250 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 400 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 630 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC3.-ME | 220 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 350 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 450 | 50...150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC4.-AE | 630 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 800 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 1000 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 1250 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 1600 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC4.-VE | 630 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 800 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 1000 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 1250 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 1600 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MC4.-ME | 550 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 875 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 1400 | 50(85) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Note: T-Total discrimination

## Technical data MC

## Discrimination MC

- MC - MC


Discrimination 415VAC
Between circuit breakers enables faulty system sections to be shut down separately.
There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker trips.
System sections 3 and 4 remain operational.


## Note: T - Total discrimination

## Line protection, backup protection MC

Protection of PVC-insulated cables against thermal overload in the event of short-circuit
VDE 0100 Part 430 specifies that all cables and lines must be protected in the event of a circuit overload or short-circuit.
Overload protection is realised with MC circuit breakers using the adjustable, current-dependent, time-delayed overload release.
Protection in the event of a short-circuit is provided using the adjustable instantaneous releases which open the main contact in less than 25 ms .
The low total disconnecting time restricts the temperature rise of the cable to a minimum.
The table indicates the minimum conductor cross-section reliably protected by circuit breakers during a short-circuit. (Operating voltage $\mathrm{UN}=415 \mathrm{~V}$ )

|  | Minimum protected <br> cross-section $\mathrm{mm}^{2}$ Cu |
| :--- | :---: |
| MC1.(-4)-.20 | 6 |
| MC1.(-4)-.25-160 | 10 |
| MC2.(-4)-.20-250 | 10 |
| MC3.(-4)-.250-630 | 16 |
| MC4.(-4)-.630-1600 | 95 |

## Back-up protection



Back-up protection between incoming circuit breaker $M C(N)(H)$ and outgoing circuit breaker $M C-B(N)(H)$

|  |  |  | Incoming circuit breaker (1) |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MC1 |  |  | MC2 |  |  | MC3 |  |  |  |
|  |  |  | $\mathrm{I}_{\mathrm{n}}$ up to 160A |  |  | $\mathrm{I}_{\mathrm{n}}$ up to 250A |  |  | $\mathrm{I}_{\mathrm{n}}$ up to 630A |  |  |  |
|  |  |  | $\mathrm{I}_{\text {cu }}(415 \mathrm{~V}$ ) | $\mathrm{I}_{\text {cu }}(415 \mathrm{~V}$ ) | $\mathrm{I}_{\text {cu }}(415 \mathrm{~V})$ | $\mathrm{I}_{\text {cu }}(415 \mathrm{~V})$ | $\mathrm{I}_{\text {cu }}(415 \mathrm{~V}$ ) | $\mathrm{I}_{\mathrm{cu}}(415 \mathrm{~V}$ ) | $\mathrm{I}_{\mathrm{cu}}(415 \mathrm{~V})$ | $\mathrm{I}_{\text {cu }}(415 \mathrm{~V}$ ) | $\mathrm{I}_{\mathrm{cu}}(415 \mathrm{~V})$ | $\mathrm{I}_{\text {cu }}(415 \mathrm{~V})$ |
| Outgoing circuit breaker (2) |  |  | 25kA | 36kA | 50kA | 100kA | 25kA | 36kA | 50kA | 150kA | 50kA | 150kA |
|  | $\mathrm{l}_{\text {cu }}(415 \mathrm{~V}$ ) | $\mathrm{I}_{n}$ |  |  |  |  |  |  |  |  |  |  |
| MC1B | 25 kA | up to 160A | 25 | 36 | 50 | 100 | 25 | 36 | 50 | 100 | 50 | 100 |
| MCIN | 50kA | up to 160A | - |  | 50 | 100 | - | - |  | 100 | 50 | 100 |
| MC1H | 100kA | up to 160A | - | - | - | 100 | - | - | - | 100 | - | 100 |
| MC2B | 25 kA | up to 250A | 25 | 36 | 50 | 100 | 25 | 36 | 50 | 150 | 50 | 150 |
| MC2N | 50kA | up to 250A | - | - | 50 | 100 | - | - | 50 | 150 | 50 | 150 |
| MC2H | 150kA | up to 250A | - | - | - | - | - | - | - | 150 | - | 150 |
| MC3N | 50 kA | up to 630A | - | - | - | - | - | - | - | - | 50 | 150 |
| MC3H | 150kA | up to 630A | - | - | - | - | - | - | - | - | - | 150 |

Where the prospective fault current at the point of installation of circuit breakers is very high, the standard approach is to use MC.N(H) high-performance circuit breakers. An attractively priced alternative is to fit a current-limiting high-performance circuit-breaker $M C . N(H)$ at the point in the network upstream of standard circuit breakers $M C . B(C)(N)$ if the switching capacity of the $M C . B(C)(N)$ is not sufficient at this point in the network.
The table indicates which current-limiting circuit breaker $M C \cdot B(C)(N)$ in combination with $M C \cdot B(C)(N)$ can provide reliably protection at network locations with high shortcircuit capacities.
The discrimination limit is determined by the response value of the non-delayed short-circuit release in the incoming circuit breaker. This is sufficient for many applications.

## Technical data MC

Line protection, backup protection MC

Back-up protection


Back-up protection


Back-up protection between incoming circuit breaker MC2A... and outgoing circuit breaker BM-B©

| Outgoing circuit breaker | Incoming circuit breaker |  |
| :---: | :---: | :---: |
| BM-B(C). | MC1B-A | $\mathbf{M C 1 + N ( H ) - A}$ |
| $0.5-16 \mathrm{~A}$ | 25 kA | 30 kA |
| $20-40 \mathrm{~A}$ | 20 kA | 20 kA |
| $50,63 \mathrm{~A}$ | 15 kA | 15 kA |

Back-up protection between incoming circuit breaker MC1.A and outgoing circuit breaker BM-BC

| Outgoing circuit breaker | Incoming circuit breaker |  |
| :---: | :---: | :---: |
| BM-B(C). | MC2B-A | MC2N(H)-A |
| $0.5-10 \mathrm{~A}$ | 25 kA | 50 kA |
| $13-32 \mathrm{~A}$ | 25 kA | 30 kA |
| $40-63 \mathrm{~A}$ | 20 kA | 20 kA |

Tripping characteristics MC
MC1: 1) System and line protection 2) Motor protection
(1)

(2)


## Technical data MC

Tripping characteristics MC
MC2: 1) System and line protection 2) Motor protection

A) Tripping time
B) Setting range

Tripping characteristics MC
MC2: 1) Selective and generator protection electronic 2) Motor protection electronic

A) Tripping time

## Technical data MC

## Tripping characteristics MC

MC3: 1) System and line protection electronic 2) Selective and generator protection electronic without $I^{2 \dagger}$

A) Tripping time
B) without function $I^{2}+=$ constant

Tripping characteristics MC
MC3: 1) Selective and generator protection electronic with ${ }^{12}$ 2) Motor protection electronic

A) Tripping time
B) with function $\mathrm{I}^{2} \mathrm{t}=$ constant

## Technical data MC

## Tripping characteristics MC

MC4: 1) System and line protection electronic 2) Selective and generator protection electronic without ${ }^{2 \dagger} \dagger$

A) Tripping time
B) without function $\mathrm{I}^{2} \mathrm{f}=$ constant

Tripping characteristics MC
MC4: 1) Selective and generator protection electronic with ${ }^{12}$ 2) Motor protection electronic

A) Tripping time
B) with function $\mathrm{I}^{2} \mathrm{t}=$ constant

## Technical data MC

## Let-through current \& let-through energy MC

- Let-through current: MCl




Let-through energy: MC1-1) Half wave


Let-through current \& let-through energy MC

- Let-through current: MC2


Let-through energy: MC2-1) Half wave


## Technical data MC

## Let-through current \& let-through energy MC

- Let-through current: MC3




Let-through energy: MC3-1) Half wave



ACB MO, fix installed


## - Schrack-Info

- Fixed mounted ACB in 3 sizes, 3 or 4 -pole, 250 A up to 6300 A
- Short circuit switching capacity Icu $=55,66,80 \mathrm{kA}$ (100kA on request)
- 5 types of electronic release units ETU
- Horizontal and front side connection bars available (vertical version on request)
- Wide range of accessories
- Internet-Configurator downloadable. According this, ACB will be factory-assembled and delivered as complete device

MO108232
ACB MO Size 1-3-pole


## Schrack-Info

- 3-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 2000A

MO108232


## Air Circuit Breakers MO

- ACB MO Size 1-3-pole

MCCB 3-pole MO1..232/MO1..234/MO1..332/MO1.. 334


1) Mounting space for removing of arcing chamber covers
2) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
3) Control circuit plug, screw terminals
4) Control circuit plug, spring terminals
5) Dimension to inside of closed switchgear door
6) Fixing points for the circuit-breaker in the system
7) Interlock in OFF (optional accessory)
8) Key operation (optional accessory)
9) Connection area

- ACB MO Size 1-3-pole
- Wiring Diagram




## Air Circuit Breakers MO

ACB MO Size 1-4-pole


Schrack-Info

- 4-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 2000 A

MO108242

| Rated current $\mathrm{I}_{n}$ | $\begin{gathered} \text { MO1B-4 } \\ 250-2000 \mathrm{~A} \end{gathered}$ | $\begin{gathered} \text { MOIN-4 } \\ 250-2000 \mathrm{~A} \end{gathered}$ |
| :---: | :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690VAC | 690VAC |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{l}_{\mathrm{cs}}$ |  |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55kA | 66kA |
| $\mathrm{I}_{\mathrm{cu}}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 42kA | 50 kA |
| $\mathrm{I}_{\text {cs }}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55kA | 66kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 42kA | 50 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $30^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

- ACB MO Size 1-4-pole

MCCB 3-pole MO1..242/MO 1..244/MO 1..342/MO1.. 344 dimensions


[^18]
## Air Circuit Breakers MO

- ACB MO Size 1-4-pole
- Wiring diagram



ACB MO Size 2-3-pole


## Schrack-Info

- 3-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 3200A

| Rated current $I_{n}$ | $\begin{gathered} \text { MO2B } \\ 250-3200 \mathrm{~A} \end{gathered}$ | $\begin{gathered} \text { MO2N } \\ 250-3200 \mathrm{~A} \end{gathered}$ |
| :---: | :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690VAC | 690VAC |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cv}} / \mathrm{I}_{\mathrm{cs}}$ |  |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50 kA | 75kA |
| $\mathrm{I}_{\text {cs }}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA | 75kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $30^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

## Air Circuit Breakers MO

- ACB MO Size 2-3-pole

MCCB 3-pole MO2..232/MO2..234/MO2..332/MO2.. 334 dimensions


1) Mounting space for removing of arcing chamber covers

With $\mathrm{Ue}=1000 \mathrm{~V}, 175 \mathrm{mms}$ are required for removing of the arcing chamber.
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
7) Fixing points for the circuit-breaker in the system
11) Connection area
12) Circuit breaker top edge- AC-1000V version only

- ACB MO Size 2- 3-pole
- Wiring diagram




## Air Circuit Breakers MO

- ACB MO Size 2-4-pole


Schrack-Info

- 4-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 3200A

| Rated current $\mathrm{I}_{n}$ | $\begin{gathered} \text { MO2B-4 } \\ 250-3200 \mathrm{~A} \end{gathered}$ | $\begin{gathered} \text { MO2N-4 } \\ 250-3200 \mathrm{~A} \end{gathered}$ |
| :---: | :---: | :---: |
| Rated voltage $\mathrm{U}_{\mathrm{e}}$ | 690VAC | 690VAC |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{lcs}^{\text {c }}$ |  |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA |
| $\mathrm{l}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50 kA | 75kA |
| $\mathrm{I}_{\text {cs }}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA | 75kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $30^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

- ACB MO Size 2-4-pole

MCCB 3-pole MO2..242/MO2..244/MO2..342/MO2.. 344 dimensions


1) Mounting space for removing of arcing chamber covers

With $\mathrm{Ue}=1000 \mathrm{~V}, 175 \mathrm{mms}$ are required for removing of the arcing chamber.
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
7) Fixing points for the circuit-breaker in the system
11) Connection area
12) Circuit breaker top edge- AC-1000V version only

## Air Circuit Breakers MO

- ACB MO Size 2-4-pole
- Wiring diagram




## - ACB MO Size 3-3-pole

- Schrack-Info
- 3-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 6300A

| Rated current $\mathrm{I}_{n}$ | $\begin{gathered} \text { MO3H } \\ 1250-6300 \mathrm{~A} \\ \hline \end{gathered}$ |
| :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690VAC |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{\mathrm{cs}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $30^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 3-pole MO3..432/MO3.. 431 dimensions


1) Mounting space for removing of arcing chamber covers

With $U$ e $=1000 \mathrm{~V}, 175 \mathrm{mms}$ are required for removing of the arcing chamber.
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
7) Fixing points for the circuit-breaker in the system
11) Connection area
12) Circuit breaker top edge- AC-1000V version only

## Air Circuit Breakers MO

- ACB MO Size 3-3-pole
- Wiring diagram


DESCRIPTION
100kA

| ACB 3-pole, 100kA, 4000A fixed, rear side horizontal | MO 3 H | MO 340432 |
| :--- | :--- | :--- |
| ACB 3-pole, 100kA, 5000A fixed, rear side horizontal | MO H | MO 350432 |
| ACB 3-pole, 100kA, 6300A fixed, rear side vertical | MO 3 H | MO 363431 |

## - ACB MO Size 3-4-pole

- Schrack-Info
- 4-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 6300A

|  | MO3H-4 <br> Rated current $\mathrm{I}_{\mathrm{n}}$ <br> Rated voltage $\mathrm{U}_{\mathrm{e}}$ |
| :--- | :---: |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ | 690 VAC |
| $\mathrm{I}_{\mathrm{cv}}$ at $\mathbf{5 0 0 \mathrm { V } 5 0 / 6 0 \mathrm { Hz }}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $\mathbf{6 9 0 \mathrm { V } 5 0 / 6 0 \mathrm { Hz }}$ |  |
| $\mathrm{I}_{\mathrm{cs}}$ at $\mathbf{5 0 0 V} \mathbf{5 0 / 6 0 H z}$ | $\mathbf{1 0 0 k A}$ |
| $\mathrm{I}_{\mathrm{cs}}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85 kA |
| Ambient temperature (operation) | $\mathbf{1 0 0 \mathrm { kA }}$ |
| Mounting position | 85 kA |
| Standards and regulations | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |

Dimensions: MCCB 4-pole MO3..442/MO3.. 441 dimensions


1) Mounting space for removing of arcing chamber covers

With $U$ e $=1000 \mathrm{~V}, 175 \mathrm{mms}$ are required for removing of the arcing chamber.
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
7) Fixing points for the circuit-breaker in the system
11) Connection area
12) Circuit breaker top edge- AC-1000V version only

## Air Circuit Breakers MO

ACB MO Size 3-4-pole

- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| 100kA |  |  |
| ACB 4-pole, 100kA, 4000A fixed, rear side horizontal | $\mathrm{MO} 3 \mathrm{H}-4$ |  |
| ACB 4-pole, 100kA, 5000A fixed, rear side horizontal | $\mathrm{MO} 3 \mathrm{H}-4$ | MO 340442 |
| ACB 4-pole, 100kA, 6300A fixed, rear side vertical | $\mathrm{MO} 3 \mathrm{H}-4$ | MO |

- Accessories, factory installed


Schrack-Info

- Electronic releases, motor operator, additional auxiliary contacts, mechanical interlocks, protection covers and locking mechanism can be selected by Configurator
- Factory installed accessories fully wired to auxiliary connectors
- For more information, see technical annex

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| MO release units |  |  |  |
| Electronic release ETU 15B with protection function LI | MO-ZU |  | MO890150 |
| Electronic release ETU25B with protection function LSI | MO-ZU |  | MO890250 |
| Electronic release ETU27B with protection function LSING | MO-ZU |  | MO89027G |
| Electronic release ETU45B with protection function LSIN, no display | MO-ZU |  | MO890450 |
| Electronic release ETU45B with protection function LSIN + display | MO-ZU |  | MO89D450 |
| Electronic release ETU76B with protection function LSIN + display | MO-ZU |  | MO890760 |
| Cover for arc chamber MO Size 1-3-pole |  |  |  |
| Arc chute cover, for guide frame MO1, 3-pole, factory installed | MOI-ZU |  | MO810R 10 |
| Cover for arc chamber MO Size 1-4-pole |  |  |  |
| Arc chute cover, for guide frame MO1, 4-pole, factory installed | MOI-ZU |  | MO814R 10 |
| Cover for arc chamber MO Size 2-3-pole |  |  |  |
| Arc chute cover, for guide frame MO2, 3-pole, factory installed | MO2-ZU |  | MO820R 10 |
| Cover for arc chamber MO Size 2-4-pole |  |  |  |
| Arc chute cover, for guide frame MO2, 4-pole, factory installed | MO2-ZU |  | MO824R10 |
| Cover for arc chamber MO Size 3-3-pole |  |  |  |
| Arc chute cover, for guide frame MO3, 3-pole, factory installed | MO3-ZU |  | MO830R10 |
| Cover for arc chamber MO Size 3-4-pole |  |  |  |
| Arc chute cover, for guide frame MO3, 4-pole, factory installed | MO3-ZU |  | MO834R10 |
| Door sealing frame |  |  |  |
| Door sealing frame | MO-ZU |  | MO800T40 |
| Alarm and auxiliary contacts |  |  |  |
| Ready to close signalling switch, factory installed | MO-ZU |  | MO800C22 |
| Tripped alarm switch, factory installed | MO-ZU |  | MO800K07 |
| Additionally Auxiliary contacts $2 \mathrm{NO}+2 \mathrm{NC}$, factory installed | MO-ZU | - +0000 | MO890004 |
| Shunt trips and undervoltage release units |  |  |  |
| Shunt release 24VDC - 100\% ED, factory installed | MO-ZU |  | MO890B00 |
| Shunt release 110 V D / 110VAC, factory installed | MO-ZU |  | MO890F00 |
| Shunt release 220V DC / 230VAC, factory installed | MO-ZU |  | MO890G00 |
| Undervoltage release 24VDC, factory installed | MO-ZU |  | M 88900 J |
| Undervoltage release 110-125VAC/DC, factory installed | MO-ZU |  | MO8900M0 |
| Undervoltage release 220VAC/DC, factory installed | MO-ZU |  | MO8900N0 |
| Motor operator |  |  |  |
| Motor operator, 220-250VDC / 208-240VAC, factory installed | MO-ZU |  | MO894000 |
| Mechanical interlock |  |  |  |
| Mechanical Interlock module for fixed type circuit breaker | MO-ZU |  | MO800S55 |

## Air Circuit Breakers MO

Accessories, as spare parts


Schrack-Info

- For retrofitting (possibly, additional necessary auxiliary connectors have to be considered)

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Cover for arc chamber MO Size 1-3-pole |  |  |  |
| Arc chute cover, for guide frame MO1, 3-pole (as spare part) | MOI-ZU |  | MO90AS32 |
| Cover for arc chamber MO Size 1-4-pole |  |  |  |
| Arc chute cover, for guide frame MO1, 4-pole (as spare part) | MOI-ZU |  | MO90AS42 |
| Cover for arc chamber MO Size 2-3-pole |  |  |  |
| Arc chute cover, for guide frame MO2,3-pole (as spare part) | MO2-ZU |  | MO90AS36 |
| Cover for arc chamber MO Size 2-4-pole |  |  |  |
| Arc chute cover, for guide frame MO2, 4-pole (as spare part) | MO2-ZU |  | MO90AS44 |
| Cover for arc chamber MO Size 3-3-pole |  |  |  |
| Arc chute cover, for guide frame MO3, 3-pole (as spare part) | MO3-ZU |  | MO90AS38 |
| Cover for arc chamber MO Size 3-4-pole |  |  |  |
| Arc chute cover, for guide frame MO3, 4-pole (as spare part) | MO3-ZU |  | MO90AS46 |
| Alarm and auxiliary contacts |  |  |  |
| Additionally Auxiliary contacts $2 \mathrm{NO}+2 \mathrm{NC}$ (as spare part) | MO-ZU |  | MO90AG01 |
| Ready to close signalling switch (as spare part) | MO-ZU |  | MO90AHOI |
| Tripped signal switch (as spare part) | MO-ZU |  | MO90AH04 |
| Shunt trips and undervoltage release units |  |  |  |
| Shunt release 220VDC / 230VAC (as spare part) | MO-ZU | -000-9, | MO90AD06 |
| Shunt release l10VDC / 110VAC (as spare part) | MO-ZU |  | MO90AD05 |
| Shunt release 24VDC (as spare part) | MO-ZU |  | MO90AD01 |
| Undervoltage release 380-415VAC (as spare part) | MO-ZU |  | MO90AE06 |
| Undervoltage release 220-250VDC/208-240VAC (as spare part) | MO-ZU |  | MO90AE05 |
| Undervoltage release 24VDC (as spare part) | MO-ZU |  | MO90AE01 |
| Motor operator |  |  |  |
| Motor operator, 220-250VDC / 208-240VAC (as spare part) | MO-ZU |  | MO90AF04 |
| Mechanical interlock |  |  |  |
| Mechanical Interlock module for fixed type circuit breaker, spare part | MO-ZU |  | MO90S550 |
| Door sealing frame |  |  |  |
| Door sealing frame (as spare part) | MO-ZU | - 70000 | MO90AP01 |
| Other Accessory |  |  |  |
| Make connectors for circuit breakers | MO-ZU |  | MO90AB01 |
| Auxiliary connector for frame and switch | MO-ZU |  | M090AB03 |
| Safety cover IP55, is not use in combination with door sealing frame | MO-ZU |  | MO90AP02 |
| 4 line display for ETU45B | MO-ZU |  | MO90AT81 |
| Sealing cap for mechanical On/Off, made by CES | MO-ZU |  | MO90BA22 |
| Support bracket, frame size 1/2 (as spare part) | MO-ZU |  | MO90BB50 |

- ACB MO, withdrawable


Schrack-Info

- Withdrawable ACB in 3 sizes, 3 or 4 -pole, 250A up to 6300A
- Shot circuit switching capacity $\mathrm{Icu}=55,66,80 \mathrm{kA}$ ( 100 kA on request)
- 5 types of electronic release units ETU
- Horizontal- and front side-connection bars available (vertical version on request)
- Wide range of accessories
- Internet-Configurator downloadable. According this, ACB will be factory-assembled and delivered as complete device

ACB MO Size 1-3-pole, withdrawable


## Schrack-Info

- 3-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 2000A



## Air Circuit Breakers MO

$\square$ ACB MO Size 1-3-pole, withdrawable
MCCB 3-pole MO 1..236/MO $1 . .336$ dimensions

3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
13) MO in in connected position
14) $M O$ in test position
15) $M O$ in disconnected position

- ACB MO Size 1-3-pole, withdrawable

Dimensions


| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| :---: | :---: | :---: |
| 55kA |  |  |
| ACB 3-pole, 55kA 1000A draw-out, rear side horizontal | MOIB | MO110236 |
| ACB 3-pole, 55kA, 1250A draw-out, rear side horizontal | MOIB | MO112236 |
| ACB 3-pole, 55kA, 1600A draw-out, rear side horizontal | MOIB | MO116236 |
| ACB 3-pole, 55kA, 2000A draw-out, rear side horizontal | MOIB | MO120236 |
| 66kA |  |  |
| ACB 3-pole, 66kA 1000A draw-out, rear side horizontal | MOIN | MO110336 |
| ACB 3-pole, 66kA, 1250A draw-out, rear side horizontal | MOIN | MO112336 |
| ACB 3-pole, 66kA, 1600A draw-out, rear side horizontal | MOIN | MO116336 |
| ACB 3-pole, 66kA, 2000A draw-out, rear side horizontal | MOIN | MO120336 |

## Air Circuit Breakers MO

ACB MO Size 1-4-pole, withdrawable


MO 110246

- Schrack-Info
- 4-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 2000A

| Rated current $\mathrm{I}_{n}$ | $\begin{gathered} \text { MO1B-4 } \\ 250-2000 \mathrm{~A} \end{gathered}$ | $\begin{gathered} \text { MOIN-4 } \\ 250-2000 \mathrm{~A} \\ \hline \end{gathered}$ |
| :---: | :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690VAC | 690VAC |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / /_{\mathrm{cs}}$ |  |  |
| $\mathrm{I}_{\mathrm{cv}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55kA | 66kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 42kA | 50 kA |
| $\mathrm{I}_{\mathrm{cs}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 55kA | 66kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 42kA | 50kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |
| Mounting position | vertical and $30^{\circ}$ in all directions |  |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |  |

$\square$ ACB MO Size 1-4-pole, withdrawable
MCCB 4-pole MO 1..246/MO $1 . .346$ dimensions

3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
13) $M O$ in in connected position
14) $M O$ in test position
15) $M O$ in disconnected position

## Air Circuit Breakers MO

- ACB MO Size 1-4-pole, withdrawable
- Wiring diagram


| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| :---: | :---: | :---: |
| 55kA |  |  |
| ACB 4-pole, 55kA 1000A draw-out, rear side horizontal | MOIB-4 | MO110246 |
| ACB 4-pole, 55kA, 1250A draw-out, rear side horizontal | MO1B-4 | MO112246 |
| ACB 4-pole, 55kA, 1600A draw-out, rear side horizontal | MOIB-4 | MO116246 |
| ACB 4-pole, 55kA, 2000A draw-out, rear side horizontal | MO1B-4 | MO120246 |
| 66kA |  |  |
| ACB 4-pole, 66kA 1000A draw-out, rear side horizontal | MO1N-4 | MO110346 |
| ACB 4-pole, 66kA, 1250A draw-out, rear side horizontal | MOIN-4 | MO112346 |
| ACB 4-pole, 66kA, 1600A draw-out, rear side horizontal | MOIN-4 | MO116346 |
| ACB 4-pole, 66kA, 2000A draw-out, rear side horizontal | MOIN-4 | MO120346 |

ACB MO Size 2-3-pole, withdrawable


## - Schrack-Info

- 3-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 3200 A

MO216236


## Air Circuit Breakers MO

ACB MO Size 2-3-pole, withdrawable
MCCB 3-pole MO2..236/MO2.. 336 dimensions

3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
12) Circuit breaker top edge- AC-1000V version only
13) MO in in connected position
14) $M O$ in test position
15) $M O$ in disconnected position

ACB MO Size 2-3-pole, withdrawable

- Wiring diagram


| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| :---: | :---: | :---: |
| 66kA |  |  |
| ACB 3-pole, 66kA, 1600A draw-out, rear side horizontal | MO2B | MO216236 |
| ACB 3-pole, 66kA, 2000A draw-out, rear side horizontal | MO2B | MO220236 |
| ACB 3-pole, 66kA, 2500A draw-out, rear side horizontal | MO2B | MO225236 |
| ACB 3-pole, 66kA, 3200A draw-out, rear side horizontal | MO2B | MO232236 |
| 80kA |  |  |
| ACB 3-pole, 80kA, 1600A draw-out, rear side horizontal | MO2N | MO216336 |
| ACB 3-pole, 80kA, 2000A draw-out, rear side horizontal | MO2N | MO220336 |
| ACB 3-pole, 80kA, 2500A draw-out, rear side horizontal | MO2N | MO225336 |
| ACB 3-pole, 80kA, 3200A draw-out, rear side horizontal | MO2N | MO232336 |

## Air Circuit Breakers MO

ACB MO Size 2-4-pole, withdrawable


MO216246

- Schrack-Info
- 4-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 3200A


ACB MO Size 2-4-pole, withdrawable
MCCB 3-pole MO2..246/MO2.. 346 dimensions

3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
12) Circuit breaker top edge- AC-1000V version only
13) MO in in connected position
14) MO in test position
15) $M O$ in disconnected position

## Air Circuit Breakers MO

- ACB MO Size 2-4-pole, withdrawable
- Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 66kA |  |  |  |
| ACB 4-pole, 66kA, 1600A draw-out, rear side horizontal | MO2B-4 |  | MO216246 |
| ACB 4-pole, 66kA, 2000A draw-out, rear side horizontal | MO2B-4 |  | MO220246 |
| ACB 4-pole, 66kA, 2500A draw-out, rear side horizontal | MO2B-4 |  | MO225246 |
| ACB 4-pole, 66kA, 3200A draw-out, rear side horizontal | MO2B-4 |  | MO232246 |
| 80kA |  |  |  |
| ACB 4-pole, 80kA, 1600A draw-out, rear side horizontal | MO2H-4 |  | MO216346 |
| ACB 4-pole, 80kA, 2000A draw-out, rear side horizontal | MO2N-4 |  | MO220346 |
| ACB 4-pole, 80kA, 2500A draw-out, rear side horizontal | MO2N-4 |  | MO225346 |
| ACB 4-pole, 80kA, 3200A draw-out, rear side horizontal | MO2N-4 |  | MO232346 |

ACB MO Size 3-3-pole, withdrawable
$\square$ Schrack-Info

- 3-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 6300A

| Rated current $\mathrm{I}_{n}$ | $\begin{gathered} \text { MO3H } \\ 1250-6300 \mathrm{~A} \\ \hline \end{gathered}$ |
| :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690VAC |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{\mathrm{cs}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85 kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $30^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 3-pole MO3..436/MO3.. 437 dimensions

3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
12) Circuit breaker top edge- AC-1000V version only
13) MO in in connected position
14) $M O$ in test position
15) MO in disconnected position

## Air Circuit Breakers MO

ACB MO Size 3-3-pole, withdrawable
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| 100kA | ORDER NO. |  |
| ACB 3-pole, 100kA, 4000A draw out, rear side horizontal | $\mathrm{MO3H}$ |  |
| ACB 3-pole, 100kA, 5000A draw out, rear side horizontal | MO 3 H |  |
| ACB 3-pole, 100kA, 6300A draw out, rear side vertical | MO |  |

ACB MO Size 3-4-pole, withdrawable
$\square$ Schrack-Info

- 4-pole basic device, manually operated, $2 \mathrm{NO}+2 \mathrm{NC}$ auxiliary contacts included and wired to auxiliary connector, without electronic release ETU
- Rated current up to 6300A

| Rated current $\mathrm{I}_{n}$ | $\begin{gathered} \text { MO3H-4 } \\ 1250-6300 \mathrm{~A} \\ \hline \end{gathered}$ |
| :---: | :---: |
| Rated voltage $\mathrm{U}_{\text {e }}$ | 690VAC |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cu}} / \mathrm{I}_{\mathrm{cs}}$ |  |
| $\mathrm{I}_{\mathrm{cu}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |
| $\mathrm{I}_{\text {cu }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| $\mathrm{I}_{\mathrm{cs}}$ at $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 100kA |
| $\mathrm{I}_{\text {cs }}$ at $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 85kA |
| Ambient temperature (operation) | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Mounting position | vertical and $30^{\circ}$ in all directions |
| Standards and regulations | IEC/EN 60947-2, VDE 0660 |

MCCB 4-pole MO3..446/MO3.. 447 dimensions

3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
12) Circuit breaker top edge- AC-1000V version only
13) $M O$ in in connected position
14) $M O$ in test position
15) MO in disconnected position

