Datasheet: Miniature circuit breaker (MCB), AMPARO series 10kA


SCHRACK-INFO

- Contact position indicator
- Lift and clamp terminals on both sides
- Terminal guide for secure connection
- Terminal cross-section: $1-25 \mathrm{~mm}^{2}$
- Snap-on mounting for DIN rail EN 50022
- Technical data

| Standards: | EN $60898-1 /$ IEC $60898-1$ |
| :--- | :--- |
| Rated voltage (AC) | $230 / 400-240 / 415 \mathrm{~V}$ |
| Rated frequency (AC) | $50 / 60 \mathrm{~Hz}$ |
| Rated current $\mathrm{I}_{\mathrm{n}}$ | $1,2,3,4,6,10,13,16,20,25,32,40,50,63 \mathrm{~A}$ |
| Tripping characteristics: | $\