## Air Circuit Breakers MO

- ACB MO Size 3-4-pole, withdrawable

Wiring diagram

DESCRIPTION TYPE NO. AVAILABLE ORDER NO

100kA

| ACB 4-pole, 100kA, 4000A draw out, rear side horizontal | $\mathrm{MO} 3 \mathrm{H}-4$ | MO 340446 |
| :--- | :--- | :--- |
| ACB 4-pole, 100kA, 5000A draw out, rear side horizontal | $\mathrm{MO} 3 \mathrm{H}-4$ | MO |
| ACB 4-pole, 100kA, 6300A draw out, rear side vertical | $\mathrm{MO} 3 \mathrm{H}-4$ | MO 463447 |

Accessories, factory installed

- Schrack-Info
- Electronic releases, motor operator, additional auxiliary contacts, mechanical interlocks, protection covers and locking mechanism can be selected by Configurator
- Factory installed accessories fully wired to auxiliary connectors
- For more information, see technical annex

MO800R55

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Alarm and auxiliary contacts |  |  |  |
| Electronic release ETU 15B with protection function LI | MO-ZU |  | MO890150 |
| Electronic release ETU25B with protection function LSI | MO-ZU |  | MO890250 |
| Electronic release ETU27B with protection function LSING | MO-ZU |  | MO89027G |
| Electronic release ETU45B with protection function LSIN, no display | MO-ZU |  | MO890450 |
| Electronic release ETU45B with protection function LSIN + display | MO-ZU |  | MO89D450 |
| Electronic release ETU76B with protection function LSIN + display | MO-ZU |  | MO890760 |
| Cover for arc chamber MO Size 1-3-pole |  |  |  |
| Arc chute cover, for guide frame MO1, 3-pole, factory installed | MO1-ZU |  | MO810R 10 |


| Arc chute cover, for guide frame MO1, 4-pole, factory installed | MO1-ZU | MO814R 10 |
| :--- | :--- | :--- |
| Cover for arc chamber MO Size 2 - 3-pole |  | MO2-ZU |
| Arc chute cover, for guide frame MO2, 3-pole, factory installed |  | MO820R10 |
| Cover for arc chamber MO Size 2 - 4-pole | MO2-ZU | MO824R10 |
| Arc chute cover, for guide frame MO2, 4-pole, factory installed |  |  |


| Cover for arc chamber MO Size 3 - 3-pole |  |  |
| :--- | :--- | :--- |
| Arc chute cover, for guide frame MO3, 3-pole, factory installed | MO3-ZU |  |
| Cover for arc chamber MO Size 3 - 4-pole | MO830R 10 |  |
| Arc chute cover, for guide frame MO3, 4-pole, factory installed | MO3-ZU |  |
| Shutter |  |  |
| Shutter 3-pole, frame size 1 | MO1-ZU |  |
| Shutter 4-pole, frame size 1, factory installed | MO1-ZU | MO834R10 |
| Shutter 3-pole, frame size 2, factory installed | MO2-ZU | MO810R21 |
| Shutter 4-pole, frame size 2, factory installed | MO2-ZU | MO814R21 |
| Shutter 3-pole, frame size 3, factory installed | MO3-ZU | MO820R21 |
| Shutter 4-pole, frame size 3, factory installed | MO3-ZU | MO824R21 |
| Door sealing frame |  | MO830R21 |
| Door sealing frame | MO-ZU | MO834R21 |


| Alarm and auxiliary contacts |  |  |
| :---: | :---: | :---: |
| Ready to close signalling switch, factory installed | MO-ZU | MO800C22 |
| Tripped alarm switch, factory installed | MO-ZU | MO800K07 |
| Shunt trips and undervoltage release units |  |  |
| Shunt release 24VDC - 100\% ED, factory installed | MO-ZU | МО890B00 |
| Shunt release 110 V D / 110VAC, factory installed | MO-ZU | MO890F00 |
| Shunt release 220V DC / 230VAC, factory installed | MO-ZU | MO890G00 |
| Undervoltage release 24VDC, factory installed | MO-ZU | MO8900J0 |
| Undervoltage release 110-125VAC/DC, factory installed | MO-ZU | MO8900M0 |
| Undervoltage release 220VAC/DC, factory installed | MO-ZU | MO8900NO |

## Motor operator

| Motor operator, 220-250VDC / 208-240VAC, factory installed | MO-ZU | MO894000 |
| :--- | :--- | :--- |
| Mechanical interlock |  |  |
| Mechanical Interlock module for draw-out circuit breaker | MO-ZU | MO800R55 |

## Air Circuit Breakers MO

- Accessories, as spare parts


Schrack-Info

- For retrofitting (possibly, additional necessary auxiliary connectors have to be considered)

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Cover for arc chamber MO Size 1-3-pole |  |  |  |
| Arc chute cover, for guide frame MO1, 3-pole (as spare part) | MOI-ZU |  | MO90AS32 |
| Cover for arc chamber MO Size 1-4-pole |  |  |  |
| Arc chute cover, for guide frame MO1, 4-pole (as spare part) | MOI-ZU |  | MO90AS42 |
| Cover for arc chamber MO Size 2-3-pole |  |  |  |
| Arc chute cover, for guide frame MO2, 3-pole (as spare part) | MO2-ZU |  | MO90AS36 |
| Cover for arc chamber MO Size 2-4-pole |  |  |  |
| Arc chute cover, for guide frame MO2, 4-pole (as spare part) | MO2-ZU |  | MO90AS44 |
| Cover for arc chamber MO Size 3-3-pole |  |  |  |
| Arc chute cover, for guide frame MO3, 3-pole (as spare part) | MO3-ZU |  | MO90AS38 |
| Cover for arc chamber MO Size 3-4-pole |  |  |  |
| Arc chute cover, for guide frame MO3, 4-pole (as spare part) | MO3-ZU |  | MO90AS46 |
| Shutter |  |  |  |
| Shutter 3-pole, frame size 1 (as spare part) | MOI-ZU |  | MO90AP04 |
| Shutter 3-pole, frame size 2 (as spare part) | MO2-ZU |  | MO90AP06 |
| Shutter 4-pole, frame size 1 (as spare part) | MO1-ZU |  | M090AP08 |
| Shutter 4-pole, frame size 2 (as spare part) | MO2-ZU |  | MO90AP 11 |
| Alarm and auxiliary contacts |  |  |  |
| Additionally Auxiliary contacts $2 \mathrm{NO}+2 \mathrm{NC}$ (as spare part) | MO-ZU |  | MO90AG01 |
| Ready to close signalling switch (as spare part) | MO-ZU |  | MO90AH01 |
| Tripped signal switch (as spare part) | MO-ZU |  | MO90AH04 |
| Shunt trips and undervoltage release units |  |  |  |
| Shunt release 24VDC (as spare part) | MO-ZU |  | MO90AD01 |
| Shunt release 110VDC / 110VAC (as spare part) | MO-ZU |  | MO90AD05 |
| Shunt release 220VDC / 230VAC (as spare part) | MO-ZU | -500-9, | MO90AD06 |
| Undervoltage release 24VDC (as spare part) | MO-ZU |  | MO90AE01 |
| Undervoltage release 220-250VDC/208-240VAC (as spare part) | MO-ZU |  | MO90AE05 |
| Undervoltage release 380-415VAC (as spare part) | MO-ZU |  | MO90AE06 |
| Motor operator |  |  |  |
| Motor operator, 220-250VDC / 208-240VAC (as spare part) | MO-ZU |  | MO90AF04 |
| Mechanical interlock |  |  |  |
| Mechanical Interlock module for draw-out circuit breaker, spare part | MO-ZU |  | MO90R550 |
| Door sealing frame |  |  |  |
| Door sealing frame (as spare part) | MO-ZU | - $+\cdots$ | MO90AP01 |

Accessories, as spare parts

| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| :--- | :--- | :--- |
| Further accessories |  |  |
| Undervoltage release 24VDC (as spare part) | MO-ZU |  |
| Undervoltage release 220-250VDC/208-24OVAC (as spare part) | MO-ZU | MO90AE01 |
| Undervoltage release 380-415VAC (as spare part) | MO-ZU | MO99AE05 |
| Motor operator, 220-250VDC / 208-240VAC (as spare part) | MO-ZU | MO90AE06 |
| Ready to close signalling switch (as spare part) | MO-ZU | MO90AF04 |
| Make connectors for circuit breakers | MO-ZU | MO90AH01 |
| Auxiliary connector for frame and switch | MO-ZU | MO90AB01 |
| Sliding contact module for guide frames | MO-ZU | MO90AB03 |

Guide frame 3-pole


Schrack-Info

- Empty guide frame for spare feeders not assembled with $A C B$

| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| :---: | :---: | :---: |
| Guide frame for MO1 3-pole 1000A horizontal, 4 control contact blocks, size 1 (as spare part) | MOI-ZU | MO901AC4 |
| Guide frame for MO1 3-pole 1600A horizontal, 4 control contact blocks, size 1 (as spare part) | MOI-ZU | MO902AC4 |
| Guide frame for MO1 3-pole 2000A horizontal, 4 control contact blocks, size 1 (as spare part) | MOI-ZU | MO902AC41 |
| Guide frame for MO2 3-pole 2000A horizontal, 4 control contact blocks, size 2 (as spare part) | MO2-ZU | M0903AC4 |
| Guide frame for MO2 3-pole 2500A horizontal, 4 control contact blocks, size 2 (as spare part) | MO2-ZU | MO904AC4 |
| Guide frame for MO2 3-pole 3200A horizontal, 4 control contact blocks, size 2 (as spare part) | MO2-ZU | M0905AC4 |
| Guide frame for MO3 3-pole 4000A horizontal, 4 control contact blocks, size 3 (as spare part) | MO3-ZU | M0906AC4 |
| Guide frame for MO3 3-pole 5000A horizontal, 4 control contact blocks, size 3 (as spare part) | MO3-ZU | MO907AC4 |
| Guide frame for MO3 3-pole 6300A vertical, 4 control contact blocks, size 3 (as spare part) | MO3-ZU | M0908AD4 |

## Air Circuit Breakers MO

## Guide frame 4-pole



Schrack-Info

- Empty guide frame for spare feeders not assembled with ACB

| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| :---: | :---: | :---: |
| Guide frame for MO1 4-pole 1000A horizontal, 4 control contact blocks, size 1 (as spare part) | MO1-ZU | MO901BC4 |
| Guide frame for MO1 4-pole 1600A horizontal, 4 control contact blocks, size 1 (as spare part) | MO1-ZU | MO902BC4 |
| Guide frame for MO1 4-pole 2000A horizontal, 4 control contact blocks, size 1 (as spare part) | MO1-ZU | MO902BC41 |
| Guide frame for MO2 4-pole 2000A horizontal, 4 control contact blocks, size 2 (as spare part) | MO2-ZU | MO903BC4 |
| Guide frame for MO2 4-pole 2500A horizontal, 4 control contact blocks, size 2 (as spare part) | MO2-ZU | MO904BC4 |
| Guide frame for MO2 4-pole 3200A horizontal, 4 control contact blocks, size 2 (as spare part) | MO2-ZU | MO905BC4 |
| Guide frame for MO3 4-pole 4000A horizontal, 4 control contact blocks, size 3 (as spare part) | MO3-ZU | MO906BC4 |
| Guide frame for MO3 4-pole 5000A horizontal, 4 control contact blocks, size 3 (as spare part) | MO3-ZU | MO907BC4 |
| Guide frame for MO3 4-pole 6300A vertical, 4 control contact blocks, size 3 (as spare part) | MO3-ZU | MO908BD4 |

- Converting set for MO from „fix installed" to "draw-out"

Schrack-Info

- Each "fixed" ACB can be converted to "draw-out" without additional space requirement

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :---: |
| Converting sets |  |  |
| Converting set for MO1 3-pole, from fixed to draw-out | $\mathrm{MO1-ZU}$ |  |
| Converting set for MO2 3-pole, from fixed to draw-out | $\mathrm{MO} 2-\mathrm{ZU}$ | $\mathrm{MO90BC11}$ |
| Converting set for MO3 3-pole, from fixed to draw-out | $\mathrm{MO} 3-\mathrm{ZU}$ | $\mathrm{MO99BC12}$ |

## $\square$ General data circuit breaker MO

- Permissible uninterrupted current

| As a factor of the ambient operating temperature with vertical or horizontal mounting |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Type | Version | Ambient operating temperature |  |  |
|  |  | up to $55^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| MOI(-4) |  |  |  |  |
| MO1(-4)...630 | Fixed-mounting | 630 | 630 | 630 |
|  | Withdrawable units | 630 | 630 | 630 |
| MO1(-4)...800 | Fixed-mounting | 800 | 800 | 800 |
|  | Withdrawable units | 800 | 800 | 800 |
| MO1(-4)... 1000 | Fixed-mounting | 1000 | 1000 | 1000 |
|  | Withdrawable units | 1000 | 1000 | 910 (1000) |
| MO1(-4)... 1250 | Fixed-mounting | 1250 | 1250 | 1250 |
|  | Withdrawable units | 1250 | 1250 | 1140 (1210) |
| MO1(-4)... 1600 | Fixed-mounting | 1600 | 1600 | 1500 (1600) |
|  | Withdrawable units | 1600 | 1600 | 1390 (1490) |
| MO1(-4)... 2000 | Fixed-mounting | 2000 | 1930 | 1700 (1780) |
|  | Withdrawable units | 2000 | 1930 | 1700 (180) |
| MO2(-4) |  |  |  |  |
| MO2(-4)-... 800 | Fixed-mounting | 800 | 800 | 800 |
|  | Withdrawable units | 800 | 800 | 800 |
| MO2(-4)-... 1000 | Fixed-mounting | 1000 | 1000 | 1000 |
|  | Withdrawable units | 1000 | 1000 | 1000 |
| MO2(-4)-... 1250 | Fixed-mounting | 1250 | 1250 | 1250 |
|  | Withdrawable units | 1250 | 1250 | 1250 |
| MO2(-4)-... 1600 | Fixed-mounting | 1600 | 1600 | 1600 |
|  | Withdrawable units | 1600 | 1600 | 1600 |
| MO2(-4)-... 2000 | Fixed-mounting | 2000 | 2000 | 2000 |
|  | Withdrawable units | 2000 | 2000 | 2000 |
| MO2(-4)-... 2500 | Fixed-mounting | 2500 | 2500 | 2350 (2360) |
|  | Withdrawable units | 2500 | 2500 | 2220 (2280) |
| MO2(-4)-... 3200 | Fixed-mounting | 3200 | 3150 | 2910 (2940) |
|  | Withdrawable units | 3200 | 3070 | 2790 (2870) |
| MO3(-4) |  |  |  |  |
| MO3(-4)-... 4000 | Fixed-mounting | 4000 | 4000 | 4000 |
|  | Withdrawable units | 4000 | 4000 | 4000 |
| MO3(-4)-... 5000 | Fixed-mounting | 5000 | 5000 | 5000 (4860) |
|  | Withdrawable units | 5000 | 5000 | 5000 (4730) |
| MO3(-4)-...6300 | Fixed-mounting $6300 \mathrm{~A}\left(40^{\circ} \mathrm{C}\right)$ | 6150 | 5910 (5970) | 5610 (5670) |
|  | Withdrawable units $6300 \mathrm{~A}\left(40^{\circ} \mathrm{C}\right)$ | 5920 | 5810 (5900) | 5400 (5500) |

Notes:
Values in parentheses: Black-painted copper rails, partly with reduced recommended conductor cross-sections

## Technical data MO

## General data circuit breaker MO

| General Data |  | MO1(-4)-... 630 |  | MO1(-4)-... 800 |  | MO1(-4)-... 1000 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | N | B | N | B | N |
| Standards and regulations |  | IEC/EN 60947, VDE 0660 |  |  |  |  |  |
| Climate resistance |  | IEC/EN 60068-2-30 |  |  |  |  |  |
| Ambient operating temperature | Storage | $-40-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |
|  | Operation (open) | $-25-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |  |
| Utilization category |  | B | B | B | B | B | B |
| Degree of protection |  | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |
| Direction of power supply |  | any |  |  |  |  |  |
| Main Circuits |  |  |  |  |  |  |  |
| Rated current = rated uninterrupted current $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{v}$ |  | 630A | 630A | 800A | 800A | 1000A | 1000A |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}$ |  | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC |
| Rated operational voltage $\mathrm{U}_{n}$ |  | $\begin{gathered} 690 / \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} 690 / \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} 690 / \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} 690 / \\ 1000 \mathrm{VAC} \end{gathered}$ | 690VAC | 690VAC |
| Use in IT networks up to U $=440 \mathrm{AC} \mathrm{I}_{\text {IT }}$ |  | 23kA | 23kA | 23kA | 23kA | 23kA | 23kA |
| Use in IT networks up to $\mathrm{U}=690 \mathrm{~V} \mathrm{I}_{\text {IT }}$ for 1000 V versions only |  | MO-4 ETU 15, 25 are not suitable for IT networks without overload protection in 4th pole |  |  |  |  |  |
| Overvoltage protection/pollution degree |  | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage $\mathrm{U}_{1}$ |  | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V |
| Switching Capacity |  |  |  |  |  |  |  |
| Rated short-circuit breaking capacity value Icm | $\begin{aligned} & \hline \text { up to } 500 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 121 kA | 145kA | 121 kA | 145kA | 121 kA | 145kA |
|  | $\begin{aligned} & \text { up to } 690 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 88kA | 105kA | 88kA | 105kA | 88kA | 105kA |
|  | $\begin{aligned} & \hline 1000 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \end{aligned}$ | - | - | - | - | - | - |
| Rated short-time withstand current $50 / 60 \mathrm{~Hz}$ Icw | $\mathrm{t}=0.5 \mathrm{~s}$ | 55kA | 66kA | 145kA | 66kA | 55kA | 66kA |
|  | $t=1 \mathrm{~s}$ | 42kA | 50 kA | 42kA | 50 kA | 42kA | 50 kA |
|  | $t=2 \mathrm{~s}$ | 29 kA | 35 kA | 29kA | 35 kA | 29kA | 35 kA |
|  | $t=3 \mathrm{~s}$ | 24 kA | 29kA | 24 kA | 29kA | 24 kA | 29kA |
| rated short-circuit breaking capacity value In |  |  |  |  |  |  |  |
| IEC/EN 60947 Switching sequence Icu O-t-CO | $\begin{aligned} & \hline \text { up to } 500 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA |
|  | up to 690 V <br> $50 / 60 \mathrm{~Hz}$ | 42kA | 50kA | 42kA | 50kA | 42kA | 50kA |
|  | $\begin{aligned} & \text { up to } 1000 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | - | - | - | - | - | - |
| IEC/EN 60947 Switching sequence Ics O-t-CO-t-CO | $\begin{aligned} & \text { up to } 500 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA |
|  | $\begin{aligned} & \text { up to } 690 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 42kA | 50kA | 42kA | 50kA | 42kA | 50kA |
|  | $\begin{aligned} & \hline \text { up to } 1000 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | - | - | - | - | - | - |

- General data circuit breaker MO

| General Data |  |  | MO1 (-4)-... 630 |  | MO1(-4)-... 800 |  | MO1(-4)-... 1000 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | B | N | B | N | B | N |
| Switching times | Total disconnecting time ${ }^{1 /}$ |  | 38 ms | 38 ms | 38 ms | 38 ms | 38 ms | 38 ms |
|  | ON time ${ }^{2 /}$ |  | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms |
|  | ON time electrical (via closing | ase)3) | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms |
|  | OFF time electrical (via shunt release)4) | dervoltage | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms |
|  | OFF time via control electronics circuit release) ${ }^{5)}$ | non-delayed short- | 50 ms | 50 ms | 50 ms | 50 ms | 50 ms | 50 ms |
| Service life | mechanical, no maintenance | operations | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
|  | mechanical, maintenance ${ }^{6 /}$ | operations | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 |
|  | electrical, no maintenance | operations | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
|  | electrical, maintenance ${ }^{6 /}$ | operations | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 |
|  | 1000 V version | operations | - | - | - | - | - | - |
| Maximum operating cycles | version 690V | operations/h | 60 | 60 | 60 | 60 | 60 | 60 |
|  | version 1000V | operations/h | - | - | - | - | - | - |
| Power loss at rated current In at |  | permanent installation | 100W | 100W | 100W | 100W | 100W | 100W |
| 3-phase symmetrical load |  | withdrawable units | 195W | 195W | 195W | 195W | 195W | 195W |
| Weight |  |  |  |  |  |  |  |  |
| Permanent installation | 3-pole |  | 43 kg | 43 kg | 43 kg | 43 kg | 43 kg | 43 kg |
|  | 4-pole |  | 50 kg | 50 kg | 50 kg | 50 kg | 50 kg | 50 kg |
| Withdrawable units | 3-pole |  | 70 kg | 70 kg | 70 kg | 70 kg | 70 kg | 70 kg |
|  | 4-pole |  | 84 kg | 84 kg | 84 kg | 84 kg | 84 kg | 84 kg |
| Conductor cross-sections |  |  |  |  |  |  |  |  |
| Cu rails | permanent installation | blank | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ |
|  |  | black | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ |
|  | withdrawable units | blank | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ |
|  |  | black | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ |

Notes:
${ }^{1)}$ Time of mechanical bending until contact separation + static average of the arc quenching time
${ }^{2)}$ Time of mechanical bending until main contact closes.
${ }^{3)}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release ( $5 \leq$ ED): 50 ms .
${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing
${ }^{5)}$ Except releases for ETU 15 system protection: 85 ms .
6) 'Maintenance' means: Replace main switch and arcing chamber elements

## Technical data MO

- General data circuit breaker MO

| General Data |  | MO1(-4)-... 1250 |  | MO1(-4)-... 1600 |  | MO1(-4)-... 2000 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | N | B | N | B | N |
| Standards and regulations |  | IEC/EN 60947, VDE 0660 |  |  |  |  |  |
| Climate resistance |  | IEC/EN 60068-2-30 |  |  |  |  |  |
| Ambient operating temperature | Storage | $-40-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |
|  | Operation (open) | $-25-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |  |
| Utilization category |  | B | B | B | B | B | B |
| Degree of protection |  | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |
| Direction of power supply |  | any |  |  |  |  |  |
| Main Circuits |  |  |  |  |  |  |  |
| Rated current = rated uninterrupted current $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{u}$ |  | 1250 A | 1250 A | 1600 A | 1600 A | 2000 A | 2000 A |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}$ |  | 12000 V AC | 12000 V AC | 12000 V AC | 12000 V AC | 12000 V AC | 12000 V AC |
| Rated operational voltage $\mathrm{U}_{n}$ |  | 690 V AC | 690 V AC | 690 V AC | 690 V AC | 690 V AC | 690 V AC |
| Use in IT networks up to U $=440 \mathrm{AC} \mathrm{I}_{\text {IT }}$ |  | 23kA | 23kA | 23kA | 23kA | 23kA | 23kA |
| Use in IT networks up to $\mathrm{U}=690 \mathrm{~V} \mathrm{I}_{\text {IT }}$ for 1000 V versions only |  |  |  |  |  |  |  |
| Overvoltage protection/pollution degree |  | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage $\mathrm{U}_{1}$ |  | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V |
| Switching Capacity |  |  |  |  |  |  |  |
| Rated short-circuit breaking capacity value Icm | $\begin{aligned} & \hline \text { up to } 500 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 121 kA | 145kA | 121 kA | 145kA | 121 kA | 145kA |
|  | up to 690 V <br> $50 / 60 \mathrm{~Hz}$ | 88kA | 105kA | 88kA | 105kA | 88kA | 105kA |
|  | $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | - | - | - | - |
| Rated short-time withstand current $50 / 60 \mathrm{~Hz}$ lcw | $t=0.5 \mathrm{~s}$ | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA |
|  | $t=1 \mathrm{~s}$ | 42 kA | 50 kA | 42 kA | 50 kA | 42kA | 50 kA |
|  | $t=2 \mathrm{~s}$ | 29kA | 35 kA | 29kA | 35 kA | 29kA | 35 kA |
|  | $t=3 \mathrm{~s}$ | 24 kA | 29kA | 24 kA | 29kA | 24 kA | 29kA |
| Rated short-circuit breaking capacity value In |  |  |  |  |  |  |  |
| IEC/EN 60947 Switching sequence Icu O-t-CO | $\begin{aligned} & \hline \text { up to } 500 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA |
|  | up to 690 V <br> $50 / 60 \mathrm{~Hz}$ | 42kA | 50kA | 42kA | 50kA | 42kA | 50kA |
|  | up to 1000 V $50 / 60 \mathrm{~Hz}$ | - | - | - | - | - | - |
| IEC/EN 60947 Switching sequence Ics O-t-CO-t-CO | up to 500 V <br> $50 / 60 \mathrm{~Hz}$ | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA |
|  | $\begin{aligned} & \text { up to } 690 \mathrm{~V} \\ & 50 / 60 \mathrm{~Hz} \\ & \hline \end{aligned}$ | 42kA | 50kA | 42kA | 50kA | 42kA | 50kA |
|  | up to 1000 V <br> $50 / 60 \mathrm{~Hz}$ | - | - | - | - | - | - |

- General data circuit breaker MO

| General Data |  |  | MO1(-4)-... 1250 |  | MO1(-4)-... 1600 |  | MO1(-4)-... 2000 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | B | N | B | N | B | N |
| Switching times | Total disconnecting time ${ }^{1 /}$ |  | 38 ms | 38 ms | 38 ms | 38ms | 38ms | 38ms |
|  | ON time ${ }^{2)}$ |  | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms |
|  | ON time electrical (via closin | se) ${ }^{3 /}$ | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms |
|  | OFF time electrical (via shunt- | voltage release) ${ }^{4}$ | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms |
|  | OFF time via control electron circuit release) ${ }^{5)}$ | -delayed short- | 50 ms | 50 ms | 50 ms | 50 ms | 50 ms | 50 ms |
| Service life | mechanical, no maintenance | operations | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
|  | mechanical, maintenance ${ }^{\text {(6) }}$ | operations | 20000 | 20000 | 20000 | 20000 | 15000 | 15000 |
|  | electrical, no maintenance | operations | 10000 | 10000 | 10000 | 10000 | 7500 | 7500 |
|  | electrical, maintenance ${ }^{6]}$ | operations | 20000 | 20000 | 20000 | 20000 | 15000 | 15000 |
|  | 1000 V version | operations | - | - | - | - | 1000 | 1000 |
| Maximum operating cycles | version 690V | operations/h | 60 | 60 | 60 | 60 | 60 | 60 |
|  | version 1000V | operations/h | - | - | - | - | 20 | 20 |
| Power loss at rated current In at |  | permanent installation | 105W | 105W | 150W | 150W | 240W | 240W |
| 3-phase symmetrical load |  | withdrawable units | 205W | 205W | 350W | 350W | 440W | 440W |
| Weight |  |  |  |  |  |  |  |  |
| Permanent installation | 3-pole |  | 43kg | 43kg | 43 kg | 43 kg | 43kg | 43kg |
|  | 4 -pole |  | 50 kg | 50 kg | 50 kg | 50 kg | 50 kg | 50 kg |
| Withdrawable units | 3 -pole |  | 70kg | 70kg | 70kg | 70kg | 70kg | 70kg |
|  | 4 -pole |  | 84 kg | 84 kg | 84kg | 84 kg | 84 kg | 84kg |
| Conductor cross-sections |  |  |  |  |  |  |  |  |
| Cu rails | permanent installation | blank | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | 2×50x10mm | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |
|  |  | black | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |
|  | withdrawable units | blank | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |
|  |  | black | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |

Notes:
${ }^{1 "}$ Time of mechanical bending until contact separation + static average of the arc quenching time
${ }^{2)}$ Time of mechanical bending until main contact closes.
${ }^{3)}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release ( $5 \leq E D$ ): 50 ms .
${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing
${ }^{5)}$ Except releases for ETU 15 system protection: 85 ms .
${ }^{6)}$ 'Maintenance' means: Replace main switch and arcing chamber elements

## Technical data MO

## - General data circuit breaker MO

| General Data | MO2(-4)-... 800 |  |  | MO2(-4)-... 1000 |  |  | MO2(-4)-... 1250 |  |  | MO2(-4)-... 1600 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | B | N | H | B | N | H | B | N | H | B | N | H |
| Standards and regulations | IEC/EN 60947, VDE 0660 |  |  |  |  |  |  |  |  |  |  |  |
| Climate resistance | IEC/EN 60068-2-30 |  |  |  |  |  |  |  |  |  |  |  |
| Ambient operating temperature |  |  |  |  |  |  |  |  |  |  |  |  |
| Storage | $-40-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |  |  |  |  |  |  |
| Operation (open) | $-25-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |  |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |  |  |  |  |  |  |


| Main Circuits |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Utilization category | B |  |  |  |  |  |  |  |  |  |  |  |
| Degree of protection | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |  |  |  |  |  |  |
| Direction of power supply | any |  |  |  |  |  |  |  |  |  |  |  |
| Rated current $=$ rated uninterrupted current $\mathrm{I}_{n}=\mathrm{I}_{v}$ | 800A | 800A | 800A | 1000A | 1000A | 1000A | 1250A | 1250A | 1250A | 1600A | 1600A | 1600A |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}$ | 12000V | 12000V | 12000V | 12000 V | 12000V | 12000 V | 12000V | 12000V | 12000 V | 12000V | 12000 V | 12000 V |
| Rated operational voltage $\mathrm{U}_{\text {e }}$ | 690V/ | 690V/ | 690V/ | 690V/ | 690V/ | 690V/ | 690V / | 690V/ | 690V/ | 690V / | 690V/ | 690V/ |
|  | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC |
| Use in IT networks up to $\mathrm{U}=440 \mathrm{AC} \mathrm{I}_{\text {IT }}$ | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA | 50 kA |
| Use in IT networks up to $\mathrm{U}=690 \mathrm{~V} \mathrm{I}_{\mathrm{I}}$ for 1000 V versions only <br> for 1000 V versions only ${ }^{11}$ | - | - | 50 kA | - | - | 50 kA | - | - | 50 kA | - | - | 50 kA |
| Overvoltage protection/pollution degree | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage $\mathrm{U}_{1}$ | 1000 V | 1000 V | 1000 V | 1000V | 1000 V | 1000 V | 1000V | 1000 V | 1000V | 1000 V | 1000V | 1000 V |

## Switching Capacity

Rated short-circuit breaking capacity value Icm

| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 145kA | 176kA | 220kA | 145kA | 176kA | 220kA | 145kA | 176kA | 220kA | 145kA | 176kA | 220kA |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 105kA | 165kA | 187kA | 105kA | 165kA | 187kA | 105kA | 165kA | 187kA | 105 kA | 165kA | 187kA |
| $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 105kA | - | - | 105kA | - | - | 105kA | - | - | 105kA |

Rated short-time withstand current $50 / 60 \mathrm{~Hz}$ Icw

| $t=0.5 \mathrm{~s}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66 kA | 80kA | 100kA |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $t=1 \mathrm{~s}$ | 55 kA | 66 kA | 80kA | 55 kA | 66kA | 80kA | 55 kA | 66kA | 80kA | 55 kA | 66kA | 80kA |
| $t=2 \mathrm{~s}$ | 39kA | 46kA | 65 kA | 39kA | 46 kA | 65 kA | 39kA | 46kA | 65 kA | 39 kA | 46kA | 65 kA |
| $t=3 \mathrm{~s}$ | 32kA | 44kA | 50kA | 32kA | 44kA | 50kA | 32 kA | 44kA | 50kA | 32 kA | 44kA | 50kA |

## Rated short-circuit breaking capacity value Icn

| IEC/EN 60947 Switching sequence $\mathrm{I}_{\mathrm{cv}}$ O-t-CO |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA | 75 kA | 85 kA | 50kA | 75kA | 85 kA | 50kA | 75kA | 85 kA | 50 kA | 75 kA | 85 kA |
| up to $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 50kA | - | - | 50kA | - | - | 50kA | - | - | 50 kA |
| IEC/EN 60947 Switching sequence $\mathrm{I}_{\text {cs }}$ O-t-CO-t-CO |  |  |  |  |  |  |  |  |  |  |  |  |
| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA | 75 kA | 85 kA | 50kA | 75kA | 85 kA | 50kA | 75kA | 85 kA | 50kA | 75 kA | 85 kA |
| up to $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 50kA | - | - | 50kA | - | - | 50kA | - | - | 50kA |

Note: ${ }^{1 /}$ The following are not suitable for IT networks: MO-4 ETU 15, 25 without overload protection in 4th pole.

General data circuit breaker MO

| General Data | MO2(-4)-...2000 |  |  | MO2(-4)-... 2500 |  |  | MO2(-4)-... 3200 |  |  | MO3(-4) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4000 | 5000 | 6300 |  |  |  |
|  | B | N | H |  |  |  | B | N | H | B | N | H | H | H | H |
| Standards and regulations | IEC/EN 60947, VDE 0660 |  |  |  |  |  |  |  |  |  |  |  |
| Climate resistance | IEC/EN 60068-2-30 |  |  |  |  |  |  |  |  |  |  |  |
| Ambient operating temperature |  |  |  |  |  |  |  |  |  |  |  |  |
| Storage | $-40-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |  |  |  |  |  |  |
| Operation (open) | $-25-70^{\circ} \mathrm{C}$ (devices with LCD max. $55^{\circ} \mathrm{C}$ ) |  |  |  |  |  |  |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |  |  |  |  |  |  |
| Main Circuits |  |  |  |  |  |  |  |  |  |  |  |  |
| Utilization category | B |  |  |  |  |  |  |  |  |  |  |  |
| Degree of protection | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |  |  |  |  |  |  |
| Direction of power supply | any |  |  |  |  |  |  |  |  |  |  |  |
| Rated current = rated uninterrupted current $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{\mathrm{u}}$ | 2000A | 2000A | 2000A | 2500A | 2500A | 2500A | 3200A | 3200A | 3200A | 4000A | 5000A | 6300A |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}$ | 12000V | 12000 V | 12000 V | 12000V | 12000 V | 12000 V | 12000V | 12000 V | 12000V | 12000 V | 12000 V | 12000 V |
| Rated operational voltage $\mathrm{U}_{\text {e }}$ | 690V/ | 690V / | 690V/ | 690V/ | 690V / | 690V / | 690V / | 690V / | 690V / | 690V/ | 690V/ | 690V / |
|  | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC | 1000AC |
| Use in IT networks up to $\mathrm{U}=440 \mathrm{AC} \mathrm{I}_{\text {IT }}$ | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA |
| Use in IT networks up to $U=690 \mathrm{~V} \mathrm{IIf}_{\text {f }}$ for 1000 V versions only <br> for 1000 versions only ${ }^{11}$ | - | - | 50kA | - | - | 50kA | - | - | 50kA | 50kA | 50kA | 50kA |
| Overvoltage protection/pollution degree | 111/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | 1II/3 |
| Rated insulation voltage $\mathrm{U}_{1}$ | 1000 V | 1000 V | 1000V | 1000V | 1000V | 1000V | 1000 V | 1000V | 1000V | 1000 V | 1000V | 1000 V |
| Switching Capacity |  |  |  |  |  |  |  |  |  |  |  |  |
| Rated short-circuit breaking capacity value Icm |  |  |  |  |  |  |  |  |  |  |  |  |
| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 145kA | 176kA | 220kA | 145kA | 176kA | 220kA | 145kA | 176kA | 220kA | 220kA | 220kA | 220kA |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 105kA | 165kA | 187kA | 105kA | 165kA | 187kA | 105kA | 165kA | 187kA | 187kA | 187kA | 187 kA |
| $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 105kA | - | - | 105kA | - | - | 105kA | 105kA | 105kA | 105 kA |
| Rated short-time withstand current 50/60Hz Icw |  |  |  |  |  |  |  |  |  |  |  |  |
| $t=0.5 \mathrm{~s}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 100kA | 100kA | 100kA |
| $t=1 \mathrm{~s}$ | 55kA | 66kA | 80kA | 55kA | 66kA | 80kA | 55kA | 66kA | 80kA | 100kA | 100kA | 100kA |
| $t=2 \mathrm{~s}$ | 39 kA | 46kA | 65kA | 39 kA | 46kA | 65kA | 39 kA | 46kA | 70kA | 80kA | 80kA | 80kA |
| $t=3 \mathrm{~s}$ | 32kA | 44kA | 50kA | 32kA | 44kA | 50kA | 32kA | 44kA | 65kA | 65kA | 65kA | 65kA |
| Rated short-circuit breaking capacity value In |  |  |  |  |  |  |  |  |  |  |  |  |
| IEC/EN 60947 Switching sequence $\mathrm{I}_{\mathrm{cu}}$ O-t-CO |  |  |  |  |  |  |  |  |  |  |  |  |
| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 100kA | 100kA | 100kA |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA | 75kA | 85kA | 50kA | 75kA | 85kA | 50kA | 75kA | 85kA | 85kA | 85kA | 85kA |
| up to $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 50kA | - | - | 50kA | - | - | 50kA | 50kA | 50kA | 50kA |
| IEC/EN 60947 Switching sequence $\mathrm{I}_{\text {cs }}$ O-t-CO-t-CO |  |  |  |  |  |  |  |  |  |  |  |  |
| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 100kA | 100kA | 100kA |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 50kA | 75kA | 85kA | 50kA | 75kA | 85 kA | 50kA | 75kA | 85kA | 85kA | 85kA | 85 kA |
| up to $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 50kA | - | - | 50kA | - | - | 50kA | 50kA | 50kA | 50kA |

[^19]
## Technical data MO

Switching times, service life, maximal operating cycles, weight, conductor cross-sections MO

|  | MO2(-4)-... 800 |  |  | MO2(-4)-... 1000 |  |  | MO2(-4)-... 1250 |  |  | MO2(-4)-... 1600 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | B | N | H | B | N | H | B | N | H | B | N | H |
| Switching times |  |  |  |  |  |  |  |  |  |  |  |  |
| Switching times ${ }^{1 /}$ | 73 ms |  |  |  |  |  |  |  |  |  |  |  |
| ON time ${ }^{2 /}$ | 100ms |  |  |  |  |  |  |  |  |  |  |  |
| ON time, electrical (via closing release) ${ }^{3 /}$ | 100 ms |  |  |  |  |  |  |  |  |  |  |  |
| On-off switch, electrical (via shunt/undervoltage release) ${ }^{4)}$ | 73 ms |  |  |  |  |  |  |  |  |  |  |  |
| OFF time via control electronics (non-delayed short-circuit-solution) ${ }^{5 /}$ | 50 ms |  |  |  |  |  |  |  |  |  |  |  |
| Service life |  |  |  |  |  |  |  |  |  |  |  |  |
| mechanical, w/o maintenance operations | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| mechanical, with maintenance operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 |
| electrical, w/o maintenance operations | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| electrical, with maintenance operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 |
| Version 1000V operations | > 1000 | > 1000 | > 1000 | > 1000 | > 1000 | > 1000 | > 1000 | > 1000 | > 1000 | >1000 | >1000 | >1000 |


| Version 690V | operations/h | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Version 1000V | operations/h | - | - | 20 | - | - | 20 | - | - | 20 | - | - | 20 |

Power loss at rated current $I_{n}$

| Fixed-mounting | 40W | 40W | 40W | 45W | 45W | 45W | 80W | 80W | 80W | 85W | 85W | 85W |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Withdrawable units | 85W | 85W | 85W | 95 W | 95W | 95 W | 165W | 165W | 165W | 175W | 175W | 175W |
| Weight |  |  |  |  |  |  |  |  |  |  |  |  |
| Fixed-mounting |  |  |  |  |  |  |  |  |  |  |  |  |
| 3-pole | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg |
| 4-pole | 67 kg | 67kg | 67 kg | 67 kg | 67 kg | 67 kg | 67kg | 67 kg | 67 kg | 67 kg | 67kg | 67 kg |
| Withdrawable units |  |  |  |  |  |  |  |  |  |  |  |  |
| 3-pole | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg |
| 4-pole | 109 kg | 109 kg | 109 kg | 109 kg | 109 kg | 109 kg | 109 kg | 109kg | 109 kg | 109 kg | 109 kg | 109kg |

Conductor cross-sections
Cu busbar

| Fixed-mounting (mm) |
| :--- |
| blank |
| black |
| Withdrawable units (mm) |
| blank |
| black |

[^20]Switching times, service life, maximal operating cycles, weight, conductor cross-sections MO

|  | MO2(-4)-... 2000 |  |  | MO2(-4)-... 2500 |  |  | MO2(-4)-...3200(4000) |  |  | MO3(-4)-... |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4000 | 5000 | 6300 |  |  |  |
|  | B | N | H |  |  |  | B | N | H | B | N | H | H | H | H |
| Switching times |  |  |  |  |  |  |  |  |  |  |  |  |
| Switching times ${ }^{1 /}$ | 73 ms |  |  |  |  |  |  |  |  |  |  |  |
| ON time ${ }^{2 /}$ | 100 ms |  |  |  |  |  |  |  |  |  |  |  |
| ON time, electrical (via closing release) ${ }^{3}$ | 100 ms |  |  |  |  |  |  |  |  |  |  |  |
| On-off switch, electrical (via shunt/undervoltage release) ${ }^{4)}$ | 73 ms |  |  |  |  |  |  |  |  |  |  |  |
| OFF time via control electronics (non-delayed short-circuit-solution) ${ }^{51}$ | 50 ms |  |  |  |  |  |  |  |  |  |  |  |
| Service life |  |  |  |  |  |  |  |  |  |  |  |  |
| mechanical, w/o maintenance operations | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 5000 | 5000 | 5000 |
| mechanical, with maintenance operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 10000 | 10000 | 10000 |
| electrical, w/o maintenance operations | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 4000 | 4000 | 4000 | 2000 | 2000 | 2000 |
| electrical, with maintenance operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 10000 | 10000 | 10000 |
| Version 1000V operations | >1000 | >1000 | >1000 | >1000 | >1000 | >1000 | >1000 | >1000 | >1000 | >1000 | >1000 | >1000 |
| Maximum operating cycles |  |  |  |  |  |  |  |  |  |  |  |  |
| Version 690V operations/h | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| Version 1000V operations/h | - | - | 20 | - | - | 20 | - | - | 20 | 20 | 20 | 20 |
| Power loss at rated current $\mathrm{I}_{n}$ at 3 -phase symmetrical load |  |  |  |  |  |  |  |  |  |  |  |  |
| Fixed-mounting | 180W | 180W | 180W | 270W | 270W | 270W | 410W | 410W | 410W | 520W | 630W | 900W |
| Withdrawable units | 320 W | 320W | 320 W | 520W | 520W | 520W | 710W | 710W | 710W | 810W | 1050W | 1600W |
| Weight |  |  |  |  |  |  |  |  |  |  |  |  |
| Fixed-mounting |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 -pole | 56 kg | 56kg | 56 kg | 59 kg | 59 kg | 59 kg | 64kg | 64kg | 64kg | 82kg | 82kg | 90 kg |
| 4-pole | 67kg | 67 kg | 67 kg | 71 kg | 71 kg | 71 kg | 77 kg | 77 kg | 77 kg | 99 kg | 99 kg | 108kg |
| Withdrawable units |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 -pole | 91 kg | 91kg | 91 kg | 102kg | 102kg | 102kg | 113kg | 113kg | 113 kg | 148kg | 148kg | 166 kg |
| 4 -pole | 109 kg | 109 kg | 109 kg | 123 kg | 123kg | 123 kg | 136 kg | 136 kg | 136 kg | 190kg | 190kg | 227 kg |
| Conductor cross-sections |  |  |  |  |  |  |  |  |  |  |  |  |
| Curail |  |  |  |  |  |  |  |  |  |  |  |  |
| Fixed-mounting (mm) |  |  |  |  |  |  |  |  |  |  |  |  |
| blank |  | $3 \times 50 \times 10$ |  |  | $2 \times 100 \times 10$ |  |  | $3 \times 100 \times 10$ |  | $4 \times 100 \times 10$ | $5 \times 100 \times 10$ | $6 \times 120 \times 10$ |
| black |  | $3 \times 50 \times 10$ |  |  | $2 \times 100 \times 10$ |  |  | $3 \times 100 \times 10$ |  | $4 \times 100 \times 10$ | $5 \times 100 \times 10$ | $6 \times 120 \times 10$ |
| Withdrawable units (mm) |  |  |  |  |  |  |  |  |  |  |  |  |
| blank |  | $3 \times 50 \times 10$ |  |  | $2 \times 100 \times 10$ |  |  | $3 \times 100 \times 10$ |  | $4 \times 100 \times 10$ | $5 \times 100 \times 10$ | $6 \times 120 \times 10$ |
| black |  | $3 \times 50 \times 10$ |  |  | $2 \times 100 \times 10$ |  |  | $3 \times 100 \times 10$ |  | $4 \times 100 \times 10$ | $5 \times 100 \times 10$ | $6 \times 120 \times 10$ |

## Notes:

${ }^{11}$ Time of mechanical bending until contact separation + static average of the arc quenching time.
${ }^{2)}$ Time of mechanical bending until main contact closes.
${ }^{3 /}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release ( $5 \leq E D$ ): 50 ms
${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing.
${ }^{5)}$ Except releases for ETU 15 system protection: 85 ms .
${ }^{61}$ 'Maintenance' means: Replace main switch and arcing chamber elements

## Technical data MO

## Control electronics MO

|  | $\begin{gathered} \text { MO } \\ + \text { ETU15 } \end{gathered}$ | $\begin{aligned} & \text { MO1 /2 } \\ & \text { + ETU25 } \end{aligned}$ | $\begin{gathered} \text { MO3 } \\ + \text { ETU25 } \end{gathered}$ | $\begin{aligned} & \text { MO1/2 } \\ & \text { + ETU45 } \end{aligned}$ | $\begin{gathered} \text { MO3 } \\ + \text { ETU45 } \end{gathered}$ | MO1/2 <br> + ETU76 | $\begin{gathered} \text { MO3 } \\ + \text { ETU76 } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overload protection L |  |  |  |  |  |  |  |
| Setting range $I_{\text {r }}$ | $0.5-1.0 \times \mathrm{I}_{\mathrm{n}}$ | $0.4-1.0 \times \mathrm{I}_{n}$ | $0.4-1.0 \times \mathrm{I}_{n}$ | $0.4-1.0 \times \mathrm{In}_{n}$ | $0.4-1.0 \times \mathrm{I}_{n}$ | $0.4-1.0 \times \mathrm{I}_{\mathrm{n}}$ | $0.4-1.0 \times \mathrm{I}_{\mathrm{n}}$ |
| Time-delay $\mathrm{t}_{\mathrm{r}}$ at |  |  |  |  |  |  |  |
| $6 \times 1$ r | 10s | 10s | 10s | - | - | - | - |
| $6 \times \mathrm{I}_{\text {r }}$ at time-lag class setting on $\mathrm{I}^{2 /} \mathrm{I}^{\text {a }}$ | - | - | - | $2-30 \mathrm{~s}$ | $2-30 \mathrm{~s}$ | $2-30 \mathrm{~s}$ | $2-30 \mathrm{~s}$ |
| $6 \times \mathrm{I}_{\text {r }}$ at time-lag class setting on $\mathrm{I}^{4} \mathrm{t}$ | - | - | - | 1-5s | 1-5s | 1-5s | 1-5s |
| Phase sensitivity | - | only at $t_{\text {sd }}=20$ (motor contactor) ms |  | only at $\mathrm{tss}_{\mathrm{sd}}=20$ (motor contactor) ms |  | ON/OFF via internal system bus |  |
| thermal memory | - | - | - | switches on/off |  | switches on/off |  |
| Tolerance | Protective features to IEC/EN 60947 |  |  | Protective features to IEC/EN 60947 <br> Current indicator $\leq 5 \%$ <br> Measurement function, basic variables $\leq 1 \%$ <br> Measurement features, derived variables $\leq 3 \%$ |  |  |  |
| ZSI feature | - | - | - | Option |  | Option |  |
| Short-circuit protection, short time-delayed S |  |  |  |  |  |  |  |
| Sefting range $\mathrm{I}_{\text {sd }}$ | - | $1.25-12 \times \mathrm{I}_{n}$ |  | $1.25-12 \times \mathrm{I}_{n}$ |  | $1.25 \times \ln -0.8 \times \mathrm{I}_{\text {cw }}\left(\right.$ max. $\left.0.8 \times \mathrm{I}_{\text {cw }}\right)$ |  |
| Time delay sd | - | $\begin{gathered} 0,20 \text { (motor contactor), } 100,200, \\ 300,400 \mathrm{~ms} \end{gathered}$ |  | $20 \text { (motor contactor), 100, 200, 300, }$$400 \mathrm{~ms} \text {, OFF }$ |  | $20,100,200,300,400,500,1000,$$2000,3000,4000 \mathrm{~ms} \text {, OFF }$ |  |
|  | - | - | - | 100, 200, 300, 400ms, OFF |  | 100, 200, 300, 400ms, OFF |  |
| Short circuit protection, non-delayed I |  |  |  |  |  |  |  |
| Can be deactivated | - | - | - | OFF ${ }^{2 /}$ | OFF ${ }^{21}$ | OFF via menu/ Comm ${ }^{2 /}$ | OFF via menu/ Comm ${ }^{2)}$ |
| Setting range $I_{i}$ <br> Tolerance: g 0 ... + 20\% | $2-8 \times \mathrm{I}_{n}$ | $\left.\geq 20 \times \mathrm{In}^{(m a x .} 50 \mathrm{kA}\right)$ |  | $\begin{aligned} & 1.5 \times \mathrm{I}_{\mathrm{n}}-0.8 \times \mathrm{I}_{\mathrm{cs}}(\text { max. } 0.8 \\ & \times \mathrm{lcs}), \text { OFF: } \mathrm{I}=\mathrm{I}_{\mathrm{cs}}=(0.5 \mathrm{~s}) \\ & \hline \end{aligned}$ |  | $\begin{aligned} & 1.5 \times \mathrm{I}_{\mathrm{n}}-0.8 \times \mathrm{I}_{\mathrm{cs}}(\text { max. } 0.9 \\ & \times \mathrm{lcs}), \text { OFF: } \mathrm{Ics}=\mathrm{I}_{\mathrm{cw}}(0.5 \mathrm{~s}) \\ & \hline \end{aligned}$ |  |
| N -conductor protection N |  |  |  |  |  |  |  |
| Setting range | - | $0 \%, 100 \% \text { of } I_{n}$ <br> switches on/off with slide switch |  | $1 \%, 100 \% \text { of } I_{n}$ switches on/off with slide switch |  | via menu/COMM $50 \%$ up to $200 \%$ of $\mathrm{I}_{\mathrm{n}}$ |  |
| Earth-fault protection G |  |  |  |  |  |  |  |
| Setting range of tripping current $\mathrm{I}_{\mathrm{g}}$ for the release | - | Option |  | module can be fitted by user |  | module can be fitted by user |  |
|  | - | $\begin{gathered} \text { OFF, 100, 300, } \\ 600,900,1200 \mathrm{~A} \end{gathered}$ | $\begin{gathered} \text { OFF, } 400,600, \\ 800,1000, \\ 1200 \mathrm{~A} \end{gathered}$ | $\begin{aligned} & \text { OFF, 100, 300, } \\ & 600,900,1200 \mathrm{~A} \end{aligned}$ | $\begin{gathered} \text { OFF, } 400,600, \\ 800,1000, \\ 1200 \mathrm{~A} \\ \hline \end{gathered}$ | 100-1200A | 400-1200A |
| Setting range of tripping current $\mathrm{I}_{\mathrm{g}}$ or the alarm | - | - | - | $\begin{gathered} 100,300,600, \\ 900,1200 \mathrm{~A} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 400,600,800 \\ 1000,1200 \mathrm{~A} \\ \hline \end{gathered}$ | 100-1200A | 400-1200A |
| Time delay $\mathrm{t}_{\mathrm{g}}$ | - | 100, 200, 300, 400, 500 ms |  | 100, 200, 300, 400, 500 ms |  | $100 \ldots 500 \mathrm{~ms}$ |  |
| Time delay at $\mathrm{I}^{21} \mathrm{t}$ | - | - |  | 100, 200, 300, 400, 500 ms |  | $100 \ldots 500 \mathrm{~ms}$ |  |
| Trigger feature | - | switches on/off |  | switches on/off |  | switches on/off |  |
| Alarm feature | - | - | - | - | - | switches on/off |  |
| ZSI feature | - | - |  | Option |  | Option |  |
| Senses ground fault current via total current converter with internal or external N conductor converter | - | yes | yes | yes, switchable |  | yes, switchable |  |
| Senses ground fault current via external protective conductor converter | - | - | - | yes, switchable |  | yes, switchable |  |
| Notes: |  |  |  |  |  |  |  |

2) When the I release has tripped, the rated breaking capacity of the circuit breaker drops to $\mathrm{Ics}=\mathrm{Icw}$.

For the overcurrent release ETU45, 76 it is not possible to trip the short time-delayed short-circuit protection, setting tsd $=$ OFF, and the non-delayed short-circuit protection unit, li = OFF at the same time! If at tsd = OFF, the setting $\mathrm{li}=$ OFF is selected, an internal correction to $\mathrm{li}=1.5 \mathrm{x} \ln$ will take place automatically.

Auxiliary contact, voltage release MO

- Technical data - Auxiliary contacts

|  | Standard auxiliary contact | ON ready indicator | Trip-indicating contacts | Position indicator contactswitch |
| :---: | :---: | :---: | :---: | :---: |
| Rated insulation voltage $\mathbf{U}_{\mathbf{i}}$ |  |  |  |  |
| AC | 500VAC | - | - | 440VAC |
| DC | 500VAC | - | - | 250VAC |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}$ | 500VAC | 220VAC | 230VAC | 440VAC |
|  | 220 V DC | 220V DC | 230V DC | 250 V DC |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}$ | 4 kV | - | - | 4 kV |
| Short-circuit protection |  |  |  |  |
| Max. safety fuse | 10 AgL | 2 AgL | 6 AgL | 8 AgL |
| Fuse less | BM-C10/1 | - | - | BM-C6/1 |
| Rated short-circuit breaking capacity |  |  |  |  |
| AC-12 |  |  |  |  |
| 24-230V | 10A | - | - | - |
| 110/127V | 10A | 0.14 A | - | 13A |
| 220/230V | 10A | 0.1 A | 6A | 13A |
| 400 V | 10A | - | - | - |
| 500 V | 10A | - | - | - |
| AC-15 |  |  |  |  |
| 24-230V | 4A | - | - | - |
| 110/127V | 4A | - | - | 5A |
| 220/230V | 4A | - | - | 4A |
| 400 V | 3A | - | - | 3A |
| 440 V | - | - | - | 3A |
| 500 V | 2A | - | - | - |
| DC-12 |  |  |  |  |
| 24V | 10A | 0.2A | 6A | 13A |
| 30 V | - | - | - | 10A |
| 48 V | 8A | - | - | 2.5 A |
| 110 V | 3.5A | - | 0.4A | 0.8A |
| 220V | 1 A | 0.1 A | 0.2A | 0.6A |
| DC-13 |  |  |  |  |
| 24V | 8A | - | - | 3A |
| 48 V | 4A | - | - | - |
| 100 V | 1.2A | - | - | - |
| 220/250V | 0.4 A | - | - | 0.1 A |
| 400V | - | - | - | - |
| DC-15 |  |  |  |  |
| 24 V | 10A | - | - | - |
| 48 V | 4A | - | - | - |
| 110 V | 1.2A | - | - | - |
| 220 V | 0.4 A | - | - | - |
| Conductor cross-sections |  |  |  |  |
| Flexible without end sleeve | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ |
| Flexible with end sleeve | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ |

## Technical data MO

## Auxiliary contact, voltage release MO

- Technical data - Voltage release

|  | Shunt release |  |  | Under voltage release Shunt release for switching OFF |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Shunt release for switching ON |  | Shunt release for switching OFF 100\% duty cycle |  |  |
|  | 100\% duty cycle | 5\% duty cycle |  | time-delayed $t=0.2-3.2 \mathrm{~s}$ | not time-delayed $t=200 \mathrm{~ms}$ |
| Rated control voltage $\mathrm{U}_{5}$ |  |  |  |  |  |
| AC 50/60Hz | 110, 230V | 110-127, 208-240V | 110, 230V | $\begin{gathered} 110-127,208-240, \\ 380-415 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} 110-127,208-240, \\ 380-415 \mathrm{~V} \\ \hline \end{gathered}$ |
| DC | $\begin{gathered} 24,30,48,60,110, \\ 220 \mathrm{~V} \end{gathered}$ | $\begin{gathered} 24,48,110-125,220- \\ 250 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} 24,30,48,60,110, \\ 220 \mathrm{~V} \end{gathered}$ | 48, 110-125, 220-250V | $\begin{gathered} 24,30,48,60,110- \\ 125,220-250 \mathrm{~V} \end{gathered}$ |
| Power consumption |  |  |  |  |  |
| AC 50/60Hz | 15VA | 15VA | 15VA | 5VA (pull-in 200) | 5VA (pull-in 200) |
| DC | 15W | 15W | 15W | 5W (pull-in 200) | 5W (pull-in 200) |
| Response time of circuit breaker | 80 ms | 50 ms | 73 ms | 80 ms non-delayed, otherwise as per Time delay | 80 ms non-delayed, otherwise as per Time delay |
| Minimum command time | 60 ms | 25ms | 60 ms | - | - |
| Operating range |  |  |  |  |  |
| Drop-out voltage $\times \mathrm{U}_{\text {s }}$ | - | - | - | 0.35-0.7 | 0.35-0.7 |
| Pick-up voltage $\times \mathrm{U}_{5}$ | 0.85-1.1 | 0.85-1.1 | 0.85-1.1 | 0.85-1.1 | 0.85-1.1 |
| Extended operating range for battery operation |  |  |  |  |  |
| Pick-up voltage $\times \mathrm{U}_{5}$ | 0.7-1.26 | 0.7-1.26 | 0.7-1.26 | 0.85-1.26 | 0.85-1.26 |
| Short-circuit protection |  |  |  |  |  |
| Diazed fuse (gl) | 1A TDz (slow) | 1A TDz (slow) | 1A TDz (slow) | 1A TDz (slow) | 1A TDz (slow) |
| Miniature circuit-breaker with C characteristics | 1A | 1A | 1A | 1A | 1A |
| Conductor cross-sections |  |  |  |  |  |
| Fine-wired without end sleeve | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ |
| Fine-wired with end sleeve | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ |

Note - Conductor cross-sections: Standard connection, spring-loaded connections Rated operational voltage. Undervoltage release: Pull-in power AC 200 VA /DC 200 W

| Motor operator |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 24-30DC | 48-60DC | 110AC/DC | 230AC/220DC |
| Rated control voltage $\mathrm{U}_{\mathbf{s}}$ |  |  |  |  |
| AC 50/60Hz | - | - | 110-125V | 208-250V |
| DC | 24-30V | 48-60V | 110-127V | 220-225V |
| Operating range $\mathrm{x}_{5}$ | 0.85-1.1V | 0.85-1.1V | 0.85-1.1V | 0.85-1.1V |
| Extended operating range for battery operation 24 V up to $220 \mathrm{VDC} \times \mathrm{U}_{\text {s }}$ | 0.7-1.26V | 0.7-1.26V | 0.7-1.26V | 0.7-1.26V |
| Required time for charging stored energy mechanism at $1 \times U_{s}$ | $\leq 10$ s | $\leq 10$ s | $\leq 10$ s | $\leq 10$ s |
| Starting current | 19.3A (24VDC) | 7.6A (48VDC) | 8.8A (110VAC) | 3.9 A (220VAC) |
|  | 24.5A (30VDC) | 11.6A (60VDC) | 7A (110VDC) | 2.6 A (220VDC) |
| Power consumption |  |  |  |  |
| AC 50/60Hz | 110VA | 110VA | 110VA | 110VA |
| DC | 110W | 110W | 110W | 110W |
| Short-circuit protection |  |  |  |  |
| Diazed fuse (gl) | 2A TDz (slow) | 2A TDz (slow) | 2A TDz (slow) | 2A TDz (slow) |
| Miniature circuit breaker with C characteristics | 1 A | 1A | 1 A | 1 A |
| Conductor cross-sections |  |  |  |  |
| Fine-wired without end sleeve | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ | $2 \times(0.5-2.5) \mathrm{mm}^{2}$ |
| Fine-wired with end sleeve | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ | $2 \times(0.5-1.5) \mathrm{mm}^{2}$ |
| Note: |  |  |  |  |

[^21]External dimensions, door cut-outs MO
Safe clearances to de-energized parts

|  | MO1 |  | MO2 |  |  | MO3 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rated operational voltage | 440VAC | 690VAC | 440VAC | 690VAC | 1000VAC | 440VAC | 690VAC | 1000VAC |
| Fixed-mounted system |  |  |  |  |  |  |  |  |
| above control circuit plug | 150 mm | 300 mm | 250 mm | 600 mm | 430 mm | 75 mm | 500 mm | 430 mm |
| on side (each) | 20 mm | 50 mm | 50 mm | 100 mm | 100 mm | 20 mm | 100 mm | 100 mm |
| rear | 20 mm | 125 mm | 20 mm | 140 mm | 125 mm | 20 mm | 125 mm | 125 mm |

Withdrawable units

| above control circuit plug | 150 mm | 300 mm | 250 mm | 600 mm | 350 mm | 50 mm | 500 mm | 350 mm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| on side (each) | 20 mm | 50 mm | 50 mm | 100 mm | 100 mm | 20 mm | 100 mm | 100 mm |
| rear | 14 mm | 14 mm | 14 mm | 30 mm | 14 mm | 14 mm | 14 mm | 14 mm |


| with cover for arcing chamber |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| above control circuit plug | 14 mm | 14 mm | 14 mm | 14 mm | - |  |
| on side (each) | 100 mm | 100 mm | 50 mm | 225 mm | - |  |
| rear | 14 mm | 14 mm | 14 mm | 14 mm | - |  |


|  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | 14 mm | 14 mm | - |  |
|  | 50 mm | 200 mm | - |  |
|  | 14 mm | 14 mm | - |  |


| Safe clearances to earthed parts |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MO1 |  | MO2 |  |  | MO3 |  |  |
| Rated operational voltage | 440VAC | 690VAC | 440VAC | 690VAC | 1000VAC | 440VAC | 690VAC | 1000VAC |
| Fixed-mounted system |  |  |  |  |  |  |  |  |
| above control circuit plug | $75 \mathrm{~mm}{ }^{11}$ | $75 \mathrm{~mm}{ }^{11}$ | $75 \mathrm{~mm}{ }^{11}$ | $75 \mathrm{~mm}{ }^{11}$ | 180 mm | $75 \mathrm{~mm}{ }^{1 /}$ | $75 \mathrm{~mm}{ }^{11}$ | 180 mm |
| on side (each) | Omm | Omm | Omm | Omm | Omm | Omm | 0 mm | Omm |
| rear | Omm | Omm | 0 mm | Omm | Omm | Omm | Omm | Omm |

## Withdrawable units

without cover for arcing chamber

| above control circuit plug | $50 \mathrm{~mm}{ }^{1 /}$ | $50 \mathrm{~mm}{ }^{1 /}$ | $50 \mathrm{~mm}{ }^{1 /}$ | $50 \mathrm{~mm}{ }^{11}$ | 100 mm | $50 \mathrm{~mm}{ }^{11}$ | $50 \mathrm{~mm}{ }^{11}$ | 100 mm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| on side (each) | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm |
| rear | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm | 0 mm |

## with cover for arcing chamber

| above control circuit plug | Omm | Omm | Omm | Omm | Omm | 0 mm | - |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| on side (each) | $0 \mathrm{~mm}^{2 /}$ | Omm ${ }^{2 /}$ | $0 \mathrm{~mm}^{2 /}$ | Omm ${ }^{2 /}$ | $0 \mathrm{~mm}^{2 /}$ | $0 \mathrm{~mm}^{2)}$ | - |
| rear | Omm | Omm | Omm | Omm | Omm | Omm | - |

Notes:
${ }^{1)}$ Value for plate; 0 mm for brace and grid
${ }^{2)} 40 \mathrm{~mm}(\mathrm{MO} 2 \ldots: 70 \mathrm{~mm}$ ) for plates which conceal the side openings in the guide frame.
All safe clearances above the switch are measured to the upper edge of the control circuit plug - and not to the upper edge of the arcing chamber! See dimensioned drawings.

## Technical data MO

External dimensions, door cut-outs MO
Dimensions MO


|  | Fixed-mounting |  |  | Withdrawable units |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathbf{a}$ | $\mathbf{b}$ | $\mathbf{c}^{\mathbf{1}}$ | $\mathbf{a}$ | $\mathbf{b}$ | $\mathbf{c}^{\mathbf{1}}$ |
| $\mathrm{MO1}$ | 320 | 434 | 357 | 320 | 460 | 471 |
| MO 2 | 460 | 434 | 357 | 460 | 460 | 471 |
| MO 3 | 704 | 434 | 357 | 704 | 460 | 471 |
| $\mathrm{MO1-4}$ | 410 | 434 | 357 | 410 | 460 | 471 |
| $\mathrm{MO2-4}$ | 590 | 434 | 357 | 590 | 460 | 471 |
| $\mathrm{MO} 2-4$ | 914 | 434 | 357 | 914 | 460 | 471 |

${ }^{11}$ Including dimension for horizontal connection.
Height " $b$ " to upper edge of control circuit plug in screw termination for
circuit breaker/switch disconnector with $\mathrm{Ue} \leq 690 \mathrm{~V}$. See detail drawing for deviations for $\mathrm{Ue}=1000 \mathrm{~V}$.

Dimensions of door cut-outs MO


* Door cutout for control panel
using door sealing frame
**Door cutout with edge protection
Cutout after assembling edge protection

1) Mounting surface
2) Centre of $I Z M / \mathbb{N}$ control panel
3) 8 mounting bores for door sealing frame
4) 3 mounting bores for door interlock

General data switch disconnector MO

- General data Switch disconnector MOI

|  | MO1(-4)-630 |  | MO1(-4)-800 |  | MO1(-4)-1000 |  | MO1(-4)-1250 |  | MO1 (-4)-1600 |  | MO1(-4)-2000 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | B | N | B | N | B | N | B | N | B | N | B | N |
| Standards and regulations | IEC/EN 60947, VDE 0660 |  |  |  |  |  |  |  |  |  |  |  |
| Climate resistance | IEC/EN 60068-2-30 |  |  |  |  |  |  |  |  |  |  |  |
| Ambient temperature |  |  |  |  |  |  |  |  |  |  |  |  |
| Storage | $-40 \ldots+70^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |  |  |  |  |
| Operation (open) | $-25 \ldots+70^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |  |  |  |  |  |  |
| Utilization category | B |  |  |  |  |  |  |  |  |  |  |  |
| Degree of protection | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |  |  |  |  |  |  |
| Direction of power supply | any |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rated current = rated uninterrupted current $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{u}$ | 630A | 630A | 800A | 800A | 1000A | 1000A | 1250A | 1250A | 1600A | 1600A | 2000A | 2000A |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}$ | 12000VAC |  |  |  |  |  |  |  |  |  |  |  |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}$ | 690 / 1000VAC |  |  |  |  |  |  |  |  |  |  |  |
| Overvoltage protection/pollution degree | III/3 |  |  |  |  |  |  |  |  |  |  |  |
| Rated insulation voltage $\mathbf{U}_{\mathbf{i}}$ | 1000V |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rated short-circuit breaking capacity values $\mathrm{I}_{\mathrm{cm}}$ |  |  |  |  |  |  |  |  |  |  |  |  |
| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 121 kA | 145kA | 121 kA | 145kA | 121 kA | 145 kA | 121 kA | 145 kA | 121 kA | 145 kA | 121 kA | 145kA |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 88 kA | 105kA | 88 kA | 105kA | 88 kA | 105kA | 88kA | 105kA | 88kA | 105 kA | 88kA | 105 kA |
| $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - |  |  |  |  |  |  |  |  |  |  |  |
| Rated short-time withstand current $50 / 60 \mathrm{~Hz} \mathrm{I}_{\mathrm{cw}}$ |  |  |  |  |  |  |  |  |  |  |  |  |
| $t=0.5 \mathrm{~s}$ | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA | 55kA | 66kA | 55kA | 66 kA |
| $t=1 \mathrm{~s}$ | 42kA | 50 kA | 42kA | 50 kA | 42kA | 50 kA | 42kA | 50 kA | 42kA | 50kA | 42kA | 50 kA |
| $t=2 \mathrm{~s}$ | 29 kA | 35 kA | 29 kA | 35 kA | 29 kA | 35kA | 29 kA | 35 kA | 29 kA | 35kA | 29 kA | 35 kA |
| $t=3 \mathrm{~s}$ | 24 kA | 29 kA | 24 kA | 29 kA | 24 kA | 29 kA | 24 kA | 29 kA | 24 kA | 29kA | 24 kA | 29 kA |
| Switching times |  |  |  |  |  |  |  |  |  |  |  |  |
| Total disconnecting time ${ }^{1 /}$ | 38 ms |  |  |  |  |  |  |  |  |  |  |  |
| ON time ${ }^{2 /}$ | 35 ms |  |  |  |  |  |  |  |  |  |  |  |
| ON time electrical (via closing release) ${ }^{3}$ | 80 ms |  |  |  |  |  |  |  |  |  |  |  |
| OFF time, electrical (via shunt- / undervoltage release ${ }^{4)}$ | 73 ms |  |  |  |  |  |  |  |  |  |  |  |
| Service life |  |  |  |  |  |  |  |  |  |  |  |  |
| mechanical, no maintenance operations | 10000 |  |  |  |  |  |  |  |  |  |  |  |
| mechanical, with maintenance ${ }^{51}$ operations | 20000 |  |  |  |  |  |  |  |  |  |  |  |
| mechanical, no maintenance operations | 10000 |  |  |  |  |  |  |  |  |  |  |  |
| electrical, with maintenance ${ }^{5 /}$ operations | 20000 |  |  |  |  |  |  |  |  |  |  |  |
| version 1000V operations | - |  |  |  |  |  |  |  |  |  |  |  |
| Maximum operating cycles |  |  |  |  |  |  |  |  |  |  |  |  |
| version 690V operations $/ \mathrm{h}$ | 60 |  |  |  |  |  |  |  |  |  |  |  |
| version 1000V operations $/ \mathrm{h}$ | - |  |  |  |  |  |  |  |  |  |  |  |
| Power loss at rated current at 3-phase symmetrical load |  |  |  |  |  |  |  |  |  |  |  |  |
| Fixed-mounting | 100W |  |  |  |  |  | 105W |  | 150W |  | 240W | 240W |
| Withdrawable units | 195W |  |  |  |  |  | 205W |  | 350W |  | 440W | 440W |

Notes:
${ }^{1 "}$ Time of mechanical bending until contact separation + static average of the arc quenching time
${ }^{2)}$ Time of mechanical bending until main contact closes.
${ }^{3)}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release ( $5 \%$ ED): 50 ms .
${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing
${ }^{5)}$ 'Maintenance' means: Replace elements of main switch and arcing chambers.

- Weights and terminal capacities MO1

|  |  | MO1(-4)-630 | MO1(-4)-800 | MO1(-4)-1000 | MO1(-4)-1250 | MO1(-4)-1600 | MO1(-4)-2000 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weight |  |  |  |  |  |  |  |
| Fixed-mounting | 3-pole | 43 kg | 43 kg | 43 kg | 43 kg | 43 kg | 43 kg |
|  | 4-pole | 50 kg | 50kg | 50 kg | 50kg | 50kg | 50kg |
| Withdrawable units | 3-pole | 70kg | 70kg | 70kg | 70kg | 70kg | 70kg |
|  | 4-pole | 84kg | 84kg | 84kg | 84 kg | 84kg | 84kg |

## Conductor cross-sections

## Cubusbar

Fixed-mounting

| blank | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| black | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |
| Withdrawable units |  |  |  |  |  |  |
| blank | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |
| black | $1 \times 40 \times 10 \mathrm{~mm}$ | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ |

## Technical data MO

General data switch disconnector MO

- General data Switch disconnector MO2

|  | MO2(-4)-800 |  |  | MO2(-4)-1000 |  |  | MO2(-4)-1250 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | B | N | H | B | N | H | B | N | H |
| Standards and regulations | IEC/EN 60947 VDE 0660 |  |  |  |  |  |  |  |  |
| Climate resistance | IEC/EN 60068-2-30 |  |  |  |  |  |  |  |  |
| Ambient temperature |  |  |  |  |  |  |  |  |  |
| Storage | (-)40 $\ldots .+70^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |  |
| Operation (open) | (-)25 ... $+70^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |  |  |  |
| Utilization category |  |  |  |  |  |  |  |  |  |
| Degree of protection | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |  |  |  |
| Direction of power supply | any |  |  |  |  |  |  |  |  |
| Rated current = rated uninterrupted current $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{\mathrm{u}}$ | 800A | 800 A | 800 A | 1000 A | 1000 A | 1000 A | 1250 A | 1250 A | 1250 A |
| Rated impulse withstand voltage $\mathbf{U}_{\text {imp }}$ | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}$ | $\begin{gathered} \hline 690 \mathrm{~V} \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} \hline 690 \mathrm{~V} / \\ \text { 1000VAC } \end{gathered}$ | $\begin{gathered} \hline 690 \mathrm{~V} / \\ \text { 1000VAC } \end{gathered}$ | $\begin{gathered} \hline 690 \mathrm{~V} / \\ \text { 1000VAC } \end{gathered}$ | $\begin{gathered} \hline 690 \mathrm{~V} / \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} \hline 690 \mathrm{~V} / \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} \hline 690 \mathrm{~V} / \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} 690 \mathrm{~V} / \\ 1000 \mathrm{VAC} \end{gathered}$ | $\begin{gathered} \hline 690 \mathrm{~V} / \\ \text { 1000VAC } \end{gathered}$ |
| Overvoltage protection/pollution degree | III/ | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage $\mathbf{U}_{\mathbf{i}}$ | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V |

Rated short-circuit breaking capacity values $\mathrm{I}_{\mathrm{cm}}$

| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 145kA | 176kA | 220kA | 145kA | 176kA | 220kA | 145kA | 176kA | 220kA |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 105kA | 165 kA | 187kA | 105 kA | 165 kA | 187 kA | 105 kA | 165 kA | 187 kA |
| $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 105kA | - | - | 105kA | - | - | 105kA |
| Rated short-time withstand current $50 / 60 \mathrm{~Hz} \mathrm{I}_{\text {cw }}$ |  |  |  |  |  |  |  |  |  |
| $\mathrm{t}=0.5 \mathrm{~s}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA |
| $\mathrm{t}=1 \mathrm{~s}$ | 55 kA | 66 kA | 80kA | 55 kA | 66kA | 80 kA | 55 kA | 66 kA | 80kA |
| $\mathrm{t}=2 \mathrm{~s}$ | 39 kA | 46 kA | 65 kA | 39 kA | 46 kA | 65 kA | 39 kA | 46 kA | 65 kA |
| $\mathrm{t}=3 \mathrm{~s}$ | 32kA | 44 kA | 50 kA | 32 kA | 44kA | 50kA | 32 kA | 44kA | 50 kA |
| Switching times |  |  |  |  |  |  |  |  |  |
| Total disconnecting time ${ }^{\text {1/ }}$ | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms |
| ON time ${ }^{2 /}$ | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms |
| ON time electrical (via closing release) ${ }^{3 /}$ | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms |
| OFF time, electrical (via shunt- /undervoltage release) ${ }^{4!}$ | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms |
| Service life |  |  |  |  |  |  |  |  |  |
| mechanical, no maintenance operations | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| mechanical, with maintenance ${ }^{51}$ <br> operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 |
| mechanical, no maintenance operations | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| electrical, with maintenance ${ }^{5 / 5}$ operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 |
| version 1000V operations | - | - | 1000 | - | - | 1000 | - | - | 1000 |
| Maximum operating cycles |  |  |  |  |  |  |  |  |  |
| version 690V operations /h | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| version 1000 V operations $/ \mathrm{h}$ | - | - | 20 | - | - | 20 | - | - | 20 |
| Power loss at rated current at 3-phase symmetrical load |  |  |  |  |  |  |  |  |  |
| Fixed-mounting | 40W | 40W | 40W | 45W | 45W | 45W | 80W | 80W | 80W |
| Withdrawable units | 85W | 85W | 85 W | 95 W | 95W | 95 W | 165W | 165 W | 165 W |

Switching capacity in N pole
= 60\%
${ }^{1)}$ Time of mechanical bending until contact separation + static average of the arc quenching time
${ }^{2)}$ Time of mechanical bending until main contact closes.
${ }^{3)}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release ( $5 \% \mathrm{ED}$ ): 50 ms
${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing
${ }^{5)}$ 'Maintenance' means: Replace elements of main switch and arcing chambers.

General data switch disconnector MO
General data Switch disconnector MO2, MO3

|  | MO2(-4)-1600 |  |  | MO2(-4)-2000 |  |  | MO2(-4)-2500 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | B | N | H | B | N | H | B | N | H |
| Standards and regulations | IEC/EN 60947, VDE 0660 |  |  |  |  |  |  |  |  |
| Climate resistance | IEC/EN 60068-2-30 |  |  |  |  |  |  |  |  |
| Ambient temperature |  |  |  |  |  |  |  |  |  |
| Storage | (-)40... $+70^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |  |
| Operation (open) | (-)25... $70^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |  |  |  |


| Utilization category | B |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Degree of protection | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |  |  |  |
| Direction of power supply | any |  |  |  |  |  |  |  |  |
| $\begin{aligned} & \text { Rated current = rated uninterrupted current } \\ & \mathrm{I}_{\mathrm{n}}=\mathrm{I}_{u} \end{aligned}$ | 1600A | 1600A | 1600A | 2000A | 2000A | 2000A | 2500A | 2500A | 2500A |
| Rated impulse withstand voltage $\mathbf{U}_{\text {imp }}$ | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC | 12000VAC |
| Rated operational voltage $\mathbf{U}_{\mathbf{e}}$ | 690V / | 690V / | 690V / | 690V / | 690V / | 690V / | 690V / | 690V / | 690V / |
|  | 1000VAC | 1000VAC | 1000VAC | 1000VAC | 1000VAC | 1000VAC | 1000VAC | 1000VAC | 1000VAC |
| Overvoltage protection/pollution degree | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage $\mathrm{U}_{\mathbf{i}}$ | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V |

Rated short-circuit breaking capacity values $\mathrm{I}_{\mathrm{cm}}$

| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 145 kA | 176kA | 220kA | 145kA | 176kA | 220kA | 145kA | 176kA | 220 kA |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 105 kA | 165 kA | 187kA | 105kA | 165kA | 187kA | 105kA | 165 kA | 187 kA |
| up to $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | - | - | 105kA | - | - | 105kA | - | - | 105kA |
| Rated short-time withstand current $50 / 60 \mathrm{~Hz} \mathrm{I}_{\mathrm{cw}}$ |  |  |  |  |  |  |  |  |  |
| $\mathrm{t}=0.5 \mathrm{~s}$ | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA | 66kA | 80kA | 100kA |
| $\mathrm{t}=1 \mathrm{~s}$ | 55kA | 66kA | 80kA | 55 kA | 66 kA | 80kA | 55 kA | 66kA | 80kA |
| $\mathrm{t}=2 \mathrm{~s}$ | 39kA | 46kA | 65kA | 39kA | 46kA | 65kA | 39 kA | 46kA | 65kA |
| $\mathrm{f}=3 \mathrm{~s}$ | 32kA | 44kA | 50kA | 32 kA | 44kA | 50kA | 32 kA | 44kA | 50 kA |
| Switching times |  |  |  |  |  |  |  |  |  |
| Total disconnecting time ${ }^{1 /}$ | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34ms | 34 ms |
| ON time ${ }^{2 /}$ | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms |
| ON time electrical (via closing release) ${ }^{3}$ | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms |
| OFF time, electrical (via shunt- / undervoltage release ${ }^{4)}$ | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms |
| Service life | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| mechanical, no maintenance operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 |
| mechanical, with maintenance ${ }^{5 /}$ operations | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| mechanical, no maintenance operations | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 |
| electrical, with maintenance ${ }^{5 /}$ operations | - | - | 1000 | - | - | 1000 | - | - | 1000 |
| version 1000V operations |  |  |  |  |  |  |  |  |  |
| Maximum operating cycles | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| version 690V operations/h | - | - | 20 | - | - | 20 | - | - | 20 |
| version 1000V operations/h |  |  |  |  |  |  |  |  |  |

## Power loss at rated current

## at 3-phase symmetrical load

| Fixed-mounting | 85 W | 85 W | 85 W | 180 W | 180 W | 180 W | 270 W | 270 W |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Withdrawable units | 175 W | 175 W | 175 W | 320 W | 320 W | 320 W | 520 W | 520 W |

Notes:
Switching capacity in N pole
= 60\%
${ }^{1)}$ Time of mechanical bending until contact separation + static average of the arc quenching time
${ }^{2)}$ Time of mechanical bending until main contact closes.
${ }^{3)}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release ( $5 \%$ ED): 50 ms
${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing
${ }^{5)}$ 'Maintenance' means: Replace elements of main switch and arcing chambers.

## Technical data MO

## General data switch disconnector MO

- General data Switch disconnector MO2, MO3

|  | MO2(-4)-4000 |  |  | MO3(-4)- |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4000 | 5000 | 6300 |
|  | B | N | H | H | H | H |
| Standards and regulations | IEC/EN 60947 VDE 0660 |  |  |  |  |  |
| Climate resistance | IEC/EN 60068-2-30 |  |  |  |  |  |
| Ambient temperature |  |  |  |  |  |  |
| Storage | (-) $40 \ldots+70^{\circ} \mathrm{C}$ |  |  |  |  |  |
| Operation (open) | (-)25... $70^{\circ} \mathrm{C}$ |  |  |  |  |  |
| Mounting position |  |  |  |  |  |  |
| Utilization category | B |  |  |  |  |  |
| Degree of protection | IP20, IP41 with door sealing frame, IP55 with shrouding cover |  |  |  |  |  |
| Direction of power supply | any |  |  |  |  |  |


| Rated current = rated uninterrupted current <br> $\mathbf{I}_{\mathbf{n}}=\mathbf{I}_{\mathbf{u}}$ | 3200 A | 3200 A | 3200 A | 4000 A | 5000 A | 6300 A |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Rated impulse withstand voltage $\mathrm{U}_{\mathbf{i m p}}$ | 12000 VAC | 12000 VAC | 12000 VAC | 12000 VAC | 12000 VAC | 12000 VAC |
| Rated operational voltage $\mathbf{U}_{\mathbf{e}}$ | $690 \mathrm{~V} /$ | $690 \mathrm{~V} /$ | $690 \mathrm{~V} /$ | $690 \mathrm{~V} /$ | $690 \mathrm{~V} /$ | $690 \mathrm{~V} /$ |
|  | 1000 VAC | 1000 VAC | 1000 VAC | 1000 VAC | 1000 VAC | 1000 VAC |
| Overvoltage protection/pollution degree | $11 \mathrm{I} / 3$ | $\mathrm{III} / 3$ | $\mathrm{III} / 3$ | $\mathrm{III} / 3$ | $\mathrm{III} / 3$ | $\mathrm{III} / 3$ |
| Rated insulation voltage $\mathbf{U}_{\mathbf{i}}$ | 1000 V | 1000 V | 1000 V | 1000 V | 1000 V | 1000 V |

Rated short-circuit breaking

| capacity values $\mathrm{I}_{\mathrm{cm}}$ |
| :--- |
| up to $500 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |
| up to $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |
| up to $1000 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ |

## Rated short-time withstand

## current $50 / 60 \mathrm{~Hz}_{\mathrm{cw}}$

| $\mathrm{t}=0.5 \mathrm{~s}$ | 66kA | 80kA | 100kA | 100kA | 100kA | 100kA |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $t=1 \mathrm{~s}$ | 55kA | 66kA | 80kA | 100kA | 100kA | 100kA |
| $t=2 \mathrm{~s}$ | 39 kA | 46kA | 70kA | 80kA | 80 kA | 80kA |
| $t=3 \mathrm{~s}$ | 32kA | 44kA | 65kA | 65kA | 65kA | 65kA |
| Switching times |  |  |  |  |  |  |
| Total disconnecting time ${ }^{1 /}$ | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms | 34 ms |
| ON time ${ }^{2 /}$ | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms | 35 ms |
| ON time electrical (via closing release) ${ }^{3 /}$ | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms |
| OFF time, electrical (via shunt- / undervoltage release) ${ }^{4)}$ | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms | 73 ms |
| Service life | 10000 | 10000 | 10000 | 5000 | 5000 | 5000 |
| mechanical, no maintenance operations | 15000 | 15000 | 15000 | 10000 | 10000 | 10000 |
| mechanical, with maintenance ${ }^{5)}$ operations | 4000 | 4000 | 4000 | 2000 | 2000 | 2000 |
| mechanical, no maintenance operations | 15000 | 15000 | 15000 | 10000 | 10000 | 10000 |
| electrical, with maintenance ${ }^{51}$ operations | - | - | 1000 | 1000 | 1000 | 1000 |
| version 1000V operations |  |  |  |  |  |  |
| Maximum operating cycles | 60 | 60 | 60 | 60 | 60 | 60 |
| version 690V operations/h | - | - | 20 | 20 | 20 | 20 |
| version 1000V operations/h |  |  |  |  |  |  |
| Power loss at rated current at 3-phase symmetrical load |  |  |  |  |  |  |
| Fixed-mounting | 410W | 410W | 410W | 520W | 630W | 900W |
| Withdrawable units | 710W | 710W | 710W | 810W | 1050W | 1600W |

Notes:
Switching capacity in N pole
= 60\%
${ }^{11}$ Time of mechanical bending until contact separation + static average of the arc quenching time
${ }^{2)}$ Time of mechanical bending until main contact closes.
${ }^{3)}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release (5\% ED): 50 ms
${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing
${ }^{5)}$ 'Maintenance' means: Replace elements of main switch and arcing chambers.

- General data switch disconnector MO
- Weights and terminal capacities $\mathrm{MO} 2, \mathrm{MO} 3$

|  |  | MO2(-4)-800 | MO2(-4)-1000 | MO2(-4)-1250 | MO2(-4)-1600 | MO2(-4)-2000 | MO2(-4)-2500 | MO2(-4)-3200 | MO2(-4)-4000 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weight |  |  |  |  |  |  |  |  |  |
| Fixed-mounting | 3 -pole | 56 kg | 56 kg | 56 kg | 56 kg | 56 kg | 59 kg | 64kg | 64kg |
|  | 4 -pole | 67 kg | 67 kg | 67 kg | 67 kg | 67 kg | 71 kg | 77 kg | 77 kg |
| Withdrawable units | 3 -pole | 91 kg | 91 kg | 91 kg | 91 kg | 91 kg | 102kg | 113 kg | 113 kg |
|  | 4 -pole | 109 kg | 109 kg | 109 kg | 109 kg | 109 kg | 123kg | 136kg | 136kg |

Conductor cross-sections
Cu busbar

| blank | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $2 \times 100 \times 10 \mathrm{~mm}$ | $3 \times 100 \times 10 \mathrm{~mm}$ | $4 \times 120 \times 10 \mathrm{~mm}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| black | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $2 \times 100 \times 10 \mathrm{~mm}$ | $3 \times 100 \times 10 \mathrm{~mm}$ | $4 \times 100 \times 10 \mathrm{~mm}$ |
| Withdrawable units |  |  |  |  |  |  |  |  |
| blank | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $2 \times 100 \times 10 \mathrm{~mm}$ | $3 \times 100 \times 10 \mathrm{~mm}$ | $4 \times 120 \times 10 \mathrm{~mm}$ |
| black | $1 \times 50 \times 10 \mathrm{~mm}$ | $1 \times 60 \times 10 \mathrm{~mm}$ | $2 \times 40 \times 10 \mathrm{~mm}$ | $2 \times 50 \times 10 \mathrm{~mm}$ | $3 \times 50 \times 10 \mathrm{~mm}$ | $2 \times 100 \times 10 \mathrm{~mm}$ | $3 \times 100 \times 10 \mathrm{~mm}$ | $4 \times 100 \times 10 \mathrm{~mm}$ |


| MO3(-4)-4000 | MO3(-4)-5000 | MO3(-4)-6300 |
| :--- | :--- | :--- |

Weight

| Fixed-mounting | 3 -pole | 82 kg | 82 kg | 90 kg |
| :--- | :--- | :---: | :---: | :---: |
|  | 4 -pole | 99 kg | 99 kg | 108 kg |
| Withdrawable units | 3 -pole | 148 kg | 148 kg | 166 kg |
|  | 4 -pole | 190 kg | 190 kg | 227 kg |

## Conductor cross-sections

Cubusbar

| Fixed-mounting |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| blank | $4 \times 100 \times 10 \mathrm{~mm}$ | $6 \times 100 \times 10 \mathrm{~mm}$ | $6 \times 120 \times 10 \mathrm{~mm}$ |  |
| black | $4 \times 100 \times 10 \mathrm{~mm}$ | $6 \times 120 \times 10 \mathrm{~mm}$ | $6 \times 120 \times 10 \mathrm{~mm}$ |  |
| Withdrawable units |  |  |  |  |
| blank | $4 \times 100 \times 10 \mathrm{~mm}$ | $6 \times 100 \times 10 \mathrm{~mm}$ | $6 \times 120 \times 10 \mathrm{~mm}$ |  |
| black | $4 \times 100 \times 10 \mathrm{~mm}$ | $6 \times 100 \times 10 \mathrm{~mm}$ | $6 \times 120 \times 10 \mathrm{~mm}$ |  |

Technical data MO

## Dimensions MO1

Dimensions MO1 - Fix installed


* Standard design, horizontal connection

Optional connection features:
** Front connection (single-bore fitting)
*** Front connection (double-bore fitting) to DIN 43673
**** Vertical connection

1) Mounting space for removing of arcing chamber covers
2) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
3) Control circuit plug, screw terminals
4) Control circuit plug, spring terminals
5) Dimension to inside of closed switchgear doo
6) Fixing points for the circuit-breaker in the system
7) Interlock in OFF (optional accessory)
8) Key operation (optional accessory)
9) Connection area

When front connections are used, a partition between busbar and arcing space must be fitted on the system side.

## Dimensions MO1

Dimensions MO1 - Withdrawable units


## Technical data MO

## Dimensions MO1

* Standard design, horizontal connection

Optional connection features:
** Front connection (single-bore filting)

| Rated current $\mathbf{I}_{\mathbf{u}}$ | $\mathbf{a}$ | $\mathbf{b}$ | $\mathbf{c}$ |
| :--- | :---: | :---: | :---: |
| up to 1000 A | 10 | 10 | 10 |
| $1250-2000 \mathrm{~A}$ | 15 | 15 | 15 |

*** Front connection (double-bore fitting) to DIN 43673
**** Vertical connection
***** Flange connection
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
13) MO in connected position
14) MO in test position
15) $M O$ in disconnected position

When front connections are used, a partition between busbar and arcing space must be fitted on the system side.

## Dimensions MO2

Dimensions MO2 - Fix installed


## Technical data MO

## Dimensions MO2

* Standard design, horizontal connection

Optional connection features:
** Front connection (single-bore fitting)
*** Front connection (double-bore fitting) to DIN 43673
**** Vertical connection

| Rated current $\mathbf{l}_{\mathbf{u}}$ | $\mathbf{a}$ | $\mathbf{b}$ | $\mathbf{c}$ |
| :--- | :---: | :---: | :---: |
| up to 2000A | 10 | 10 | 10 |
| 2500 A | 15 | 15 | 20 |
| 3200 A | 30 | 30 | 20 |

1) Mounting space for removing of arcing chamber covers

With $\mathrm{U}_{\mathrm{e}}=1000 \mathrm{~V}, 175 \mathrm{mms}$ are required for removing of the arcing chamber.
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
7) Fixing points for the circuit-breaker in the system
11) Connection area
12) Circuit breaker top edge- AC-1000V version only

When front connections are used, a partition between busbar and arcing space must be fitted on the system side.

## Dimensions MO2

Dimensions MO2 - Withdrawable units


## Technical data MO

## Dimensions MO2

* Standard design, horizontal connection

Optional connection features:
** Front connection (single-bore fitting)
*** Front connection (double-bore fitting) to DIN 43673
**** Vertical connection
***** Flange connection
With $\mathrm{U}_{\mathrm{e}}=1000 \mathrm{~V}$, 175 mm are required for removal of the arcing chamber.
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
10) Fixing holes, $\varnothing 10 \mathrm{~mm}$
11) Connection area
12) Circuit breaker top edge- $\mathrm{AC}-1000 \mathrm{~V}$ version only
13) MO in connected position
14) MO in test position
15) MO in disconnected position

When front connections are used, a partition between busbar and arcing space must be fitted on the system side.

Dimensions MO3
Dimensions MO3 - Fix installed, standard design, horizontal connection


Standard design, horizontal connection $\leq 5000 \mathrm{~A}$

1) Mounting space for removing of arcing chamber covers

With $\mathrm{U}_{\mathrm{e}}=1000 \mathrm{~V}, 175 \mathrm{~mm}$ are required for removal of the arcing chamber.
3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals
5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
7) Fixing points for the circuit-breaker in the system
11) Connection area
12) Circuit breaker top edge- AC-1000V version only

When front connections are used, a partition between busbar and arcing space must be fitted on the system side.

Technical data MO

## Dimensions MO3

Dimensions MO3 - Fix installed, optional connection features


Optional connection features.

*     * Front connection (single-bore fitting)
*     *         * Front connection (double-bore fitting)
**** Vertical connection

3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Connection area

Dimensions MO3
Dimensions MO3 - Withdrawable units, standard design, horizontal connection


[^22]3) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
4) Control circuit plug, screw terminals

| Rated current $\mathrm{l}_{\mathrm{u}}$ | a | b |
| :--- | :---: | :---: |
| 4000 A | 40 | 210 |
| 5000 A | 40 | 210 |
| 6300 A | 5 | 245 |

5) Control circuit plug, spring terminals
6) Dimension to inside of closed switchgear door
7) Fixing holes, $\varnothing 10 \mathrm{~mm}$
8) Connection area
9) Circuit breaker top edge- $\mathrm{AC}-1000 \mathrm{~V}$ version only
10) $M O$ in connected position
11) $M O$ in test position
12) $M O$ in disconnected position

When front connections are used, a partition between busbar and arcing space must be fitted on the system side.

Technical data MO

## Dimensions MO3

Dimensions MO3 - Withdrawable units, optional connection features


Optional connection features:
** Front connection (single-bore fitting)
*** Front connection (double-bore fitting) to DIN 43673
**** Vertical connection
***** Flange connection

Accessories MO, measuring transducer and voltage transformer
MO Measuring transducer


## MO Voltage transformer



## Technical data MO

## Discrimination MO

- MC - MO1 with ETU 15, ETU25

$\mathrm{I}_{\mathrm{n}}$ : Rated current
$\mathrm{I}_{\mathrm{u}}$ : Rated uninterrupted current
1: Setting value, non-delayed short-circuit release
Discrimination
Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.
Selection:
The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (ls in kA) specified in the table.
These indications represent the discrimination limit. Both circuit-breakers trip if $f_{\text {frout }}>\mathrm{I}_{\mathrm{s}}$. With MOs with ETU25, 45, 76 releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels $(2,3,4)$.

| Type |  |  | MO1 + ETU15 incoming circuit breaker with standard release(A) |  |  |  |  |  |  |  |  |  | MO1 + ETU25 incoming circuit breaker with standard release(V) |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\mathrm{n}}=\mathrm{l}_{\mathrm{s}}[\mathrm{A}]$ |  |  | 630 |  | 800 |  | 1000 |  | 1250 |  | 1600 |  | 630 |  | 800 |  | 1000 |  | 1250 |  | 1600 |  |
| $\mathrm{I}_{\text {[ }}$ ] $]$ |  |  | 5040 |  | 6400 |  | 8000 |  | 10000 |  | 12800 |  | 12600 |  | 16000 |  | 20000 |  | 25000 |  | 32000 |  |
| $\mathrm{I}_{\text {cu }}[\mathrm{kA}]$ |  |  | 55 | 66 | 55 | 66 | 55 | 66 | 55 | 66 | 55 | 66 | 55 | 66 | 55 | 66 | 55 | 66 | 55 | 66 | 55 | 66 |
| Outgoing circuit breaker |  |  | Discrimination limit Is (kA). Prospective short-circuit current (kA) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | $\mathrm{l}_{u}$ [A] | $\mathrm{lcuc}_{\text {ct }}$ (kA] | B | N | B | N | B | N | B | N | B | N | B | N | B | N | B | N | B | N | B | N |
| MC1-A | 40 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 50 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 63 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 80 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 100 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 125 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
| MC2-A | 40 | 100(150) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 40 | 40 | T | T | T | T | T | T |
|  | 50 | 100(150) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 40 | 40 | T | T | T | T | T | T |
|  | 63 | 100(150) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 40 | 40 | T | T | T | T | T | T |
|  | 80 | 100(150) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 40 | 40 | T | T | T | T | T | T |
|  | 100 | 100(150) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 40 | 40 | T | T | T | T | T | T |
|  | 125 | 25... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | T(40) | T(40) | T | T | T | T | T | T |
|  | 160 | 25... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | T(40) | T(40) | T | T | T | T | T | T |
|  | 200 | 25...150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | T(40) | T(40) | T | T | T | T | T | T |
|  | 250 | 25... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | T(40) | T(40) | T | T | T | T | T | T |
| MC1-M | 40 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 50 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 63 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
|  | 80 | 25(50) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 16 | 16 | 16 | 16 | T(35) | T(35) | T | T | T | T | T | T |
| MC2-M | 125 | 25... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | T(40) | T(40) | T | T | T | T | T | T |
|  | 160 | 25... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | T(40) | T(40) | T | T | T | T | T | T |
|  | 200 | 25... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | T(40) | T(40) | T | T | T | T | T | T |
| MC2-VE | 100 | 50... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 16 | 16 | T | T | T | T | T | T |
|  | 160 | 50... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 16 | 16 | T | T | T | T | T | T |
|  | 250 | 50... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 20 | 20 | 20 | 20 | 16 | 16 | T | T | T | T | T | T |
| MC3-VE(AE) | 250 | 50... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 12 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | T | T |
|  | 400 | 50...150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 12 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | T | T |
|  | 630 | 50... 150 | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 12 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | T | T |
| MC4-VE(AE) | 630 | 50(85) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 2 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | 32 | 32 |
|  | 800 | 50(85) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 2 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | 32 | 32 |
|  | 1000 | 50(85) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 2 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | 32 | 32 |
|  | 1250 | 50(85) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 2 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | 32 | 32 |
|  | 1600 | 50(85) | 5 | 5 | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 2 | 12 | 16 | 16 | 20 | 20 | 30 | 30 | 32 | 32 |

Notes: T - Total discrimination

## Discrimination MO

■ MC - MO 1 with ETU45, ETU76

$\mathrm{I}_{\mathrm{n}}$ : Rated current
$I_{u}$ : Rated uninterrupted current
$\mathrm{I}_{i}$ : Setting value, non-delayed short-circuit release
Discrimination
Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.
Selection:
The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (Is in kA ) specified in the table.
These indications represent the discrimination limit. Both circuit-breakers trip if $f_{\text {frout }}>\mathrm{I}_{\mathrm{s}}$. With MOs with ETU25, 45, 76 releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels (2, 3, 4).


## Technical data MO

## Discrimination MO

- MC - MO2 with ETU 15

$\mathrm{I}_{\mathrm{n}}$ : Rated current
$\mathrm{I}_{\mathrm{u}}$ : Rated uninterrupted current
$\mathrm{I}_{\mathrm{i}}$ : Setting value, non-delayed short-circuit release
Discrimination
Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.


## Selection:

The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (ls in kA ) specified in the table.
These entries represent the discrimination limit. Both switches trip out with larger short-circuit currents.

| Type |  |  | MO2 | ETU | nco |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{4}[\mathrm{~A}]$ |  |  |  | 800 |  |  | 000 |  |  | 1250 |  |  | 600 |  |  | 2000 |  |  | 2500 |  |  | 3200 |  |
| $\mathrm{I}_{\mathrm{i}}$ [A] |  |  |  | 6400 |  |  | 000 |  |  | 0000 |  |  | 2800 |  |  | 16000 |  |  | 20000 |  |  | 560 |  |
| $\mathrm{I}_{\mathrm{cu}}[\mathrm{kA}]$ |  |  | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 |
| Outgoing | rcuit br | aker | Discr | ina | n lim | Is (k | Pro | ectiv | shor | circui | curre | (kA) |  |  |  |  |  |  |  |  |  |  |  |
|  | 1 l [A] | $\mathrm{l}_{\mathrm{cv}}$ [kA] | B | N | H | B | N | H | B | N | H | B | N | H | B | N | H | B | N | H | B | N | H |
| MCI-A | 40 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | T(42) | T(42) | T(42) | T | T | T |
|  | 50 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | T(42) | $T(42)$ | T(42) | T | T | T |
|  | 63 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | T(42) | $T(42)$ | $T(42)$ | T | T | T |
|  | 80 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | $\mathrm{T}(42)$ | $T(42)$ | $T(42)$ | T | T | T |
|  | 100 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | $T(25)$ | $T(42)$ | $T(42)$ | $T(42)$ | T | T | T |
|  | 120 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | T(42) | T(42) | T(42) | T | T | T |
| MC2-A | 40 | 100(150) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | 55 | 65 | 65 | T | T | T |
|  | 50 | 100(150) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | 55 | 65 | 65 | T | T | T |
|  | 63 | 100(150) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | 55 | 65 | 65 | T | T | T |
|  | 80 | 100(150) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | 55 | 65 | 65 | T | T | T |
|  | 100 | 100(150) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | 55 | 65 | 65 | T | T | T |
|  | 125 | 25... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | T(30) | T(30) | T(30) | T(55) | T(65) | T(65) | T | T | T |
|  | 160 | 25... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | T(30) | T(30) | T(30) | T(55) | T(65) | T(65) | T | T | T |
|  | 200 | 25... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | T(30) | T(30) | T(30) | T(55) | T(65) | T(65) | T | T | T |
|  | 250 | 25... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | T(30) | T(30) | T(30) | T(55) | T(65) | T(65) | T | T | T |
| MC1-M | 40 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | $T(42$ | T(42) | $T(42)$ | T | T | T |
|  | 50 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | $\mathrm{T}(42$ | T(42) | T(42) | T | T | T |
|  | 63 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | $T(42$ | T(42) | T(42) | T | T | T |
|  | 80 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | $\mathrm{T}(42$ | T(42) | $T(42)$ | T | T | T |
|  | 100 | 25(50) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 16 | 16 | 16 | T(25) | T(25) | T(25) | $\mathrm{T}(42$ | T(42) | T(42) | T | T | T |
| MC2-M | 125 | 25... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | T(30) | T(30) | T(30) | T(55) | T(65) | T(65) | T | T | T |
|  | 160 | 25... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | T(30) | T(30) | $T(30)$ | $T(55)$ | T(65) | T(65) | T | T | T |
|  | 200 | 25... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | T(30) | T(30) | T(30) | T(55) | T(65) | T(65) | T | T | T |
| MC2-VE | 100 | 50... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | T(55) | T(65) | T(65) | T | T | T |
|  | 160 | 50... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | T(55) | T(65) | T(65) | T | T | T |
|  | 250 | 50... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 20 | 30 | 30 | 30 | T(55) | T(65) | T(65) | T | T | T |
| MC3- <br> VE(AE) | 250 | 50... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 |
|  | 400 | 50... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 |
|  | 630 | 50... 150 | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 |
| MC4VE(AE) | 630 | 50(85) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 25 | 25 | 25 |
|  | 800 | 50(85) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 25 | 25 | 25 |
|  | 1000 | 50(85) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 25 | 25 | 25 |
|  | 1250 | 50(85) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 25 | 25 | 25 |
|  | 1600 | 50(85) | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | 20 | 20 | 20 | 25 | 25 | 25 |

Notes: T - Total discrimination

## Discrimination MO

- MC - MO2(3) with ETU25

$I_{n}$ : Rated current

Discrimination
Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.
Selection:
The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (Is in kA )
specified in the table. These indications represent the discrimination limit. Both circuit-breakers trip if $\mathrm{f}_{\text {foult }}>\mathrm{I}_{\mathrm{s}}$.
With MOs with ETU25, 45, 76 releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels $(2,3,4)$.

| Type |  |  | MO2 + | U25 in | ming | uit | er w | ele | lea | V) | $\mathrm{x}=50$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{\mathrm{u}}[\mathrm{A}]$ |  |  |  | 800 |  |  | 000 |  |  | 250 |  |  | 1600 |  |
| ${ }_{1}[\mathrm{~A}]$ |  |  |  | 16000 |  |  | 0000 |  |  | 5000 |  |  | 200 |  |
| $\mathrm{Icu}_{\text {cu }}$ [kA] |  |  | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 |
| Outgoing circ | break |  | Discrim | ation | it Is (k | Pros | ive s | -circu | urre |  |  |  |  |  |
|  | 1 L [ $]$ | $\mathrm{l}_{\mathrm{cu}}$ [kA] | B | N | H | B | N | H | B | N | H | B | N | H |
| MC1-A | 40 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 125 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | 1 | T | T | T |
| MC2-A | 40 | 100(150) | 40 | 40 | 40 | T | T | T | T | T | T | T | T | T |
|  | 50 | 100(150) | 40 | 40 | 40 | T | T | T | T | T | T | T | T | T |
|  | 63 | 100(150) | 40 | 40 | 40 | T | T | T | T | T | T | T | T | T |
|  | 80 | 100(150) | 40 | 40 | 40 | T | T | T | T | T | T | T | T | T |
|  | 100 | 100(150) | 40 | 40 | 40 | T | T | T | T | T | T | T | T | T |
|  | 125 | 25... 150 | T(40) | T(40) | T(40) | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T(40) | T(40) | T(40) | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T(40) | T(40) | T(40) | T | T | T | T | T | T | T | T | T |
|  | 250 | 25... 150 | T(40) | T(40) | T(40) | T | T | T | T | T | T | T | T | T |
| MC1-M | 40 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T(35) | T(35) | T(35) | T | T | T | T | T | T | T | T | T |
| MC2-M | 125 | 25... 150 | T(40) | T(40) | T(40) | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T(40) | T(40) | T(40) | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T(40) | T(40) | T(40) | T | T | T | T | T | T | T | T | T |
| MC2-VE | 100 | 50... 150 | 16 | 16 | 16 | T | T | T | T | T | T | T | T | T |
|  | 160 | 50... 150 | 16 | 16 | 16 | T | T | T | T | T | T | T | T | T |
|  | 250 | 50... 150 | 16 | 16 | 16 | T | T | T | T | T | T | T | T | T |
| MC3-VE(AE) | 250 | 50... 150 | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | T | T | T |
|  | 400 | 50... 150 | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | T | T | T |
|  | 630 | 50... 150 | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | T | T | T |
| MC4-VE(AE) | 630 | 50(85) | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | 32 | 32 | 32 |
|  | 800 | 50(85) | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | 32 | 32 | 32 |
|  | 1000 | 50(85) | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | 32 | 32 | 32 |
|  | 1250 | 50(85) | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | 32 | 32 | 32 |
|  | 1600 | 50(85) | 16 | 16 | 16 | 20 | 20 | 20 | 30 | 30 | 30 | 32 | 32 | 32 |

Notes: T- Total discrimination

## Technical data MO

## Discrimination MO

■ MC - MO2 with ETU25

$\mathrm{I}_{n}$ : Rated current
$\mathrm{I}_{\mathrm{y}}$ : Rated uninterrupted curren
1: Setting value, non-delayed short-circuit release

## Discrimination

Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.
Selection:
The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (Is in kA ) specified in the table. These indications represent the discrimination limit. Both circuit-breakers trip if $\mathrm{f}_{\text {foul }}>\mathrm{I}_{\mathrm{s}}$.
With MOs with ETU25, 45, 76 releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels $(2,3,4)$.

| Type |  |  | MO2 + ETU25 incoming circuit breaker with selective release (V) $\mathrm{l}_{\mathrm{i}} \max =$ 50 kA |  |  |  |  |  |  |  |  | MO3 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{n}=\mathrm{I}_{\mathrm{u}}[\mathrm{A}]$ |  |  | 2000 |  |  | 2500 |  |  | 3200 |  |  | 4000 | 5000 | 6300 |
| $\mathrm{l}_{\text {[ }}$ A] |  |  | 40000 |  |  | 50000 |  |  | 50000 |  |  | 50000 |  |  |
| $\left.\mathrm{Icu}^{\text {[ }} \mathrm{kA}\right]$ |  |  | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 100 | 100 | 100 |
| Outgoing circuit breaker |  |  | Discrimination limit Is (kA). Prospective short-circuit current (kA) |  |  |  |  |  |  |  |  |  |  |  |
|  | $\mathrm{l}_{0}[\mathrm{~A}]$ | $\mathrm{lcu}_{\text {c }}$ [kA] | B | N | H | B | N | H | B | N | H | H | H | H |
| MC1-A | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-A | 40 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC1-M | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-M | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-VE | 100 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC3-VE(AE) | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 400 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 630 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC4-VE(AE) | 630 | 50(85) | 40 | 40 | 40 | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) |
|  | 800 | 50(85) | 40 | 40 | 40 | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) |
|  | 1000 | 50(85) | 40 | 40 | 40 | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) |
|  | 1250 | 50(85) | 40 | 40 | 40 | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) |
|  | 1600 | 50(85) | 40 | 40 | 40 | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) | T(50) |

Notes: T - Total discrimination

## Discrimination MO

- MC - MO2(3) with ETU45

$\mathrm{I}_{\text {n }}$ : Rated current
$\mathrm{I}_{\mathrm{u}}$ : Rated uninterrupted current
1: Setting value, non-delayed short-circuit release


## Discrimination

Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.

## Selection:

The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (Is in kA ) specified in the table.
These indications represent the discrimination limit. Both circuit-breakers trip if $\mathrm{I}_{\text {fut }}>\mathrm{I}_{\mathrm{s}}$. With MOs with ETU $25,45,76$ releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels $(2,3,4)$.

| Type |  |  | MO2 | ETU45 | coming | cuit b | ker wit | ivers | eleas | ) $\mathrm{l}_{\mathrm{i}}=0.8$ | $\mathrm{I}_{\mathrm{cu}}=0$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\mathrm{n}}=1 \mathrm{l}$ [A] |  |  |  | 800 |  |  | 1000 |  |  | 1250 |  |  | 1600 |  |
| $\mathrm{I}_{\mathrm{i}}$ [kA] |  |  | 53 | 64 | 80 | 53 | 64 | 80 | 53 | 64 | 80 | 53 | 64 | 80 |
| $\mathrm{Icv}_{\text {cu }}[\mathrm{kA}]$ |  |  | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 |
| $\mathrm{I}^{2}$ + Taste |  |  | $\begin{gathered} \text { OFF/ } \\ \text { ON } \end{gathered}$ |  |  | $\begin{aligned} & \hline \text { OFF/ } \\ & \text { ON } \end{aligned}$ |  |  | $\begin{aligned} & \text { OFF/ } \\ & \text { ON } \end{aligned}$ |  |  | $\begin{aligned} & \mathrm{OFF} / \\ & \mathrm{ON} \end{aligned}$ |  |  |
| Outgoing circ | break |  |  |  |  | minat | limit Is | A). Pro | ctive | rt-circu | urrent |  |  |  |
|  | $\mathrm{I}_{\mathrm{u}}$ [A] | $\mathrm{I}_{\mathrm{cu}}$ [kA] | B | N | H | B | N | H | B | N | H | B | N | H |
| MC1-A | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-A | 40 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC1-M | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-M | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-VE | 100 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC3-VE(AE) | 250 | 50... 150 | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80 | 45 | T(64) | T(80) |
|  | 400 | 50... 150 | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80 | 45 | T(64) | T(80) |
|  | 630 | 50... 150 | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80 | 45 | T(64) | T(80) |
| MC4-VE(AE) | 630 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T/80 | 45 | T(64) | T(80) |
|  | 800 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80 | 45 | T(64) | T(80) |
|  | 1000 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80 | 45 | T(64) | T(80) |
|  | 1250 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80 | 45 | T(64) | T(80) |
|  | 1600 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80 | 45 | T(64) | T(80) |

Notes: T - Total discrimination

## Technical data MO

## Discrimination MO

■ MC - MO2 with ETU76

$\mathrm{I}_{\mathrm{n}}$ : Rated current
$\mathrm{I}_{\mathrm{u}}$ : Rated uninterrupted current
1: Setting value, non-delayed short-circuit release

## Discrimination

Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.

## Selection:

The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (Is in kA) specified in the table.
These indications represent the discrimination limit. Both circuit-breakers trip if $\mathrm{f}_{\text {frut }}>\mathrm{I}_{\mathrm{s}}$. With MOs with ETU25, 45,76 releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels $(2,3,4)$.

| $\begin{aligned} & \text { Type } \\ & \mathrm{I}_{n}=I_{v}[\mathrm{~A}] \\ & \hline \end{aligned}$ |  |  | MO2 (3) + ETU45 incoming circuit breaker with universal release (U) $\mathrm{l}_{\mathrm{i}}=0.8 \times \mathrm{I}_{\text {cu }}\left(=0.8 \times \mathrm{I}_{\text {cs }}\right)$ |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2000 |  |  | 2500 |  |  | 3200 |  |  | 4000 | 5000 | 6300 |
| $\mathrm{I}_{\mathrm{i}}[\mathrm{kA}]$ |  |  | 53 | 64 | 80 | 53 | 64 | 80 | 53 | 64 | 80 |  |  |  |
| $\mathrm{Icv}_{\text {cu }}$ [kA] |  |  | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 80 |  |  |
| $1^{2}+$ Taste |  |  | OFF/ON |  |  | OFF/ON |  |  | OFF/ON |  |  | OFF/ON |  |  |
| Outgoing circuit breaker |  |  | Discrimination limit Is (kA). Prospective short-circuit current (kA)) |  |  |  |  |  |  |  |  |  |  |  |
|  | $\mathrm{I}_{\mathrm{u}}$ [A] | $\mathrm{l}_{\mathrm{cu}}$ [kA] | B | N | H | B | N | H | B | N | H | B | N | H |
| MC1-A | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | 1 | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-A | 40 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25...150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC1-M | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-M | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25...150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25...150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-VE | 100 | 50...150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC3-VE(AE) | 250 | 50... 150 | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 400 | 50... 150 | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 630 | 50... 150 | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
| MC4-VE(AE) | 630 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 800 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 1000 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 1250 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 1600 | 50(85) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |

Notes: T- Total discrimination

## Discrimination MO

- MC - MO2(3) with ETU76



## Discrimination

Between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.
Selection:
The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (Is in kA ) specified in the table.
These indications represent the discrimination limit. Both circuit-breakers trip if $f_{\text {fout }}>\mathrm{I}_{\mathrm{s}}$.
With MOs with ETU25, 45, 76 releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels $(2,3,4)$.

| Type |  |  | MO2 + ETU76 incoming circuit breaker with digital release (D) $\mathrm{I}_{\mathrm{i}}=0.8 \times \mathrm{I}_{\mathrm{cu}}=0.8 \times \mathrm{I}_{\mathrm{cs}}$ |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\mathrm{n}}=\mathrm{I}_{0}[\mathrm{~A}]$ |  |  | 800 |  |  | 1000 |  |  | 1250 |  |  | 1600 |  |  |
| $\mathrm{I}_{\mathrm{i}}[\mathrm{kA}]$ |  |  | 53 | 64 | 80 | 53 | 64 | 80 | 53 | 64 | 80 | 53 | 64 | 80 |
| $\mathrm{Icu}^{\text {cu }}$ [kA] |  |  | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 |
| Outgoing circuit breaker |  |  | Discrimination limit Is (kA). Prospective short-circuit current (kA) |  |  |  |  |  |  |  |  |  |  |  |
|  | 1 l [ A$]$ | $\mathrm{l}_{\mathrm{cu}}$ [kA] | B | N | H | B | N | H | B | N | H | B | N | H |
| MC1-A | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-A | 40 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 250 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC1-M | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-M | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-VE | 100 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC3-VE(AE) | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 400 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 630 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC4-VE(AE) | 630 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 800 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 1000 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 1250 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |
|  | 1600 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) |

Notes: T-Total discrimination

## Technical data MO

## Discrimination MO

- MC - MO2(3) with ETU76

$I_{n}$ : Rated current
$I_{u}$ : Rated uninterrupted current
$\mathrm{I}_{\text {: }}$ Setting value, non-delayed short-circuit release
Discrimination
between circuit breakers enables faulty system sections to be shut down. There is discrimination between incoming circuit breaker 1 and outgoing circuit breaker 2 if, in the event of a short-circuit at position 2 only the outgoing circuit breaker 2 trips.
System sections 3 and 4 remain operational.
Selection:
The outgoing circuit breaker is selective in relation to the incoming circuit breaker providing that the short-circuit current does not exceed the values (Is in kA ) specified in the table. These indications represent the discrimination limit. Both circuit-breakers trip if $\mathrm{f}_{\text {fout }}>\mathrm{I}_{\mathrm{s}}$.
With MOs with ETU25, 45, 76 releases, the time-delay tsd must be at least 100 ms higher than the time-delay of the next subordinate levels $(2,3,4)$.

| Type |  |  | MO2 (3) + ETU76 incoming circuit breaker with digital release (D) $\mathrm{I}_{\mathrm{i}}=0,8 \times \mathrm{I}_{\mathrm{cu}}=0,8 \times \mathrm{I}_{\mathrm{cs}}$ |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{n}=\mathrm{I}_{\mathrm{l}}[\mathrm{A}]$ |  |  | 2000 |  |  | 2500 |  |  | 3200 |  |  | 4000 | 5000 | 6300 |
| $\mathrm{I}_{\mathrm{i}}$ [kA] |  |  | 53 | 64 | 80 | 53 | 64 | 80 | 53 | 64 | 80 | 80 | 80 | 80 |
| $\mathrm{I}_{\mathrm{cu}}[\mathrm{kA}]$ |  |  | 66 | 88 | 100 | 66 | 88 | 100 | 66 | 88 | 100 | 100 | 100 | 100 |
| Outgoing circuit breaker |  |  | Discrimination limit Is (kA). Prospective short-circuit current (kA) |  |  |  |  |  |  |  |  |  |  |  |
|  | $\mathrm{I}_{\mathrm{u}}$ [A] | $\mathrm{I}_{\mathrm{cu}}$ [kA] | B | N | H | B | N | H | B | N | H | H | H | H |
| MCI-A | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-A | 40 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 100(150) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC1-M | 40 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 50 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 63 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 80 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 100 | 25(50) | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-M | 125 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 200 | 25... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC2-VE | 100 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 160 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC3-VE(AE) | 250 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 400 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
|  | 630 | 50... 150 | T | T | T | T | T | T | T | T | T | T | T | T |
| MC4-VE(AE) | 630 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | T(80) | T(80) | T(80) |
|  | 800 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | T(80) | T(80) | T(80) |
|  | 1000 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | T(80) | T(80) | T(80) |
|  | 1250 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | T(80) | T(80) | T(80) |
|  | 1600 | 50(100) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | 45 | T(64) | T(80) | T(80) | T(80) | T(80) |

[^23]
## Tripping characteristics ETU MO

## Schrack-Info

The characteristic curves show the behaviour of the electronic trip unit when it is activated by a current that is already flowing before the tripping operation. If the overcurrent tripping occurs immediately after closing and the electronic trip unit is therefore not yet activated, the opening time is extended, depending on the level of the overcurrent by up to 15 ms . In order to determine the total break-times of the circuit breakers, approximately 15 ms must be added to the opening times shown for the arcing time.

With a single-pole load in the lowest rated current range, the response times of the short-circuit trip can increase by approx. $10 \%$ and the tripping times by approx. $15 \%$ with respect to the characteristic curve.
For tolerances, refer to the following legend.
The characteristic curves shown apply to ambient temperatures at the circuit breaker between -5 and $+55^{\circ} \mathrm{C}$. The trip unit can be operated at ambient temperatures of -20 to $+70^{\circ} \mathrm{C}$. An extended tolerance band can apply at these temperatures.
In order to obtain a complete tripping characteristic, the relevant parts of the characteristics have to be combined.
Characteristic curves for ETU 15B, ETU25B, ETU27B and ETU45B

MO circuit breaker with ETU 15 B electronic trip unit,
LI characteristic curve


MO circuit breaker with ETU27B electronic trip unit,
LSIN characteristic curve


MO circuit breaker with ETU45B electronic trip unit,
$S$ characteristic curve


MO circuit breaker with ETU25B electronic trip unit,
LSI characteristic curve


MO circuit breaker with ETU27B electronic trip unit, G characteristic curve


Tolerances for the current settings
L Tripping operations between 1.05 and 1.2
S -0 \%, +20 \%
$-0 \%,+20 \%$
G $-0 \%,+20 \%$

Tolerances for the tripping times
L L: - $20 \%,+0 \%$ for $\mathrm{I}^{2} \mathrm{t}$ characteristic curve
S S: $-0 \%,+60 \mathrm{~ms}$ or $-0 \%, 10 \%$ for tripping times greater than 600 ms
I $\mathrm{I}:<50 \mathrm{~ms}$
G G: $-0 \%,+60 \mathrm{~ms}$ or $-0 \%, 10 \%$ for tripping times greater than 600 ms

L Delayed overload tripping
S Short time delayed short circuit tripping
I Undelayed short circuit tripping
N Neutral overload release
G Ground fault tripping

1) $\mathrm{MO} 1 / \mathrm{MO} 2: 100 \ldots 1200 \mathrm{~A}$

MO3: 400 ... 1200 A.
2) $t[s] \ldots$ Openting time

## Technical data MO

## Tripping characteristics ETU MO

## - Schrack-Info

The characteristic curves show the behaviour of the electronic trip unit when it is activated by a current that is already flowing before the tripping operation. If the overcurrent tripping occurs immediately after closing and the electronic trip unit is therefore not yet activated, the opening time is extended, depending on the level of the overcurrent by up to 15 ms . In order to determine the total break-times of the circuit breakers, approximately 15 ms must be added to the opening times shown for the arcing time.
For tolerances, refer to the following legend.
The characteristic curves shown apply to ambient temperatures at the circuit breaker between -5 and $+55^{\circ} \mathrm{C}$. The trip unit can be operated at ambient temperatures of -20 to $+70^{\circ} \mathrm{C}$ (ETU76B with graphic display up to $+55^{\circ} \mathrm{C}$ ). An extended tolerance band can apply at these temperatures.
In order to obtain a complete tripping characteristic, the relevant parts of the characteristics have to be combined.
Characteristic curves for ETU45B and ETU76B

MO circuit breaker with ETU45B and ETU76B electronic trip unit, $G$ characteristic curve


MO circuit breaker with ETU76B electronic trip unit, S characteristic


MO circuit breaker with ETU45B and ETU76B electronic trip unit, I characteristic curve


MO circuit breaker with ETU45B and ETU76B electronic trip unit, L characteristic curve


Tolerances for the current settings
L Tripping operations between 1.05 and 1.2
S -0 \%, +20 \%
$-0 \%,+20 \%$
G $-0 \%,+20 \%$
Tolerances for the tripping times
L $-20 \%,+0 \%$ for $I^{2} \dagger$ characteristic curve
S $-0 \%,+60 \mathrm{~ms}$ or $-0 \%, 10 \%$ for tripping times greater than 600 ms
I $<50 \mathrm{~ms}$
G $-0 \%,+60 \mathrm{~ms}$ or $-0 \%, 10 \%$ for tripping times greater than 600 ms

L Delayed overload tripping
S Short time delayed short circuit tripping
I Undelayed short circuit tripping
G Ground fault tripping

1) $\mathrm{MO} 1 / \mathrm{MO} 2: 100 \ldots 1200 \mathrm{~A}$

MO3: 400 ... 1200 A.
2) $t[s] \ldots$ Openting time

Load Switches ML, fix installed


- Load break switches type ML, size 11-14, 3 or 4-pole, 32-800A, fix installed
- Load Switches ML Size 1-3-pole


ML110050



MLIIO050SM

Schrack-Info

- Disconnectors 3-pole up to 125 A
- Connection bars standard
- With direct handle, door coupler or without handle


## Load Switches ML

Load Switches ML Size 1-3-pole
Load Switch 3-pole ML1100.. dimensions


1) Door coupling rotary handle
2) Direct rotary handle
3) Auxiliary contacts, $2 \mathrm{NO}+2 \mathrm{NC}$ max.
4) Drilling plan, door coupling rotary handle

| $P$ |  | $C$ | $H$ |
| :---: | :---: | :---: | :---: |
| $\min$ | $\max$ | 47 | $P-C$ |
| 116 | 247 | 47 |  |
| $C=$ constant |  |  |  |

Wiring diagram


| DESCRIPTION | TYPE NO. AVAILABLE | ORDER NO. |
| :---: | :---: | :---: |
| 63A |  |  |
| Load breaker 3-pole ML11 $3 \times 63$ A with door coupling rotary handle | MLII | MLI10020 |
| 100A |  |  |
| Load breaker 3-pole MLII $3 \times 100 \mathrm{~A}$ with door coupling rotary handle | MLII | ML110040 |
| 125A |  |  |
| Load breaker 3-pole ML11 3x125A with door coupling rotary handle | MLII | MLI10050 |
| Load breaker 3-pole ML11 3x125A with direct rotary handle | MLII | MLII0050MD |
| Load breaker 3-pole ML11 3x125A without rotary handle | MLII | MLII0050SM |

Load Switches ML Size 2-3-pole


Schrack-Info

- Disconnectors 3-pole up to 250 A
- Connection bars standard
- With direct handle or door coupler

Load Switch 3-pole ML1200.. dimensions


1) Door coupling rotary handle
2) Direct rotary handle
3) Auxiliary contacts, $2 \mathrm{NO}+2 \mathrm{NC}$ max.
4) Drilling plan, door coupling rotary handle

| $P$ |  | $C$ | $H$ |
| :---: | :---: | :---: | :---: |
| $\min$ | $\max$ | 55 | $\mathrm{P}-\mathrm{C}$ |
| 124 | 255 |  |  |
| $\mathrm{C}=$ constant |  |  |

Load Switches ML

Load Switches ML Size 2-3-pole
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 160A |  |  |  |
| Load breaker 3-pole ML12 3x160A with door coupling rotary handle | ML12 |  | ML120010 |
| Load breaker 3-pole ML12 3x160A without rotary handle | ML12 | - 700000 | ML120010SM |
| 200A |  |  |  |
| Load breaker 3-pole ML12 3x200A without rotary handle | ML12 |  | MLI20020SM |
| 250A |  |  |  |
| Load breaker 3-pole ML12 3x250A with door coupling rotary handle | ML12 | $+50-\pi$ | ML120030 |
| Load breaker 3-pole ML12 3x250A without rotary handle | ML12 | - $-0 \times 0$ | ML120030SM |

Load Switches ML Size 2-4-pole


Schrack-Info

- Disconnectors 3-pole 200A
- Connection bars standard
- Without handle

Load Switch 4-pole ML 1201.. dimensions


1) Door coupling rotary handle
2) Direct rotary handle
3) Auxiliary contacts, $2 \mathrm{NO}+2 \mathrm{NC}$ max.
4) Drilling plan, door coupling rotary handle

| $P$ |  | $C$ | $H$ |
| :---: | :---: | :---: | :---: |
| $\min$ | $\max$ | 55 | $\mathrm{P}-\mathrm{C}$ |
| 124 | 255 |  |  |
| $\mathrm{C}=$ constant |  |  |

Load Switches ML

Load Switches ML Size 2-4-pole
Wiring diagram


Load Switches ML Size 3-3-pole


## Schrack-Info

- Disconnectors 3-pole up to 400A
- Connection bars standard
- With door-coupler or without handle

Load Switch 3-pole ML1300.. dimensions

(2)

(4)

1) Door coupling rotary handle
2) Direct rotary handle
3) Auxiliary contacts, $2 \mathrm{NO}+2 \mathrm{NC}$ max.
4) Drilling plan, door coupling rotary handle

| $P$ |  | $C$ | $H$ |
| :---: | :---: | :---: | :---: |
| $\min$ | $\max$ | 51.5 | $\mathrm{P}-\mathrm{C}$ |
| 148 | 261.5 |  |  |
| $\mathrm{C}=$ constant |  |  |

Load Switches ML

Load Switches ML Size 3-3-pole
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| 315A | ORDER NO. |  |
| Load breaker 3-pole ML13 3×315A with door coupling rotary handle | MLI3 |  |
| Load breaker 3-pole ML13 3×315A without rotary handle | ML13 |  |
| 400A |  | MLI30010 |
| Load breaker 3-pole ML13 3×400A with door coupling rotary handle | MLI3 | MLI30010SM |
| Load breaker 3-pole ML13 3x400A without rotary handle | ML13 | MLI30020 |

Load Switches ML Size 3-4-pole


Schrack-Info

- Disconnectors 4 -pole 400A
- Connection bars standard
- Without handle

Load Switch 4-pole ML1201.. dimensions


1) Door coupling rotary handle
2) Direct rotary handle
3) Auxiliary contacts, $2 \mathrm{NO}+2 \mathrm{NC}$ max.
4) Drilling plan, door coupling rotary handle

| $P$ |  | $C$ | $H$ |
| :---: | :---: | :---: | :---: |
| $\min$ | $\max$ | 51.5 | $\mathrm{P}-\mathrm{C}$ |
| 148 | 261.5 |  |  |
| $\mathrm{C}=$ constant |  |  |

Load Switches ML

Load Switches ML Size 3-4-pole
Wiring diagram


Load Switches ML Size 4-3-pole


Schrack-Info

- Disconnectors 3-pole up to 630A
- Connection bars standard
- With door-coupler or without handle

Load Switch 3-pole ML1400.. dimensions


1) Door coupling rotary handle
2) Direct rotary handle
3) Auxiliary contacts, $2 \mathrm{NO}+2 \mathrm{NC}$ max.
4) Drilling plan, door coupling rotary handle

| $P$ |  | $C$ | $H$ |
| :---: | :---: | :---: | :---: |
| $\min$ | $\max$ | 76 | $P-C$ |
| 174 | 276 |  |  |
| $C=$ constant |  |  |  |

## Load Switches ML

Load Switches ML Size 4-3-pole
Wiring diagram


| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{6 3 0 A}$ | ORDER NO. |  |
| Load breaker 3-pole ML14 3×630A with door coupling rotary handle | ML14 |  |
| Load breaker 3-pole ML14 3×630A without rotary handle | ML14 | ML140030 |

## Load Switches - Accessories



| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Door coupling rotary handle, red/yellow ML11/12 | ML11/12-ZU | - -2000 | ML180020 |
| Door coupling rotary handle, red/yellow ML13/14 | ML13/14-ZU | - -000 | ML180040 |
| Direct rotary handle for ML11 | MLII-ZU |  | ML180200 |
| Axe extension for ML11/12 300mm | ML11/12-ZU | - $-\cdots 8$ | ML180360 |
| Axe extension for ML13/14 300mm | ML13/14-ZU |  | ML180380 |
| Terminal cover top ML12 | ML12-ZU |  | ML180520 |
| Terminal cover bottom ML12 | ML12-ZU | -500-6) | ML180530 |
| Terminal cover top ML14 | ML14-ZU |  | ML180540 |
| Terminal cover bottom ML14 | ML14-ZU |  | ML180550 |
| Cover for main contacts ML11 | ML11-ZU |  | ML180600 |
| Cover for main contacts ML12 | ML12-ZU | $+\infty=\infty$ | ML180610 |
| Terminal cover top ML 13 | MLI3-ZU |  | ML183500 |
| Terminal cover bottom ML13 | ML13-ZU |  | ML183510 |
| Cover for main contacts ML13 | ML13-ZU |  | ML183600 |

$\triangle$ Technical Data ML

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{3}{|l|}{Type} \& \multicolumn{7}{|c|}{MLII} \& \multicolumn{4}{|c|}{ML12} \\
\hline Rated current \& \& (In) \& 32A \& 45A \& 63A \& 80A \& 100A \& 125A \& 160A \& 160A \& 200A \& 250A \& 315A \\
\hline \multirow[b]{2}{*}{Rated insulation voltage} \& \[
\begin{aligned}
\& \hline \text { c.a./AC } \\
\& \left(U_{i}\right) \\
\& \hline
\end{aligned}
\] \& (V) \& 1000 \& 1000 \& 1000 \& 1000 \& 1000 \& 1000 \& 1000 \& 1000 \& 1000 \& 1000 \& 1000 \\
\hline \& \[
\begin{aligned}
\& \hline \text { c.c./DC } \\
\& \left(U_{i}\right) \\
\& \hline
\end{aligned}
\] \& (V) \& 1500 \& 1500 \& 1500 \& 1500 \& 1500 \& 1500 \& 1500 \& 1500 \& 1500 \& 1500 \& 1500 \\
\hline Impulse withstand voltage \& \(\left(\mathrm{U}_{\text {imp }}\right)\) \& (kV) \& 8 \& 8 \& 8 \& 8 \& 8 \& 8 \& 8 \& 8 \& 8 \& 12 \& 12 \\
\hline Rated thermal current \& \(\left(1 l_{\text {t }}\right.\) ) \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 160 \& 160 \& 200 \& 250 \& 315 \\
\hline \multirow{3}{*}{AC-21A/B} \& 400 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/160 \& 160 \& 200 \& 250 \& 250/315 \\
\hline \& 500 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/160 \& 160 \& 200 \& 250 \& 250/315 \\
\hline \& 690 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/160 \& 160 \& 200 \& 250 \& 250/315 \\
\hline \multirow{3}{*}{AC-22A/B} \& 400 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/160 \& 160 \& 200 \& 250 \& 250/315 \\
\hline \& 500 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/125 \& 160 \& 200 \& 250 \& 250/250 \\
\hline \& 690 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/125 \& 160 \& 200 \& 250 \& 250/250 \\
\hline \multirow{6}{*}{Rated operational \begin{tabular}{c} 
current \(\left(\mathrm{I}_{\mathrm{e}}\right)\)
\end{tabular}

DC-21A/B} \& 400 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/125 \& 160 \& 200 \& 250 \& 250/250 <br>
\hline \& 500 V \& (A) \& 25 \& 35 \& 45 \& 63 \& 80 \& 100 \& 100/100 \& 125 \& 160 \& 200 \& 200/200 <br>
\hline \& 690 V \& (A) \& 20 \& 30 \& 35 \& 45 \& 63 \& 80 \& 80/80 \& 100 \& 125 \& 160 \& 160/160 <br>
\hline \& 220 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/160 \& 160 \& 200 \& 250 \& 250/315 <br>
\hline \& 420 V \& (A) \& - \& - \& - \& - \& - \& - \& - \& 160 \& 200 \& 250 \& 250/315 <br>
\hline \& 560 V \& (A) \& - \& - \& - \& - \& - \& - \& - \& - \& - \& - \& - <br>
\hline \multirow{3}{*}{DC-22A/B (1)} \& 220 V \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 125/125 \& 160 \& 200 \& 250 \& 250/315 <br>
\hline \& 420 V \& (A) \& - \& - \& - \& - \& - \& - \& - \& 160 \& 200 \& 250 \& 250/250 <br>
\hline \& 560 V \& (A) \& - \& - \& - \& - \& - \& - \& - \& - \& - \& - \& - <br>
\hline \multirow{3}{*}{DC-23A/B (1)} \& 220 V \& (A) \& 20 \& 30 \& 35 \& 45 \& 63 \& 80 \& 80/80 \& 160 \& 200 \& 250 \& 250/250 <br>
\hline \& 420 V \& (A) \& - \& - \& - \& - \& - \& - \& - \& 160 \& 200 \& 250 \& 250/250 <br>
\hline \& 560 V \& (A) \& - \& - \& - \& - \& - \& - \& - \& - \& - \& - \& - <br>
\hline \multicolumn{2}{|l|}{Rated making capacity at 400V AC23} \& (A) \& 320 \& 450 \& 630 \& 800 \& 1000 \& 1250 \& 1250 \& 1600 \& 2000 \& 2500 \& 2500 <br>
\hline \multicolumn{2}{|l|}{Rated breaking capacity at 400V AC23} \& (A) \& 256 \& 360 \& 504 \& 640 \& 800 \& 1000 \& 1000 \& 1280 \& 1600 \& 2000 \& 2000 <br>
\hline \multicolumn{2}{|l|}{Short-circuit withstand current 1 sec} \& (kA) \& 5 \& 5 \& 5 \& 5 \& 5 \& 5 \& 5 \& 8 \& 8 \& 8 \& 8 <br>
\hline \multicolumn{2}{|l|}{Short-circuit withstand 0.25 sec} \& (kA) \& 10 \& 10 \& 10 \& 10 \& 10 \& 10 \& 10 \& 16 \& 16 \& 16 \& 16 <br>
\hline Short-circuit making capacity \& (400V) \& (kA) \& 7.5 \& 7.5 \& 7.5 \& 7.5 \& 7.5 \& 7.1 \& 7.5 \& 13.5 \& 13.5 \& 13.5 \& 13.5 <br>
\hline Rated operational power AC-23A \& (400V) \& (kW) \& 17 \& 23 \& 33 \& 42 \& 52 \& 65 \& 65 \& 85 \& 105 \& 130 \& 130 <br>
\hline \multicolumn{14}{|l|}{Rated fuse short-circuit current} <br>
\hline \multicolumn{2}{|l|}{Back up fuse} \& (A) \& 32 \& 45 \& 63 \& 80 \& 100 \& 125 \& 160 \& 160 \& 200 \& 250 \& 315 <br>
\hline \multicolumn{2}{|l|}{R.M.S. value} \& (kA) \& 100 \& 100 \& 100 \& 100 \& 50 \& 50 \& 50 \& 100 \& 100 \& 50 \& 50 <br>
\hline \multicolumn{2}{|l|}{Peak value} \& (kA) \& 6 \& 9 \& 10 \& 12 \& 12 \& 15 \& 16 \& 16 \& 20 \& 25 \& 27 <br>
\hline \multicolumn{2}{|l|}{Mechanical endurance} \& $\mathrm{n}^{\circ}$ \& 12000 \& 12000 \& 12000 \& 12000 \& 12000 \& 10000 \& 10000 \& 10000 \& 10000 \& 10000 \& 10000 <br>
\hline \multicolumn{2}{|l|}{Electrical endurance} \& $\mathrm{n}^{\circ}$ \& 3000 \& 3000 \& 3000 \& 3000 \& 3000 \& 2000 \& 2000 \& 2000 \& 2000 \& 2000 \& 2000/200 <br>
\hline \multicolumn{2}{|l|}{Rated capacitor power at 400V} \& kVAR \& 15 \& 20 \& 30 \& 40 \& 45 \& 50 \& 50 \& 70 \& 90 \& 110 \& 110 <br>
\hline \multicolumn{2}{|l|}{Power losses for pole} \& (W) \& 0.1 \& 0.2 \& 0.4 \& 0.7 \& 1.1 \& 1.7 \& 2.7 \& 1.6 \& 2.4 \& 3.8 \& 6 <br>
\hline \multicolumn{2}{|l|}{Cable section} \& mmq \& 50 \& 50 \& 50 \& 50 \& 50 \& 50 \& 70 \& 120 \& 120 \& 120 \& 185 <br>
\hline \multicolumn{2}{|l|}{Bars dimension} \& mm \& 16x3 \& 16x3 \& 16x3 \& 16×3 \& 16x3 \& 16x3 \& 16x4 \& 20×5 \& 20x5 \& 20x5 \& 20×5 <br>
\hline \multicolumn{2}{|l|}{Operation torque} \& Nm \& 8 \& 8 \& 8 \& 8 \& 8 \& 8 \& 8 \& 12 \& 12 \& 12 \& 12 <br>
\hline \multirow[t]{2}{*}{Net weight} \& 3 P \& kg \& 0.9 \& 0.9 \& 0.9 \& 0.9 \& 0.9 \& 0.9 \& 0.9 \& 1.5 \& 1.5 \& 1.5 \& 1.5 <br>
\hline \& 4 P \& kg \& 1 \& 1 \& 1 \& 1 \& 1 \& 1 \& 1 \& 1.6 \& 1.6 \& 1.6 \& 1.6 <br>
\hline
\end{tabular}

## Technical data ML

## Technical Data ML

| Type |  |  |  | ML13 |  |  | ML14 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rated current |  |  | (In) | 315A | 400A | 500A | 630A | 800A |
| Rated insulation voltage |  | $\begin{aligned} & \text { c.a./AC } \\ & \left(U_{i}\right) \\ & \hline \end{aligned}$ | (V) | 1000 | 1000 | 1000 | 1000 | 1000 |
|  |  | c.c./DC <br> $\left(U_{i}\right)$ | (V) | 1500 | 1500 | 1500 | 1500 | 1500 |
| Impulse withstand voltage |  | $\left(U_{\text {imp }}\right)$ | (kV) | 12 | 12 | 12 | 12 | 12 |
| Rated thermal current |  | ( $1{ }_{\text {t }}$ ) | (A) | 315 | 400 | 500 | 630 | 800 |
| Rated operational current $\left(I_{e}\right)$ | AC-21A/B | 400 V | (A) | 315 | 400 | 400/500 | 630 | 630/800 |
|  |  | 500 V | (A) | 315 | 400 | 400/500 | 630 | 630/800 |
|  |  | 690 V | (A) | 315 | 400 | 400/500 | 630 | 630/800 |
|  | AC-22A/B | 400 V | (A) | 315 | 400 | 500/500 | 630 | 630/800 |
|  |  | 500 V | (A) | 315 | 400 | 400/400 | 630 | 630/630 |
|  |  | 690 V | (A) | 315 | 400 | 400/400 | 630 | 630/630 |
|  | AC-23A/B | 400 V | (A) | 315 | 400 | 500/500 | 630 | 630/630 |
|  |  | 500 V | (A) | 250 | 315 | 315/315 | 500 | 500/500 |
|  |  | 690 V | (A) | 200 | 250 | 250/250 | 400 | 400/400 |
|  | DC-21A/B (1) | 220 V | (A) | 315 | 400 | 400/500 | 630 | 630/800 |
|  |  | 420 V | (A) | 315 | 400 | 400/500 | 630 | 630/800 |
|  |  | 560 V | (A) | 315 | 400 | 400/500 | 630 | 630/800 |
|  | DC-22A/B (1) | 220 V | (A) | 315 | 400 | 400/500 | 630 | 630/800 |
|  |  | 420 V | (A) | 315 | 400 | 400/400 | 630 | 630/630 |
|  |  | 560 V | (A) | 315 | 400 | 400/400 | 630 | 630/630 |
|  | DC-23A/B (1) | 220 V | (A) | 315 | 400 | 400/400 | 630 | 630/630 |
|  |  | 420 V | (A) | 315 | 400 | 400/400 | 630 | 630/630 |
|  |  | 560 V | (A) | 315 | 400 | 400/400 | 630 | 630/630 |
| Rated making capacity at 400V AC23 |  |  | (A) | 3150 | 4000 | 4000 | 6300 | 6300 |
| Rated breaking capacity at 400V AC23 |  |  | (A) | 2520 | 3200 | 3200 | 5040 | 5040 |
| Short-circuit withstand current 1 sec |  |  | (kA) | 13 | 13 | 13 | 26.5 | 26.5 |
| Short-circuit withstand 0.25 sec |  |  | (kA) | 26 | 26 | 26 | 53 | 53 |
| Short-circuit making capacity |  | (400V) | (kA) | 26 | 26 | 26 | 30 | 30 |
| Rated operational | power AC-23A | (400V) | (kW) | 165 | 210 | 210 | 330 | 330 |
| Rated fuse short-circuit current |  |  |  |  |  |  |  |  |
| Back up fuse |  |  | (A) | 315 | 400 | 500 | 630 | 800 |
| R.M.S. value |  |  | (kA) | 50 | 50 | 50 | 50 | 50 |
| Peak value |  |  | (kA) | 27 | 30 | 37 | 40 | 50 |
| Mechanical endurance |  |  | $\mathrm{n}^{\circ}$ | 8000 | 8000 | 8000 | 8000 | 8000 |
| Electrical endurance |  |  | $\mathrm{n}^{\circ}$ | 1500 | 1500 | 1500/200 | 1500 | 1500/200 |
| Rated capacitor power at 400V |  |  | kVAR | 140 | 180 | 180 | 300 | 300 |
| Power losses for pole |  |  | (W) | 5.9 | 9.4 | 14.8 | 15.6 | 25.7 |
| Cable section |  |  | mmq | 240 | 240 | 240 | $2 \times 185$ | $2 \times 240$ |
| Bars dimension |  |  | mm | 2×25×5 | 2x25×5 | 2×25×5 | $2 \times 32 \times 6$ | $2 \times 40 \times 6$ |
| Operation forque |  |  | Nm | 18 | 18 | 18 | 34 | 34 |
| Net weight |  | 3 P | kg | 3.5 | 3.5 | 3.5 | 5.5 | 5.5 |
|  |  | 4 P | kg | 3.8 | 3.8 | 3.8 | 6 | 6 |

- Moulded Case Circuit Breakers MY, fix installed

- Schrack-Info
- MCCB's with fixed thermomagnetic release up to 125A MY1..838B (18kA), MY1..138B (25kA) and box-terminals
- MCCB's with fixed thermomagnetic release up to 250A MYZ2.. 138 ( 25 kA ) and MY2.. 431 (36kA)
- MCCB's with fixed thermomagnetic release up to 400A MY3.. 238 (50kA)

MCCB Series MY1, MY2 dimensions


MCCB Series MY3 dimensions


Circuit Breaker Series MY1, MY2 dimensions

| Dimension [mm] |  | MY1 | MY2 |
| :---: | :---: | :---: | :---: |
| Overall dimensions | PD | Phase dividers |  |
|  | C | 85 | 102 |
|  | E | 51 | 51 |
|  | F | 23 | 23 |
|  | G | 17.5 | 23 |
|  | G1 | 7,5 | 11.5 |
|  | H | 67 | 103.5 |
|  | H1 | 86 | 127 |
|  | H2 | 25 | 24 |
|  | H3 | 5 | 5 |
|  | H4 | 7 | 5 |
|  | L | 155 | 165 |
|  | L1 | 255 | 360 |
|  | L2 | 136 | 144 |
|  | W | 90 | 105 |
|  | W1 | 30 | 35 |
| Mounting dimensions | A | 30 | 35 |
|  | B | 130.5 | 126 |
|  | $\emptyset d$ | $4.5 \times 6$ | 5 |

Circuit Breaker Series MY3 dimensions

| Dimension [mm] |  | MY3 |
| :---: | :---: | :---: |
| Overall dimensions | PD | Phase dividers |
|  | C | 128 |
|  | C1 | 174 |
|  | E | 89 |
|  | F | 66 |
|  | G | 31 |
|  | G1 | 12 |
|  | H | 107 |
|  | H1 | 162 |
|  | H2 | 38 |
|  | H3 | 6 |
|  | H4 | 5 |
|  | H5 | 4.5 |
|  | L | 257 |
|  | L1 | 459 |
|  | L2 | 224 |
|  | W | 150 |
|  | W1 | 48 |
| Mounting dimensions | A | 44 |
|  | B | 194 |
|  | Ød | 7 |

## Circuit Breakers MY

Moulded Case Circuit Breakers MY, fix installed

- MY1, MY2, MY3

Wiring diagram


Circuit Breaker Series MY1, MY2, MY3 Technical Data

| MY Circuit Breaker | MY..1838B | MY1..138B | MY2.. 138 | MY2..438 | MY332238 / MY340238 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Electric characteristics as per IEC 60947-2, EN 60947-2 |  |  |  |  |  |
| Rated current $\mathrm{I}_{\mathrm{n}}(\mathrm{A}) \quad 40^{\circ} \mathrm{C}$ | 25,30,32,40,50,63,80,100,125 |  | 160,200,250 |  | 315,400 |
| Rated insulation voltage $\mathrm{U}_{\mathrm{i}}(\mathrm{V})$ | 800 |  | 800 |  | 800 |
| Rated impulse withstand voltage $\mathrm{U}_{\text {imp }}(\mathrm{kV})$ | 8 |  | 8 |  | 8 |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}(\mathrm{V}) \quad \mathrm{AC} 50 / 60 \mathrm{~Hz}$ | 690 |  | 690 |  | 690 |
| Number of poles | 3 | 3 | 3 | 3 | 3 |
| Rated ultimate short-circuit AC 220/230/240V | 30 | 42 | 42 | 65 | 85 |
| breaking capacity $\mathrm{I}_{\mathrm{cu}}(\mathrm{kA}, \mathrm{rms})$ AC 380/400/415V | 18 | 25 | 25 | 36 | 50 |
| Test sequence: O-t-CO AC 660/690V | 3 | 3 | 5 | 8 | 12 |
| Rated service short-circuit breaking capacity $\mathrm{I}_{\mathrm{cs}}\left(\% \mathrm{I}_{\mathrm{cu}}\right)$ Test sequence: O-t-CO-t-CO | 0,5 |  | 0,5 |  | 0,5 |
| Isolation function | X |  | X |  | X |
| Utilization class | A |  | A |  | A |
| Mounting position | vertical and $90^{\circ}$ in all directions |  | vertical and $90^{\circ}$ in all directions |  | vertical and $90^{\circ}$ in all directions |
| Ambient temperature | $-5^{\circ} \mathrm{C}$ up to $+60^{\circ} \mathrm{C}$ |  | $-5^{\circ} \mathrm{C}$ up to $+60^{\circ} \mathrm{C}$ |  | $-5^{\circ} \mathrm{C}$ up to $+60^{\circ} \mathrm{C}$ |
| Connection | Boxterminal |  | for cable lug or busbar |  | for cable lug or busbar |
| Shunt release | X |  | X |  | X |
| Auxiliary contact | X |  | X |  | X |
| Alarm contact | X |  | X |  | X |
| Dimension WxLxH (mm) | $90 \times 155 \times 67$ |  | $105 \times 165 \times 104$ |  | $150 \times 257 \times 107$ |
| Weight (kg) | 1.4 |  | 2.1 |  | 5.7 |

■ MCCB MY Size 1-3-pole, 18kA


## Schrack-Info

- Fitted with phase dividers and box-terminals for direct connection of bare cables $4-95 \mathrm{~mm}^{2}$ (solid or stranded)
- 1 auxiliary contact normal or 1 auxiliary contact tripped +1 shunt release can be retrofitted
- Additional terminal covers retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{2 5}$ up to 125A with fixed thermomagnetic release and box-terminals |  | ORDER NO. |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 25A with box terminals | MY1E-AF25-B | MY1E-AF32-B |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 32A with box terminals | MY1E-AF40-B | MY1E-AF50-B |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 40A with box terminals | MY1E-AF63-B | MY1E-AF80-B |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 50A with box terminals | MY1E-AF100-B | MY 125838B |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 63A with box terminals | MY1E-AF125-B | MY |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 80A with box terminals | MY |  |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 100A with box terminals |  |  |
| Moulded Case Circuit Breaker type AF, 3-pole, 18kA, 125A with box terminals |  |  |

MCCB MY Size 1-3-pole, 25kA


## Schrack-Info

- Fitted with phase dividers and box-terminals for direct connection of bare cables $4-95 \mathrm{~mm}^{2}$ (solid or stranded)
- 1 auxiliary contact normal or 1 auxiliary contact tripped +1 shunt release can be retrofitted
- Additional terminal covers retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 25 up to 125A with fixed thermomagnetic release and box-terminals |  |  |  |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 25A with box terminals | MY1B-AF25-B |  | MY125138B |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 32A with box terminals | MY1B-AF32-B | [-600-9 | MY132138B |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 40A with box terminals | MYIB-AF40-B | [-000. | MY140138B |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 50A with box terminals | MY1B-AF50-B | -000-m | MY150138B |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 63A with box terminals | MY1B-AF63-B |  | MY163138B |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 80A with box terminals | MY1B-AF80-B | $+\infty=0$ | MY180138B |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 100A with box terminals | MY1B-AF100-B | -000-0, | MY110138B |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 125A with box terminals | MY1B-AF125-B | $\begin{array}{rr} \hline-000 & 0-6 \\ \hline \end{array}$ | MY112138B |

## Circuit Breakers MY

- MCCB MY Size 1-Accessories



## Accessories

| Auxiliary contact normal left $1 \mathrm{C} / \mathrm{O}$ for MY1 | MY1-AN11L | MY1ZAN11L |  |
| :--- | :--- | :--- | :--- |
| Auxiliary contact trip left $1 \mathrm{C} / \mathrm{O}$ for MY1 | MY1-AT11L | MY1ZAT11L |  |
| Set of terminal covers for MY1 3-pole | MY1-CN03 | MY1-S230R | $-\infty 000$ |
| Shunt release 230VAC right for MY1 | MY1ZCN03 |  |  |

## Circuit Breakers MY

- MCCB MY Size 2-3-pole, 25kA


Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal or 1 auxiliary contact tripped + 1 shunt release can be retrofitted
- Additional terminal covers retrofit

| DESCRIPTION | TYPE NO. |
| :--- | :--- |
| $\mathbf{1 6 0}$ up to 250A with fixed thermomagnetic release |  |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 160A | MY2B-AF160 |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 200A | MY2B-AF200 |
| Moulded Case Circuit Breaker type AF, 3-pole, 25kA, 250A | MY216138 |

MCCB MY Size 2-3-pole, 36kA


Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal or 1 auxiliary contact tripped + 1 shunt release can be retrofitted
- Additional terminal covers retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{1 6 0}$ up to 250A with fixed thermomagnetic release |  |  |
| Moulded Case Circuit Breaker type AF, 3-pole, 36kA, 160A | MY2C-AF160 | MY2C-AF200 |
| Moulded Case Circuit Breaker type AF, 3-pole, 36kA, 200A | MY2C-AF250 | MY216438 |
| Moulded Case Circuit Breaker type AF, 3-pole, 36kA, 250A | MY22043 |  |

## Circuit Breakers MY

- MCCB MY Size 2 - Accessories


ת Schrack-Info

- Auxiliary contacts
- Shunt release
- Terminal covers


## Accessories

| Auxiliary contact normal left $1 \mathrm{C} / \mathrm{O}$ for MY2 | MY2-AN IIL |  | MY2ZAN11L |
| :---: | :---: | :---: | :---: |
| Auxiliary contact trip left $1 \mathrm{C} / \mathrm{O}$ for MY2 | MY2-AT11L | $+50=0$ | MY2ZATIIL |
| Set of terminal covers for MY2 3-pole | MY2-CN03 |  | MY2ZCN03 |
| Shunt release 230VAC right for MY2 | MY2-S230R | $+\infty=-\infty$ | MY2ZS230R |

■ MCCB MY Size 3-3-pole, 50kA


## Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal or 1 auxiliary contact tripped +1 shunt release can be retrofitted

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :--- | :--- | :--- | :--- |
| 315 up to 400A with fixed thermomagnetic release |  |  |  |
| Moulded Case Circuit Breaker type AF, 3-pole, 50kA, 315A | MY3N-AF320 | MY3N-AF400 | MY3 |
| Moulded Case Circuit Breaker type AF, 3-pole, 50kA, 400A |  |  |  |

■ MCCB MY Size 3 - Accessories


Schrack-Info

- Auxiliary contacts
- Shunt release

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Accessories |  |  |  |
| Auxiliary contact normal left $1 \mathrm{C} / \mathrm{O}$ for MY3 | MY3-ANIIL | [-00-6] | MY3ZAN11L |
| Auxiliary contact trip left 1 C/O for MY3 | MY3-AT11L | -000-9, | MY3ZATIIL |
| Shunt release 230VAC right for MY3 | MY3-S230R | $-\infty 0=0$ | MY3ZS230R |

## Technical data MY

Technical data MY1, MY2, MY3

- Technical data - Accessories MY

|  | MY1ZAN11L/AT11L | MY2ZAN11L/AT11L | MY3ZAN11L/AT11L | MY1 ZS230R | MY2ZS230R | MY3ZS230R |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rated operational voltage $\mathrm{U}_{\text {e }}$ | $\begin{gathered} 230 \mathrm{VAC} 50 / 60 \mathrm{~Hz} \\ 24 \mathrm{VDC} \end{gathered}$ | $\begin{gathered} 230 \mathrm{VAC} 50 / 60 \mathrm{~Hz} \\ 24 \mathrm{VDC} \end{gathered}$ | $\begin{gathered} 230 \mathrm{VAC} 50 / 60 \mathrm{~Hz} \\ 24 \mathrm{VDC} \end{gathered}$ | AC230VAC 50/60Hz | AC230VAC 50/60Hz | AC230VAC $50 / 60 \mathrm{~Hz}$ |
| Conventional switching current $l_{\text {e }}$ |  |  |  |  |  |  |
| AC-15 | $\begin{gathered} 24 \mathrm{~V} / 3 \mathrm{~A}, 48 \mathrm{~V} / 3 \mathrm{~A}, \\ 110 \mathrm{~V} / 2.5 \mathrm{~A}, 230 \mathrm{~V} / 2 \mathrm{~A} \end{gathered}$ | $\begin{gathered} 24 \mathrm{~V} / 3 \mathrm{~A}, 48 \mathrm{~V} / 3 \mathrm{~A} \\ 110 \mathrm{~V} / 2.5 \mathrm{~A}, 230 \mathrm{~V} / 2 \mathrm{~A} \end{gathered}$ | $\begin{gathered} 24 \mathrm{~V} / 3 \mathrm{~A}, 48 \mathrm{~V} / 3 \mathrm{~A}, \\ 110 \mathrm{~V} / 2.5 \mathrm{~A}, 230 \mathrm{~V} / 2 \mathrm{~A} \end{gathered}$ |  |  |  |
| DC-13 | 24VDC 0.5A | 24VDC 0.5A | 24VDC 0.5A |  |  |  |
| Short circuit protection max. Fuse max. Miniature Circuit breaker | 4A gG | 4A gG | 4A gG | 4A gG | 4A gG | 4A gG |
|  | 4 B characteristics | 4A B characteristics | 4A B characteristics | 4A B characteristics | 4A B characteristics | 4A B characteristics |
| Terminal capacity Flexible conductor | prewired $3 \times 0.25 \mathrm{~mm}^{2}$ | prewired $3 \times 0.25 \mathrm{~mm}^{2}$ | prewired $3 \times 0.25 \mathrm{~mm}^{2}$ | prewired $2 \times 0.25 \mathrm{~mm}^{2}$ | prewired $2 \times 0.25 \mathrm{~mm}^{2}$ | prewired $2 \times 0.25 \mathrm{~mm}^{2}$ |
| Minimum command time |  |  |  | $20-60 \mathrm{~ms}$ | $20-60 \mathrm{~ms}$ | $20-60 \mathrm{~ms}$ |
| Maximum command time |  |  |  | 500 ms | 500 ms | 500 ms |
| Power consumption during operation |  |  |  | 110 VA at release | 110 VA at release | 110 VA at release |
| Maximum opening delay |  |  |  | 100 ms | 100ms | 100ms |

Safe distance between electrical apparatus for mounting ( mm )


| Distance $(\min ) /$ Type | MY1 | MY2 | MY3 |
| :--- | :---: | :---: | :---: |
| Line side C1 | 50 | 50 | 100 |
| Load side C2 | 20 | 20 | 20 |
| Right side | 25 | 25 | 25 |
| Left side | 25 | 25 | 25 |

General and mechanical data MY
Screws and torques for MY1, 2, 3

| MCCB | Screw for connecting cable lug or bus-bar | torque |
| :---: | :---: | :---: |
| MY1..... B | --- | --- |
| MY2 | M8x 16 / hexagon socket screw, key size 6 mm | 10 Nm |
| MY3 | M $10 \times 30$ / open ended wrench, size 17 mm | 22 Nm |
| MCCB | Terminal screw of box-terminal BT | torque |
| MY1..... B | BT, built in, $1,5-16 \mathrm{~mm}^{2}$, M8 / slotted screw BT, built in, $25 \mathrm{~mm}-70 \mathrm{~mm}^{2}$, M8 / slotted screw | $\begin{aligned} & 3 \mathrm{Nm} \\ & 8 \mathrm{Nm} \end{aligned}$ |
| MY2 | --- | --- |
| MY3 | --- | --- |

## Connection screws



Wiring diagram - Inner accessories
1)


## - Shunt release MY.ZS230

$U_{s}=70-110 U_{n}$, circuit breaker reliably operates
Long-time electrification is prohibited
Minimum command time $20-60 \mathrm{~ms}$

1) Shunt release wiring diagram

## Technical data MY

General and mechanical data MY

- Wiring diagram - Inner accessories


Wiring diagram - Inner accessories
5)

6)


## Auxiliary contact "normal" MY.ZANII

Function: Indication of contacting status
3) Circuit breaker is at breaking status (OFF)
4) Circuit breaker is at making status (ON)

## Auxiliary contact "tripped" MY.ZATII

Function: indication of reason for circuit breaker releasing;
Over-load

- Short-circuit

Operation of shunt-trip releasing
When circuit breaker normally makes and breaks, alarm contact not operates.
After free tripping (or tripping due to failure), alarm contact operates
and after the circuit breaker again normally operates, alarm contact recovers original status.
5) Circuit breaker is at breaking or making status (ON/OFF)
6) Circuit breaker is at free release (or alarming) status (TRIPPED)

- Tripping characteristics MY

1) Tripping curves 2) Derating according temperature


## 1) Tripping curves 2) Derating according temperature



## Technical data MY

## Tripping characteristics MY

- 1) Tripping curves 2) Derating according temperature


1) Tripping curves 2) Derating according temperature

MY3 315/400A


Moulded Case Circuit Breakers and Load Switches MZ, fix installed


- Load-Break Switches MZ112035B ... 125A, MZ225035 ... 250A and MZ340035 ... 400A, without release unit
- MCCB's with thermomagnetic release up to 125A MZ1..431B (36kA) Ir adjustable, li fixed at $10 \times \mathrm{lr}$
- MCCB's with thermomagnetic release up to 250A MZ2.. 431 (36kA) and MZ2.. 231 (50kA) Ir und li adjustable
- MCCB's with thermomagnetic release up to 400A MZ3.. 231 (50kA) Ir and li adjustable
- MCCB's with delayed, electronic release up to 630A MZ3.. 333 (70kA) Ir, Isd, li, tr and tsd adjustable

MCCB and Load Switch Series MZ dimensions


Circuit Breaker Series MZ dimensions

| Dimensions [mm] | PD | 11 | L2 | H0 | H1 | H2 | H3 | H4 | K | K1 | G1 | G2 | G3 | G4 | wo | W1 | W5 | d |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MZ1 | Phase Dividers | 140 | 243 | 72 | 79 | 108 | 18.5 | 17.5 | 15 | 30 | 56 | 112 | 66,5 | 46 | 30 | 90 | 24.5 | 5.5 |
| MZ2 |  | 157 | 373 | 82 | 88 | 126 | 22 | 20 | 17.5 | 35 | 62.5 | 125 | 75.5 | 47.5 | 35 | 105 | 26.5 | 5.5 |
| MZ3 |  | 255 | 482 | 109 | 113 | 168 | 26 | 24 | 22.5 | 45 | 100 | 200 | 114 | 87 | 45 | 140 | 51.5 | 6.5 |

## MCCB MZ Wiring diagram

## Load Switch MZ Wiring diagram




## Circuit Breakers and Load Switches MZ

Moulded Case Circuit Breakers and Load Switches MZ, fix installed

- Circuit Breaker Series MZ Technical Data

| MZ Circuit Breaker |  | MZ1..431 ${ }^{\text {B }}$ | MZ2..431 | MZ2..231 | MZ3..231 | MZ3..333 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Electric characteristics as per IEC 60947-2 and EN60947-2 |  |  |  |  |  |  |
| Rated current $\mathrm{I}_{\mathrm{n}}(\mathrm{A})$ | $40^{\circ} \mathrm{C}$ | $\begin{gathered} 20,25,32,40,50, \\ 63,80,100,125 \end{gathered}$ | 100, 16 | 0, 250 | 315,400 | 250, 400, 630 |
| Rated insulation voltage $\mathrm{U}_{\mathrm{i}}(\mathrm{V})$ |  | 750 |  |  | 750 | 750 |
| Rated impulse with stand voltage $\mathrm{U}_{\text {imp }}(\mathrm{kV})$ |  | 8 |  |  | 8 | 8 |
| Rated operational voltage $U_{\text {e }}(\mathrm{V})$ | AC 50/60Hz | 690 |  |  | 690 | 690 |
|  | DC | 500 |  |  | 500 | - |
| Number of poles |  | 3 | 3 |  | 3 | 3 |
| Rated ultimate short-circuit breaking capacity (kA RMS) I ${ }_{\text {cu }}$ | AC $220 \mathrm{~V} / 230 \mathrm{~V} / 240 \mathrm{~V}$ | 50 | 50 | 85 | 85 | 85 |
|  | AC 380V/400V/415V | 36 | 36 | 50 | 50 | 70 |
|  | AC 440V | 36 | 36 | 50 | 50 | 50 |
|  | AC 500V | 35 | 35 | 35 | 35 | 35 |
|  | AC $660 \mathrm{~V} / 690 \mathrm{~V}$ | 8 | 8 | 8 | 10 | 10 |
|  | DC 250V (1P) | 25 | 25 | 25 | 25 | - |
|  | DC 500V (2P) | 25 | 25 | 25 | 25 | - |
| Rated service breaking capacity $\mathrm{I}_{\text {cs }}=\%_{\text {cu }}$ |  | $100{ }^{1}$ | $10{ }^{1}$ |  | $100{ }^{1}$ | 1001 |
| Suitability for isolation |  | X | X |  | X | X |
| Utilization category |  | A | A |  | A | A |
| Safety insulation |  | X | X |  | X | X |
| Life (CO recycle) | Mechanical | 8500 | 7000 |  | 4000 | 4000 |
|  | Electric | 1500 | 1000 |  | 1000 | 1000 |
| Protection |  | Thermo-magnetic | Thermo-magnetic |  | Thermo-magnetic | Electronic |
| Adjustable overload $\mathrm{I}_{\mathrm{r}}(\mathrm{A})$ |  | 0.8...1 x ln | $0.8 . . .1 \times \mathrm{ln}$ |  | $0.8 . . .1 \times \mathrm{ln}$ | $0.4 . . .1 \times \mathrm{ln}$ |
| Adjustable time delay of overload $\mathrm{T}_{\mathrm{r}}(\mathrm{sec})$ |  | - | - |  | - | 3... 18 |
| Adjustable undelayed short circuit current $\mathrm{l}_{\mathrm{i}}(\mathrm{A})$ |  | fixed at $10 \times I_{n}$ | $5 \ldots 10 \times \mathrm{I}_{n}$ |  | $5 . . .10 \times I_{n}$ | $1.5 \ldots 12 \times \mathrm{ln}$ |
| Adjustable delayed short circuit current $\mathrm{I}_{\text {d }}(\mathrm{A})$ |  | - | - |  | - | OFF / 1.5...8 $\times$ ln |
| Adjustable time delay of delayed short circuit current $\mathrm{T}_{\text {sd }}(\mathrm{sec})$ |  | - | - |  | - | 0.1..0.4 |
| Release units |  | X | X |  | X | X |
| Over-load protection |  | X | X |  | X | X |
| Short-circuit protection |  | X | X |  | X | X |
| Mounting position |  |  | vertical and $90^{\circ}$ in all directions |  |  |  |
| Ambient temperature |  |  | $-25^{\circ} \mathrm{C}$ up to $+70^{\circ} \mathrm{C}$ |  |  |  |
| Fixed |  | X | X |  | X | X |
| Auxiliaries for control and indication |  | X | X |  | X | X |
| Manual | Handle | X | X |  | X | X |
|  | Direct or extended rotary handle | X | X |  | X | X |
| Electric operating mechanism |  | X | X |  | X | X |
| Shunt and under-voltage release |  | X | X |  | X | X |
| Auxiliary and alarm contact |  | X | X |  | X | X |
| Pad locking system |  | X | X |  | X | X |
| Mounting and connection accessories |  | X | X |  | X | X |
| Connection |  | Box terminals | for cable lug |  | for cable lug | for cable lug |
| Front connection plate |  | - | X |  | X | X |
| Terminal covers |  | X | X |  | X | X |
| Interphase barrier |  | X | X |  | X | X |
| Dimension and weight | Dimension WxLxH (mm) | $90 \times 140 \times 79$ | $105 \times 157 \times 88$ |  | $140 \times 255 \times 113$ | $140 \times 255 \times 113$ |
|  | Weight (kg) | 1.2 | 2.1 |  | 7.5 | 8 |

${ }^{1}$ Note: When $\mathrm{U}_{\mathrm{e}}$ is $\geq 660 \mathrm{~V}, \mathrm{I}_{\mathrm{cs}}=50 \% \mathrm{I}_{\mathrm{cu}}$

Load Break Switch Series MZ Technical Data

| MZ Load Break Switch |  | MZ112035B | MZ225035 | MZ340035 |
| :---: | :---: | :---: | :---: | :---: |
| Rated current $\mathrm{I}_{n}(\mathrm{~A})$ |  | 125 A | 250A | 400A |
| Rated operational voltage $\mathrm{U}_{\mathrm{e}}(\mathrm{V})$ |  | 690VAC | 690VAC | 690VAC |
| Rated short-time withstand current $\mathrm{I}_{\mathrm{cw}}(\mathrm{kA})$ | AC $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 1.5kA | 3kA | 4.8kA |
|  | AC $690 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 1.5 kA | 3kA | 4.8 kA |
| Rated short-circuit breaking capacity $\mathrm{I}_{\mathrm{cm}}(\mathrm{kA})$ | AC $415 \mathrm{~V} 50 / 60 \mathrm{~Hz}$ | 2.2kA | 4.5kA | 7.2kA |
|  | AC 690V 50/60Hz | 2.2 kA | 4.5 kA | 7.2 kA |
| Mounting position |  | vertical and $90^{\circ}$ in all directions |  |  |
| Ambient temperature |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |  |
| Standards |  | IEC/EN 60947-3 |  |  |
| Dimension WxLxH (mm) |  | $90 \times 140 \times 79$ | $105 \times 157 \times 88$ | $140 \times 255 \times 113$ |
| Weight (kg) |  | 1.1 | 1.9 | 7.3 |

■ MCCB MZ Size 1-3-pole, 36kA


## Schrack-Info

- Fitted with phase dividers and box-terminals for direct connection of bare cables 4-95mm² (solid or stranded)
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted
- Remote operator, mechanical interlock, Lever-lock, long terminal cover and rotary handles available

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 20 up to 125A with thermomagnetic release and box-terminals |  |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 20A with box terminals | MZ1C-A20-B | - $-0 \times 0$ | MZ120431B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 25A with box terminals | MZ1C-A25-B | [-00-9 - - | MZ125431B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 32A with boxterminals | MZ1C-A32-B | -000-0 | MZ132431B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 40A with box terminals | MZ1C-A40-B | - $-\infty \times 1$ | MZ140431 B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 50A with box terminals | MZ1C-A50-B | $\begin{array}{lll} \hline-000 & 0-6 \\ \hline \end{array}$ | MZ150431 B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 63A with box terminals | MZ1C-A63-B | $+60 \div-\infty$ | MZ163431 B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 80A with box terminals | MZ1C-A80-B | $\begin{array}{rrr} \hline-\infty 0 & -\pi \\ \hline \end{array}$ | MZ180431B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 100A with box terminals | MZ1C-A100-B | $\begin{array}{lll} \hline+0 & 0 & -\infty \\ \hline \end{array}$ | MZ110431 B |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 125A with box terminals | MZ1C-A125-B | $+5000$ | MZ112431 B |

Load Switches MZ Size 1-3-pole


- Schrack-Info
- Fitted with phase dividers and box-terminals for direct connection of bare cables $4-95 \mathrm{~mm}^{2}$ (solid or stranded)
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :--- | :--- | :--- | :--- |
| $\mathbf{1 2 5 A}$ with box terminals |  |  |  |
| Load Break Switch, 3-pole, 125A with box terminals | $M Z 1-\mathrm{N}-125-\mathrm{B}$ | $-\infty=0$ | MZ112035B |

Circuit Breakers and Load Switches MZ

- MZ Size 1-Accessories


MZ1ZBT03


MZ1ZCLO3


MZ1ZMO3
MZ1ZM230



- Auxiliary contacts for all sizes
- Box-terminals
- Terminal covers
- Rotary handle or door coupling rotary handle
- Lever lock
- Mechanical interlock
- Remote operator
- Shunt release
- Undervoltage release

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Accessories |  |  |  |
| Auxiliary contact normal $1 \mathrm{C} / \mathrm{O}$ for MZ | MZ-ANII | - -10000 | MZAZAN11 |
| Auxiliary contact trip $1 \mathrm{C} / \mathrm{O}$ for MZ | MZ-AT 11 | - $000-8$ | MZAZAT 11 |
| 6 Box terminals $4-95 \mathrm{~mm}^{2}$ for MZ1 3-pole | MZ1-BT03 | -000-000 | MZ1ZBT03 |
| Set of terminal covers long for MZ1 3-pole | MZ1-CLO3 | -000-0, | MZ1ZCL03 |
| Mechanical interlock for MZ1 3-pole | MZ1-JM03 | $+\infty=-\infty$ | MZ1ZJM03 |
| Padlock for MZ1 | MZ1-LLO0 | -600-0 | MZ1ZLLOO |
| Remote operator 230VACDC for MZ1 | MZ1-M230 |  | MZ1ZM230 |
| Direct rotary handle (lockable) for MZ1 | MZ1-RD | $+\infty=-\infty$ | MZ1ZRD00 |
| Extended rotary handle (lockable) for MZ1 3-pole | MZ1-REE3 | - -0.00 | MZ1ZREE3 |
| Shunt release 230VAC for MZ1 | MZ1-S230 | $+\infty 0 \infty$ | MZ1 ZS230 |
| Undervoltage release 230VAC for MZ1 | MZ1-U230 | $+00-\infty$ | MZ1ZU230 |

Sthрданй

MCCB MZ Size 2-3-pole, 36kA


## Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted
- Front connections up to 2 cable lugs retrofit
- Tunnel-terminals for connection of bare cables $2 x\left(35-125 \mathrm{~mm}^{2}\right)$ retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{1 6 0}$ up to 250A with thermomagnetic release |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 160A | MZ2C-A160 | MZ2C-A200 |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 200A | MZ2C-A250 | MZ216431 |
| Moulded Case Circuit Breaker type A, 3-pole, 36kA, 250A | MZ22000 |  |

MCCB MZ Size 2-3-pole, 50kA


## Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted
- Front connections up to 2 cable lugs retrofit
- Tunnel-terminals for connection of bare cables $2 x\left(35-125 \mathrm{~mm}^{2}\right)$ retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{1 6 0}$ up to 250A with thermomagnetic release |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 160A | MZ2N-A160 |  |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 200A | MZ2N-A200 | MZ2N |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 250A | MZ2N-A250 |  |

Load Switches MZ Size 2-3-pole


Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted
- Front connections up to 2 cable lugs retrofit
- Tunnel-terminals for connection of bare cables $2 x\left(35-125 \mathrm{~mm}^{2}\right)$ retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :--- | :--- | :--- | :--- |
| $\mathbf{2 5 0 A}$ |  |  |  |
| Load break switch, 3-pole, 250A | $M Z 2-N-250$ |  |  |

Circuit Breakers and Load Switches MZ

## - MZ Size 2 - Accessories



MZAZAN 11


MZ2ZLLOO



MZAZAT 11


MZ2ZIM03



MZ2ZM230



MZ2ZFC03


MZ2ZRD00


## Schrack-Info

- Auxiliary contacts for all sizes
- Terminal covers
- Rotary handle or door coupling rotary handle
- Lever lock
- Mechanical interlock
- Remote operator
- Tunnel terminals
- Front connections
- Shunt release
- Undervoltage release

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Accessories |  |  |  |
| Auxiliary contact normal $1 \mathrm{C} / \mathrm{O}$ for MZ | MZ-AN 11 | -800-980 | MZAZAN11 |
| Auxiliary contact trip $1 \mathrm{C} / \mathrm{O}$ for MZ | MZ-AT 11 | -5000 | MZAZAT 11 |
| Set of terminal covers long for MZ2 3-pole | MZ2-CL03 | -000-0) | MZ2ZCL03 |
| 6 Front connection plates for MZ2 | MZ2-FCO3 | -700-9, | MZ2ZFC03 |
| Mechanical interlock for MZ2 3-pole | MZ2-JM03 | $\begin{array}{rrr} \hline-\infty 0 & 00 \\ \hline \end{array}$ | MZ2ZJM03 |
| Padlock for MZ2 | MZ2-LL00 | $\begin{array}{\|ccc} \hline-\infty 0 & -\pi \\ \hline \end{array}$ | MZ2ZLL00 |
| Remote operator 230VACDC for MZ2 | MZ2-M230 | -80\%-9, | MZ2ZM230 |
| Direct rotary handle (lockable) for MZ2 | MZ2-RD | $+50 \div 0$ | MZ2ZRD00 |
| Extended rotary handle (lockable) for MZ2 3-pole | MZ2-REE3 | -000-0, | MZ2ZREE3 |
| Shunt release 230VAC for MZ2/3 | MZ2/3-S230 | $\begin{array}{\|cc\|} \hline+\infty & -\infty \\ \hline \end{array}$ | MZ2ZS230 |
| 6 Tunnel terminals $2 \times\left(35-120 \mathrm{~mm}^{2}\right.$ ) for MZ2 | MZ2-TT03 | $+\infty-\infty$ | MZ2ZTT03 |
| Undervoltage release 230VAC for MZ2/3 | MZ2/3-U230 | - -800 | MZ2ZU230 |

- MCCB MZ Size 3-3-pole, 50kA



## Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted
- Tunnel-terminals for connection of bare cables $1 \times\left(120-240 \mathrm{~mm}^{2}\right)$ or $2 x\left(120-240 \mathrm{~mm}^{2}\right)$ retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| $\mathbf{3 1 5}$ up to 400A with thermomagnetic release |  |  |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 315A | MZ3N-A315 | -1000 |
| Moulded Case Circuit Breaker type A, 3-pole, 50kA, 400A | MZ3N-A400 | MZ332231 |

MCCB MZ Size 3-3-pole, 70kA


## Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted
- Tunnel-terminals for connection of bare cables $1 \times\left(120-240 \mathrm{~mm}^{2}\right)$ or $2 x\left(120-240 \mathrm{~mm}^{2}\right)$ retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| 250 up to 630A with delayed electronic release |  |  |  |
| Moulded Case Circuit Breaker type VE, 3-pole, 70kA, 250A | MZ3H-VE250 |  | MZ325333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 70kA, 400A | MZ3H-VE400 | -000-0, | MZ340333 |
| Moulded Case Circuit Breaker type VE, 3-pole, 70kA, 630A | MZ3H-VE630 | -000-0, | MZ363333 |

Load Switches MZ Size 3-3-pole


Schrack-Info

- Fitted with phase dividers, for connection with cable lugs
- 1 auxiliary contact normal + 1 auxiliary contact tripped + 1 shunt- or undervoltage release can be retrofitted
- Tunnel-terminals for connection of bare cables $1 \times\left(120-240 \mathrm{~mm}^{2}\right)$ or $2 x\left(120-240 \mathrm{~mm}^{2}\right)$ retrofit

| DESCRIPTION | TYPE NO. | AVAILABLE |
| :--- | :--- | :--- |
| 400A |  |  |
| Load break switch, 3-pole, 400A | MZ3-N-400 | $-\infty=0$ |

## Circuit Breakers and Load Switches MZ

## - MZ Size 3 - Accessories



MZ3ZLLOO



MZ3ZM230



MZ3ZCLO3


MZ3ZRD00


MZ2ZS230


MZ3ZJM03


MZ3ZREE3


MZ2ZU230

- Schrack-Info
- Auxiliary contacts for all sizes
- Terminal covers
- Rotary handle or door coupling rotary handle
- Lever lock
- Mechanical interlock
- Remote aoperator
- Tunnel terminals
- Front connections
- Shunt release
- Undervoltage release

| DESCRIPTION | TYPE NO. | AVAILABLE | ORDER NO. |
| :---: | :---: | :---: | :---: |
| Accessories |  |  |  |
| Auxiliary contact normal $1 \mathrm{C} / \mathrm{O}$ for MZ | MZ-AN 11 | [000-6, | MZAZAN 11 |
| Auxiliary contact trip $1 \mathrm{C} / \mathrm{O}$ for MZ | MZ-AT 11 | $+\infty=0$ | MZAZATII |
| Set of terminal covers long for MZ3 3-pole | MZ3-CL03 | [-0000] | MZ3ZCLO3 |
| 6 Front connection plates for MZ3 3-pole | MZ3-FC03 | $+50-\infty$ | MZ3ZFC03 |
| Mechanical interlock for MZ3 3-pole | MZ3-JM03 | -000-6) | MZ3ZJM03 |
| Padlock for MZ3 | MZ3-LLO0 | $+\infty=-\infty$ | MZ3ZLL00 |
| Remote operator 230VACDC for MZ3 | MZ3-M230 | [-80-9, | MZ3ZM230 |
| Direct rotary handle (lockable) for MZ3 | MZ3-RD | $+\infty=0$ | MZ3ZRD00 |
| Extended rotary handle (lockable) for MZ3 | MZ3-REE3 | $+-\infty 0$ | MZ3ZREE3 |
| Shunt release 230VAC for MZ2/3 | MZ2/3-S230 | $+\infty=\infty$ | MZ2ZS230 |
| 6 Tunnel terminals $120-240 \mathrm{~mm}^{2}$ for MZ3 | MZ3-TT03 | $+\infty=0$ | MZ3ZTT03 |
| 6 Tunnel terminals $2 \times\left(120-240 \mathrm{~mm}^{2}\right.$ ) for MZ3 | MZ3-TT03M2 | $+\infty=0$ | MZ3ZTT03M2 |
| Undervoltage release 230VAC for MZ2/3 | MZ2/3-U230 | -000-9, | MZ2ZU230 |

Technical data MZ1, MZ2, MZ3

- Temperature compensation coefficient of breaker with thermo-magnetic release

Ambient temperature
Compensation coefficient

| $0^{\circ} \mathrm{C}$ | $5^{\circ} \mathrm{C}$ | $10^{\circ} \mathrm{C}$ | 1 |
| :---: | :---: | :---: | :---: |
| 1.2 | 1.175 | 1.15 | 1 |


| $20^{\circ} \mathrm{C}$ | $25^{\circ} \mathrm{C}$ | $30^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: |
| 1.1 | 1.075 | 1.05 |

$35^{\circ} \mathrm{C}$
1.025
$\qquad$ $40^{\circ} \mathrm{C}$

C $45^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $65^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0.95 | 0.925 | 0.9 | 0.875 | 0.85 |

Temperature compensation coefficient of breaker with electronic release

| Ambient temperature | $0^{\circ} \mathrm{C}$ | $5^{\circ} \mathrm{C}$ | $10^{\circ} \mathrm{C}$ | $15^{\circ} \mathrm{C}$ | $20^{\circ} \mathrm{C}$ | $25^{\circ} \mathrm{C}$ | $30^{\circ} \mathrm{C}$ | $35^{\circ} \mathrm{C}$ | $40^{\circ} \mathrm{C}$ | $45^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $65^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MZ3 (250-400 A) - Compensation coefficient | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.98 | 0.95 | 0.93 | 0.9 |
| MZ3 (630 A) - Compensation coefficient | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.98 | 0.95 | 0.93 | 0.9 | 0.88 | 0.85 | MZ3 (630 A) - Compensation coefficient

Power loss per pole

| Resistance/power loss m $/$ / W | MZ1 <br> with TM release | MZ2 <br> with TM release | MZ3 <br> with TM release | MZ3 <br> with electronic release |
| :---: | :---: | :---: | :---: | :---: |
| 20 | 6.2/2.5 |  |  |  |
| 25 | 4.873 |  |  |  |
| 32 | 3.7/3.8 |  |  |  |
| 40 | 2.6/4.2 |  |  |  |
| 50 | 2.7/6.8 |  |  |  |
| 63 | 1.7/6.7 |  |  |  |
| 80 | 1.3/8.3 |  |  |  |
| 100 | 0.85/8.5 |  |  |  |
| 125 | 0.71/11.1 |  |  |  |
| 160 |  | 0.55/14 |  |  |
| 200 |  | 0.55/22 |  |  |
| 250 |  | 0.55/34.4 |  | 0.13/8.1 |
| 315 |  |  | 0.28/27.8 |  |
| 400 |  |  | 0.24/38.4 | 0.13/20.8 |
| 630 |  |  |  | 0.13/51.6 |

## Technical data MZ

Technical data MZ1, MZ2, MZ3

- Technical data - Accessories MZ

|  | MZAZAN11/ATII | MZ1ZS230 | MZ2ZS230 | MZ3ZS230 | MZ1 ZU230 | MZ2ZU230 | MZ3ZU230 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rated operational voltage $U_{e}$ | up to 400VAC $50 / 60 \mathrm{~Hz}$ | $220-240 \mathrm{VAC}$ | $220-240 \mathrm{VAC}$ | $220-240 \mathrm{VAC}$ | $220-240 \mathrm{VAC}$ | $220-240 \mathrm{VAC}$ | $220-240 \mathrm{VAC}$ |
|  | $24 / 48 /$ | 110 VDC | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ |

Conventional switching current $I_{e}$

| $\mathrm{AC}-15$ | $24 \mathrm{~V} / 6 \mathrm{~A}, 48 \mathrm{~V} / 6 \mathrm{~A}, 110 \mathrm{~V} / 5 \mathrm{~A}$, <br> $230 \mathrm{~V} / 4 \mathrm{~A}, 400 \mathrm{~V} / 1.5 \mathrm{~A}$ | - | - | - | - | - |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $24 \mathrm{~V} / 1 \mathrm{~A}, 48 \mathrm{~V} / 0.2 \mathrm{~A}$, <br> $110 \mathrm{~V} / 0.05 \mathrm{~A}$ | - | - | - | - | - |


| Short circuit protection |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| max. Fuse | 6AgG | 6AgG | 6AgG | 6AgG | 6AgG | 6AgG | 6AgG |
| max. Miniature Circuit breaker | 6 AB characteristics | 6AB characteristics | 6AB characteristics | 6A B characteristics | 6AB characteristics | 6AB <br> characteristics | 6AB <br> characteristics |
| Terminal capacity solid conductor or flexible conductor with end sleeve | $1.5 \mathrm{~mm}^{2}$ | $\begin{gathered} \text { prewired } 2 \times \\ 0.5 \mathrm{~mm}^{2} \end{gathered}$ | $\begin{gathered} \text { prewired } 2 \times \\ 0.5 \mathrm{~mm}^{2} \end{gathered}$ | $\begin{gathered} \text { prewired } 2 \times \\ 0.5 \mathrm{~mm}^{2} \end{gathered}$ | $\begin{gathered} \text { prewired } 2 \times \\ 0.5 \mathrm{~mm}^{2} \end{gathered}$ | $\begin{gathered} \text { prewired } 2 \times \\ 0.5 \mathrm{~mm}^{2} \end{gathered}$ | $\begin{gathered} \text { prewired } 2 \times \\ 0.5 \mathrm{~mm}^{2} \\ \hline \end{gathered}$ |
| Minimum command time | - | $20-60 \mathrm{~ms}$ | $20-60 \mathrm{~ms}$ | $20-60 \mathrm{~ms}$ | $20-60 \mathrm{~ms}$ | $20-60 \mathrm{~ms}$ | $20-60 \mathrm{~ms}$ |
| Maximum command time | - | 500 ms | 500 ms | 500 ms | continuous | continuous | continuous |
| Power consumption during operation | - | 110VA at release | 110VA at release | 110VA at release | 15VA | 15VA | 15VA |
| Maximum opening delay | - | 100 ms | 100 ms | 100 ms | 100 ms | 100 ms | 100 ms |
| Maximum operating cycles, mechanical | 500000 | - | - | - | - | - | - |
| Service life, electrical | 100000 | - | - | - | - | - | - |


|  | MZ1ZM230 | MZ2ZM230 | MZ3ZM230 |
| :--- | :---: | :---: | :---: |
| Rated operational voltage $U_{e}$ |  | $220-240 \mathrm{VAC}$ |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  | $220-240 \mathrm{VAC}$ |
|  | 220 VDC | $220-240 \mathrm{VAC}$ |  |
|  |  | $50 / 60 \mathrm{~Hz}$ | $50 / 60 \mathrm{~Hz}$ |
|  |  | 220 VDC | 220 VDC |

Short circuit protection

| max. Fuse | 6AgG | 6AgG | 6AgG |
| :---: | :---: | :---: | :---: |
| max. Miniature Circuit breaker | 6A B characteristics | 6AB characteristics | 6AB characteristics |
| Terminal capacity solid conductor or flexible conductor with end sleeve | $2 \times 1.5 \mathrm{~mm}^{2}$ | $2 \times 1.5 \mathrm{~mm}^{2}$ | $2 \times 1.5 \mathrm{~mm}^{2}$ |
| Minimum command time | 100 ms | 100 ms | 100 ms |
| Maximum command time | continuous | continuous | continuous |
| Power consumption during operation | 150VA/W | 200VA/W | 300VA/W |
| Total making time | $\leq 500 \mathrm{~ms}$ | $\leq 500 \mathrm{~ms}$ | $\leq 1000 \mathrm{~ms}$ |
| Service life, mechanical operations | 15000 | 10000 | 7500 |
| Maximum operating cycles / hour | 60/h | $50 / \mathrm{h}$ | 40 / h |

$\square$ General and mechanical data MZ

- Screws and torques for MZ1, 2, 3

| MCCB | Screw for connecting cable lug, front connection or <br> bus-bar | torque |
| :--- | :--- | :---: |
| $M Z 1 \ldots . . B$ | --- | --- |
| $M Z 2$ | $M 8 \times 20 /$ hexagon socket screw, key size 6 mm | 11 Nm |
| $M Z 3$ | $M 10 \times 30 /$ open ended wrench, size 17 mm | 40 Nm |


| MCCB | Terminal screw of box-terminal BT or tunnel-terminal TT | torque | Screw for fixing tunnel terminal to MCCB | torque |
| :---: | :---: | :---: | :---: | :---: |
| MZ1..... B | BT, built in, $4-95 \mathrm{~mm}^{2}$, hexagon socket screw/ key size 4 mm | 8 Nm | --- | --- |
| MZ2 | TT, MZ2ZTTO3, $2 \times\left(35-120 \mathrm{~mm}^{2}\right)$, hexagon socket screw/ key size 6 mm | each 30Nm | M8 / hexagon socket screw, key size 6 mm | 11 Nm |
| MZ3 | TT, MZ3ZTT03, built in, $120-240 \mathrm{~mm}^{2}$, hexagon socket screw, key size 8 mm | 35 Nm | M10 / hexagon socket screw, key size 6 mm | 40 Nm |
|  | TT, MZ3ZTT03M2, $2 \times\left(120-240 \mathrm{~mm}^{2}\right)$, hexagon socket screw, key size 8 mm | each 35 Nm | M10 / hexagon socket screw, key size 8mm | 40 Nm |

Connection screws

A) Box terminals at all MZ1 (M8) for bare cables B) Front connection at MZ2 (M8×20) for cable lug C) Front connection at $M Z 3$ ( $M 10 \times 30$ ) for cable lug

Overall and mounting dimensions of fixed type for front connection


Mounting dimensions (mm): 1) Plate mounting, 2) Bar mounting


| Model | $\mathbf{L 1}$ | $\mathbf{L 2}$ | $\mathbf{H 0}$ | $\mathbf{H 1}$ | $\mathbf{H 2}$ | $\mathbf{K}$ | $\mathbf{K 1}$ | $\mathbf{K 2}$ | $\mathbf{G 1}$ | $\mathbf{G 2}$ | $\mathbf{w o}$ | $\mathbf{W 1}$ | $\mathbf{d}(\mathbf{m m})$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $M Z 1$ | 140 | 240 | 72 | 79 | 103 | 15 | 30 | 60 | 56 | 112 | 30 | 90 | 6 |
| $M Z 2$ | 157 | 357 | 82 | 88 | 126 | 17.5 | 35 | 70 | 62.5 | 125 | 35 | 105 | 6 |
| $M Z 3$ | 255 | 474 | 95 | 113 | 168 | 22.5 | 45 | 90 | 100 | 200 | 45 | 140 | 6 |

## Technical data MZ

## General and mechanical data MZ

Cut-out dimensions (mm)


| Model | P 1 | P 2 | R 1 | R 2 | R 3 | R 4 | C 1 | C 2 | C 3 | C 4 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MZ1 | 73 | 80 | 13 | 26 | 46.5 | 93 | 26 | 68 | 50.5 | 101 |
| MZ2 | 83 | 90 | 14.5 | 29 | 54 | 108 | 33 | 78 | 56.5 | 113 |
| $M Z 3$ | 109 | 114 | 26.5 | 53 | 71.5 | 143 | 41.5 | 116 | 108 | 205 |

Wiring diagram - Motor operator MZ.ZM230


Motor-driven mechanism MZ.ZM230

## Protection degree: IP40 <br> Functions:

Reliable insulation; Isolation function indication:
0 (breaking), 1 (making) and free tripping indication; Free releasing of circuit breaker.
Making and breaking the breaker manually or automatically.
Manual operation:
Turn "manual/auto" switch to "manual" position and then turn the handle to make and break the breaker
Automatic operation:
Turn "manual/auto" switch to "auto" position and then push the button to make and break the breaker remotely.
The make/break operation is carried out via pulse or self-retaining type signal control.
Operational range: $85-110 \% \mathrm{U}_{\mathrm{n}}$

General and mechanical data MZ
$\int$ Wiring diagram - Inner accessories


Wiring diagram - Inner accessories


## Inner accessories

## Shunt release MZ.ZS230

$U_{s}=70-110 U_{n}$, circuit breaker reliably operates
Long-time electrification is prohibited
Minimum command time $20-60 \mathrm{~ms}$

## Under-voltage release MZ.ZU230

$U_{s}=35-70 \%$ Un, circuit breaker reliably breaks
$\mathrm{U}_{s} \geq 85 \% \mathrm{U}_{\mathrm{n}}$, circuit breaker from making
Note: With under-voltage release, $U_{s} \geq 85 \%$ Un,
circuit breaker normally makes and breaks

1) Shunt release wiring diagram
2) Under-voltage release wiring diagram

Auxiliary contact "normal" MZAZAN 11
Function: Indication of contacting status
3) Circuit breaker is at breaking status (OFF)
4) Circuit breaker is at making status (ON)

## Technical data MZ

## General and mechanical data MZ

Wiring diagram - Inner accessories

## Auxiliary contact "tripped" MZAZAT 11

5) 


6)


Function: indication of reason for circuit breaker releasing;

- Over-load
- Short-circuit

Operation of under-voltage or shunt-trip releasing
When circuit breaker normally makes and breaks, alarm contact not operates.
After free tripping (or tripping due to failure), alarm contact operates
and after the circuit breaker again normally operates, alarm contact recovers original status.
5) Circuit breaker is at breaking or making status (ON/OFF)
6) Circuit breaker is at free release (or alarming) status (TRIPPED)

Mounting dimensions economic extended rotary handle MZ.ZREE3


Handle mounting (mm)

Manual - Economic extended rotary handle MZ.ZREE


Economic extended rotary handle MZ.ZREE3

## Protection degree: IP30

Functions:
Isolation function indication;
0 (breaking), 1 (making) and free tripping indication;
At "OFF" status, the breaker can be fitted with 1-3 padlocks with a diameter of 5-8 mm (by customer).
This prevents the door of switchgear being opened unwantedly.

| Dimension (mm) | MZ1 | MZ2 | MZ3 |
| :--- | :---: | :---: | :---: |
| A | 14 | 14 | 20 |
| B | 56 | 56 | 60 |
| L1 | 261 | 253 | 253 |
| L2 | 317 | 309 | 313 |

$\triangle$ General and mechanical data MZ

- Mounting dimensions - Direct rotary handle MZ.ZRD



# Direct rotary handle 

Protection degree: IP40
Functions:
Reliable insulations;
Isolation function indication;
0 (breaking), 1 (making) and free tripping indication;
Realize free tripping of circuit breaker;
At "OFF" status, the breaker can be fitted with 1-3 padlocks with a diameter of 5-8 mm (by costumer)

Cut-out for direct rotary handle


| Model | W1 | W3 | W4 | $\mathbf{L 7}$ | $\mathbf{L 8}$ | $\mathbf{L 9}$ | $\mathbf{H 8}$ | $\mathbf{H 9}$ | P3 | R6 | R7 | C5 | C6 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MZ1, MZ2 | 35 | 93 | 9.25 | 39 | 73 | 9 | 125 | 159 | 90 | 48 | 96 | 40.5 | 76 |
| MZ3 | 45 | 122 | 5 | 69 | 121 | 24.5 | 148 | 198 | 115 | 62 | 124 | 70.5 | 124 |

Mechanical interlock MZ.ZJM


- Mechanical interlock - dimensions (mm)

| Model | A | B |
| :---: | :---: | :---: |
| MZ1 | 120 | 112 |
| $M Z 2$ | 140 | 125 |
| $M Z 3$ | 143 | 201 |

## Technical data MZ

Dimensions MZ1, MZ2, MZ3 - accessories
MZ1ZBT03 Terminal for cable connection


MZ2ZTT03 Terminal for cable connection


Dimensions MZ1, MZ2, MZ3 - accessories
MZ3ZTT03 Terminal for cable connection


|  | $\mathrm{s}[\mathrm{mm}]$ | Poles | L 1 | L 2 | L 3 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{MZ2}$ | 5 | 3 | S | S | S |
| $\mathrm{MZ3}$ | 8 |  | Z | S | Z |

## Technical data MZ

Dimensions MZ1, MZ2, MZ3 - accessories
MZ3ZTT03M2 Terminal for cable connection


Front connecting bars


- Tripping characteristics MZ
- MZ1 16/20A



## Technical data MZ

- Tripping characteristics MZ
- MZ1 25/32A

- Tripping characteristics MZ
- MZ1 40/50A



## Technical data MZ

- Tripping characteristics MZ

■ MZ1 63/80/100A


- Tripping characteristics MZ

■ MZ1 125A


## Technical data MZ

- Tripping characteristics MZ
- MZ2 160A

- Tripping characteristics MZ

■ MZ2 200/250A


## Technical data MZ

- Tripping characteristics MZ
- MZ3 250/320/400

- Tripping characteristics MZ

MZ3 400/630A (electronic release)


Index in alphabetical order

A
ACB MO Size 1-3-pole
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## General Terms of Delivery

issued by the Austrian Electrical and Electronics Industry Association (FEEI)
of at most one half of one per cent, a total of no more than $5 \%$, however, of the value of that part of the goods to be delivered which cannot be used on account of Seller's failure to deliver an essential part thereof, provided the Buyer has suffered a damage to the aforesaid extent. Assertion of rights of damages exceeding this extent is precluded.
6. Passage of risk and place of performance
6.1. Unless otherwise agreed, the delivery of goods is considered sold EXW in accordance with INCOTERMS® 2010.
6.2. For services, the place of performance shall be the place indicated in the written order confirmation, secondary to that at which the service is actually rendered by Seller. The risk in respect of such services or any part thereof shall pass to Buyer at the time the services have been rendered.
7. Payment
7.1. Unless otherwise agreed, one third of the purchase price shall fall due at the time of receipt by Buyer of the order confirmation of Seller, one third after half the delivery period has elapsed and the balance at the time of delivery. Irrespective thereof the turnover tax comprised in the amount of the invoice shall be paid within 30 days of the invoice date. If bankruptcy proceedings are instituted against the assets of Buyer or if an application for bankruptcy proceedings is not granted for insufficiency of assets, deliveries shall only be made against cash in advance.
7.2. In the case of part settlements the individual part payments shall fall due upon receipt of the respective invoices. The same shall apply to amounts invoiced for additional deliveries or resulting from additional agreements beyond the scope of the original contract, irrespective of the terms of payment agreed upon for the principal delivery.
7.3. Payment shall be made without any discount free Seller's domicile in the agreed currency. Drafts and checks shall be accepted on account of payment only, with all interest, fees and charges in connection therewith (such as col- lection and discounting charges) to be borne by Buyer.
7.4. Buyer shall not be entitled to withhold or offset payment on the grounds of any warranty claims or other counterclaims.
7.5. Payment shall be deemed to have been effected on the date at which the amount in question is at Seller's disposal.
7.6. If Buyer fails to meet the terms of payment or any other obligation arising from this or other legal transactions, Seller may without prejudice to his other rights a) suspend performance of his own obligations until payments have been made or other obligations fulfilled, and exercise his right to extend the period of delivery to a reasonable extent,
b) call in debts arisen from this or any other legal transactions and charge default interest amounting to $1.25 \%$ per month plus turnover tax for these amounts beginning with the due dates, unless Seller proves costs exceeding this.
c) only perform other legal transactions against cash in advance in the case of qualified insolvency, in other words, following two delays in payment.
In any case Seller has the right to invoice all expenses arising prior to a lawsuit, especially reminder charges and lawyer's fees.
7.7. Discounts or bonuses are subject to complete payment in due time.
7.8. Seller retains title to all goods delivered by him until receipt of all amounts invoiced including interests and charges. Buyer herewith assigns his claim out of a resale of conditional commodities, even if they are processed, transformed or combined with other commodities, to Seller to secure the latter's purchase money claim. In the case of resale granting respite Buyer shall have the power of disposal of the product under retention of ownership only with the proviso that upon reselling Buyer notifies the secondary buyer of the assignment for security or enters the assignment in his account books. Upon request Buyer has to notify the assigned claim and the debtor thereof to Seller, and to make all information and material required for his debt collection available and to notify the assignment to the third-party debtor. If the goods are attached or otherwise levied upon, Buyer shall draw attention to Sellers title and immediately inform Seller of the attachment or levy.
8. Warranty and acceptance of obligation to repair defects
8.1. Once the agreed terms of payment have been complied with, Seller shall, subject to the conditions hereunder, remedy any defect existing at the time of acceptance of the article in question whether due to faulty design, material or manufacture, that impairs the functioning of said article. From particulars appearing in catalogues, folders, promotional literature as well as written or oral statements which have not been included in the agreement no warranty obligations may be deduced.
8.2. Unless special warranty periods operate for individual items the warranty period shall be 12 months. These conditions shall also apply to any goods supplied, or services rendered in respect of goods supplied, that are firmly attached to buildings or the ground. The warranty period begins at the point of passage of risk acc. to paragraph 6 .
8.3. For improved or exchanged parts, the warranty period shall start again, but shall end in any case 6 months after the original warranty period has expired.
8.4. If delivery or the performance of services is delayed for reasons outside the control of Seller, the warranty period shall begin 2 weeks after Seller is ready to deliver or perform services.

1. Scope
1.1. These General Terms shall govern legal transactions between business enterprises, namely the delivery of commodities and, mutatis mutandis, the rendering of services. Software transactions are with precedence governed by the Software Conditions issued by the Austrian Electrical and Electronics Industry Association, assembly work by the Terms and Conditions for Assembly Work ssued by the Austrian Power Current and Light Current Engineering Industry and/or (where applicable) the Terms and Conditions for the Assembly of Electrical Equipment used in Medicine issued by the Austrian Electrical and Electronics Industry (the current versions are available at www.feei.at).
.2. Any departure from the terms and conditions mentioned in 1.1 above shall be valid only if expressly accepted in writing by Seller
2. Submission of offers
2.1. Seller's offers shall be deemed offers without engagement
2.2. Tender documents and project documentation must not be duplicated nor made available to third parties without the permission of Seller. They may be claimed back at any time and shall be returned to Seller immediately if the order is placed elsewhere.
3. Conclusion of contract
3.1. The contract shall be deemed concluded upon written confirmation by Seller of an order received or upon dispatch of a delivery
3.2. Particulars appearing in catalogues, folders etc. as well as any oral or written statements shall only be binding if Seller makes express reference to them in the confirmation of the order.
3.3. Subsequent amendments of or additions to the contract shall be subject to written confirmation.
4. Prices
4.1. Prices shall be quoted ex works or ex Seller's warehouse without VAT, packing and packaging, loading, disassembly, take-back and proper recycling and disposal of waste electrical and electronic equipment for commercial purposes as defined by the Ordinance Regulating the Handling of Waste Electrical Equipment. Buyer shall be liable for any and all charges, taxes or other duties levied in respect of delivery. If the terms of delivery include transport to a destination designated by Buyer, transport costs as well as the cost of any transport insurance desired by Buyer shall be borne by the latter. Delivery does not, however, include unloading and subsequent handling. Packaging materials will be taken back only by express agreement.
4.2. Seller reserves the right to modify prices if the order placed is not in accordance with the offer submitted.
4.3. Prices are based on costs obtaining at the time of the first quotation. In the event that the costs have increased by the time of delivery, Seller shall have the right to adjust prices accordingly.
4.4. In carrying out repair orders, Seller shall provide all services deemed expedient and shall charge Buyer for the same on the basis of the work input and/or expenditures required. The same holds for any services or additional services the expediency of which becomes apparent only as the repair order is executed. In such an event special notification of Buyer shall not be required.
4.5. Expenses for estimates of costs of repair and maintenance or for expert valuations shall be invoiced to Buyer
5. Delivery
5.1. The period allowed for delivery shall commence at the latest of the following dates: a) the date of order confirmation by Seller;
b) the date of fulfilment by Buyer of all the conditions, technical, commercial and other, for which he is responsible;
c) the date of receipt by Seller of a deposit or security due before delivery of the goods in question
5.2. Buyer shall obtain whatever licences or approvals may be required from authorities or third parties for the construction of plant and equipment. If the granting of such licences or approvals is delayed for any reason the delivery period shall be extended accordingly.
5.3. Seller may carry out, and charge Buyer for, partial or advance deliveries. If delivery on call is agreed upon, the commodity shall be deemed called off at the latest one year after the order was placed.
5.4. In case of unforeseeable circumstances or circumstances beyond the parties control, such as all cases of force majeure, which impede compliance with the agreed period of delivery, the latter shall be extended in any case for the duration of such circumstances; these include in particular armed conflicts, official interventions and prohibitions, delays in transport or customs clearance, damages in transit, energy shortage and raw materials scarcity, labour disputes, and default on performance by a major component supplier who is difficult to replace. The aforesaid circumstances shall be deemed to prevail irrespective of whether they affect Seller or his subcontractor(s).
5.5. If a contractual penalty for default of delivery was agreed upon by contracting parties when the contract was concluded, it shall be executed as follows, and any deviations concerning individual items shall not affect the remaining provisions: Where delay in performance can be shown to have occurred solely through the fault of Seller, Buyer may claim for each completed week of delay an indemnity
8.5. The foregoing warranty obligations are conditional upon the Buyer giving within a reasonable period notice in writing of any defects that have occurred and such notice reaching the Seller. Buyer shall prove within a reasonable period the presence of a defect, in particular he shall make available within a reasonable period to Seller all material and data in his possession. Upon receipt of such notice Seller shall, in the case of a defect covered by the warranty under 8.1 above, have the option to replace the defective goods or defective parts thereof or else to repair them on Buyer's premises or have them returned for repair, or to grant a fair and reasonable price reduction.
8.6. Any expenses incurred in connection with rectifying defects (e. g. expenses for assembly and disassembly, transport, waste disposal, travel and siteto-quarters time) shall be borne by Buyer. For warranty work on Buyer's premises Buyer shall make available free of charge any assistance, hoisting gear, scaffolding and sundry supplies and incidentals that may he required. Replaced parts shall become the property of Seller.
8.7. If an article is manufactured by Seller on the basis of design data, design drawings, models or other specifications supplied by Buyer, Seller's warranty shall be restricted to non-compliance with Buyers specifications.
8.8. Seller's warranty obligation shall not extend to any defects due to assembly and installation work not undertaken by Seller, inadequate equipment, or due to noncompliance with installation requirements and operating conditions, overloading of parts in excess of the design values stipulated by Seller, negligent or faulty handling or the use of inappropriate materials, nor for defects attributable to material supplied by Buyer. Nor shall Seller be li- able for damage due to acts of third parties, atmospheric discharges. Excess voltage and chemical influences. The warranty does not cover the replacement of parts subject to natural wear and tear. Seller accepts no warranty for the sale of used goods.
8.9. The warranty shall lapse immediately if, without written consent of Seller, Buyer himself or a third party not expressly authorised undertakes modifications or repairs on any items delivered.
8.10. Claims acc. to $\S 933 \mathrm{~b}$ ABGB are struck by the statute of limitation with lapse of the period mentioned under point 8.2
8.11. The provisions of sub-paragraphs 8.1 to 8.10 shall apply, mutatis mutandis, to all cases where the obligation to repair defects has to be accepted for other reasons laid down by law.
6. Withdrawal from contract
9.1. Buyer may withdraw from the contract only in the event of delays caused by gross negligence on the part of Seller and only after a reasonable period of grace has elapsed. Withdrawal from contract shall be notified in writing by registered mail.
9.2. Irrespective of his other rights Seller shall be entitled to withdraw from the contract
a) if the execution of delivery or the inception or continuation of services to be rendered under the contract is made impossible for reasons within the responsibility of Buyer and if the delay is extended beyond a reasonable period of grace allowed;
b) if doubts have arisen as to Buyer's creditworthiness and if same fails, on Seller's request, to make an advance payment or to provide adequate security prior to delivery, or
c) if, for reasons mentioned in 5.4 , the period allowed for delivery is extended by more than half of the period originally agreed or by at least 6 months, or
d) if Buyer does not or does not properly meet the obligations imposed as per paragraph 13.
9.3. For the reasons given above withdrawal from the contract shall also be possible in respect of any outstanding part of the delivery or service contracted for.
9.4. If bankruptcy proceedings are instituted against Buyer or an application for bankruptcy proceedings is not granted for insufficiency of assets, Seller may withdraw from the contract without allowing a period of grace. If this withdrawal is taken, it shall take effect immediately upon the decision that the business will not be continued. If the business will be continued, a withdrawal shall not take effect until 6 months after the institution of bankruptcy proceedings or after an application for bankruptcy proceedings has not been granted for insufficiency of assets. In any case, the contract shall be terminated immediately unless the bankruptcy law to which Buyer is subject conflicts with this or if termination of the contract is necessary to prevent significant damages to Seller.
9.5. Without prejudice to Seller's claim for damages including expenses arising prior to a lawsuit, upon withdrawal from contract any open accounts in respect of deliveries made or services rendered in whole or in part shall be settled according to contract This provision also covers deliveries or services not yet accepted by Buyer as well as any preparatory acts performed by Seller. Seller shall, however, have the option alternatively to require the restitution of articles already delivered.
9.6. Withdrawal from contract shall have no consequences other than those stipulated above.
9.7. The assertion of claims on the ground of laesio enormis, error, or lapse of purpose by the Buyer is excluded.
7. Disposal of waste electrical and electronic equipment
10.1. The Buyer of electrical/electronic equipment for commercial purposes, incorporated in Austria, is responsible for the financing of the collection and treatment of waste electrical and electronic equipment as defined by the Ordinance Regulating the Handling of Waste Electrical Equipment, if he is himself the user of the electrical/electronic equipment. If the Buyer is not the end user, he shall transfer the full financial commitment to his customer by agreement and furnish proof thereof to the Seller.
10.2. The Buyer incorporated in Austria shall ensure that the Seller is provided with all information necessary to meet the Seller's obligations as manufacturer/ importer, particularly according to $\S \S 11$ and 24 of the Ordinance Regulating the Handling of Waste Electrical Equipment and the Waste Management Act.
10.3. The Buyer incorporated in Austria is liable vis-à-vis the Seller for any damage and other financial disadvantages incurred by Seller due to Buyer's failure to meet or fully meet his financing commitment or any other obligations according to Article 10. The Buyer shall bear the burden of proof of performance of this obligation.
8. Seller's liability
11.1. Outside the scope of the Product Liability Act, Seller shall be liable only if the damage in question is proved to be due to intentional acts or acts of gross negligence, within the limits of statutory provisions. Seller's total liability in cases of gross negligence is limited to the net value of the order or EUR 500,000, depending on which amount is lower.
11.2. For each incident of damage, Seller shall be liable for $25 \%$ of the net value of the order or EUR 125,000 , depending on which amount is lower.
11.3. Seller shall not be liable for damage due to acts of ordinary negligence nor for consequential damages or damages for pure economic loss, indirect damages, loss of production, financing costs, costs for replacement energy, loss of energy, data or information, loss of profits, loss of savings or interest, or damage resulting from third-party claims against buyer.
11.4. Seller shall not be liable for damages in case of non-compliance with instructions for assembly, commissioning and operation (such as are contained in instructions for use) or non-compliance with licensing requirements.
11.5. Claims that exceed the contractual penalties that were agreed on are excluded from the respective title. The provisions of paragraph 11 apply exclusively for all claims by Buyer against Seller, regardless of the legal basis or entitlement, and also apply to all employees, subcontractors and subsuppliers of Seller.

## 12. Industrial property rights and copyright

12.1. Buyer shall indemnify Seller and hold him harmless against any claims for any infringement of industrial property rights raised against him if Seller manufactures an article pursuant to any design data, design drawings, models or other specifications made available to him by Buyer.
12.2. Design documents such as plans and drawings and other technical specifications as well as samples, catalogues, prospectuses, pictures and the like shall remain the intellectual property of Seller and are subject to the relevant statutory provisions governing reproduction, imitation, competition etc. The provisions of 2.2 above shall also cover design documents.
13. Compliance with export provisions
13.1. When passing on goods delivered by Seller to third parties (as well as any related documentation, regardless of the method of provision or the services performed by Seller [including technical support of any kind]), Buyer must comply with the applicable regulations of national and international (re-)export provisions. In any case, Buyer must observe the (re-)export provisions of Seller's country of residence, the European Union and the United States of America
13.2. If necessary for export controls, Buyer must provide Seller with all necessary information immediately after being requested to do so, for example, information about the final recipient, final destination and purpose of the goods or services.
14. General

Should individual provisions of the contract or of these provisions be invalid the validity of the other provisions shall not be affected. The invalid provision shall be replaced by a valid one, which comes as close to the target goal as possible.

## 15. Jurisdiction and applicable law

Any litigations arising under the contract including litigations over the existence or non-existence thereof shall fall within the exclusive jurisdiction of the competent court at Sellers domicile; the competent court of the Bezirksgericht Innere Stadt, Vienna, shall have exclusive jurisdiction if Seller is domiciled in Vienna. The contract is subject to Austrian law excluding the referral rules. Application of the UN Convention on Contracts for the International Sale of Goods is renounced.

## 16. Proviso

The execution of the contract by Seller is subject to the condition that there are no obstacles standing in the way of execution due to national or international (re-)export provisions, and especially no embargos and/or other sanctions.

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[^0]:    1) Conventional "non-tripping current"; $I_{n t}=1.05 I_{n} ; \dagger>1 \mathrm{~h}$
    2) Conventional tripping current; $I_{t}=1.3 I_{n} ; \dagger<1 \mathrm{~h}$
    3) $0.8 \times$ nominal short current release
    4) $1.2 \times$ nominal short current release
[^1]:    1) Conventional "non-tripping current"; $I_{n t}=1.05 I_{n} ; \dagger>1 h ;$ from $80 \mathrm{~A} t>2 \mathrm{~h}$
    2) Conventional tripping current; $I_{t}=1.3 \mathrm{I}_{\mathrm{n} ;} \mathrm{t}<1 \mathrm{~h}$; from $80 \mathrm{~A} \mathrm{t}<2 \mathrm{~h}$
    3) $0.8 \times$ nominal short current release
    4) $1.2 \times$ nominal short current release
[^2]:    Order no. blue: on stock, usually ready for delivery on the day of order

[^3]:    Sthpaction Order no. blue: on stock, usually ready for delivery on the day of order

[^4]:    Sthpaik
    Order no. blue: on stock, usually ready for delivery on the day of order

[^5]:    Stнрадк
    Order no. blue: on stock, usully ready for delivery on the day of order

[^6]:    Sthpatimion Order no. blue: on stock, usually ready for delivery on the day of order

[^7]:    Sthpack

[^8]:    Order no. blue: on stock, usually ready for delivery on the day of order

[^9]:    1) 3-pole
    2) 4 -pole
    3) max. 3 U-locks
    4) extended
    5) test
    6) retracted
[^10]:    000 Order no. blue: on stock, usually ready for delivery on the day of order

[^11]:    Order no. blue: on stock, usually ready for delivery on the day of order

[^12]:    Notes:
    ${ }^{1)}$ The current heat loss per pole ratings refer to the maximum current rating for the particular frame size.
    ${ }^{2)}$ For 3-pole protection devices, the AC3 data does not apply

[^13]:    1) Minimum distance, door coupling rotary handle and door pivot point
[^14]:    1) max. 3 padlocks
[^15]:    1) Minimum distance, door coupling rotary handle and door pivot point
[^16]:    1) Minimum distance, door coupling rotary handle and door pivot point
[^17]:    X = Max. switch clearance

[^18]:    1) Mounting space for removing of arcing chamber covers
    2) Slots ( 4 mm wide, 5 mm deep) for supporting phase partitions in the system
    3) Control circuit plug, screw terminals
    4) Control circuit plug, spring terminals
    5) Dimension to inside of closed switchgear door
    6) Fixing points for the circuit-breaker in the system
    7) Interlock in OFF (optional accessory)
    8) Key operation (optional accessory)
    9) Connection area
[^19]:    Note: ${ }^{1 /}$ The following are not suitable for IT networks: MO-4 ETU 15, 25 without overload protection in 4th pole.

[^20]:    Noles.
    ${ }^{11}$ Time of mechanical bending until contact separation + static average of the arc quenching time.
    ${ }^{2)}$ Time of mechanical bending until main contact closes.
    ${ }^{3)}$ Time from application of voltage until closing of main contacts. ON time with overexcited closing release ( $5 \leq$ ED): 50 ms
    ${ }^{4)}$ Time from applying voltage to separation of contact + static average of arcing.
    ${ }^{5)}$ Except releases for ETU 15 system protection: 85 ms .
    ${ }^{6)}$ 'Maintenance' means: Replace main switch and arcing chamber elements

[^21]:    Conductor cross-sections: Standard connection, spring-loaded connections

[^22]:    Standard design, horizontal connection $\leq 5000$ A

[^23]:    Notes: T - Total discrimination

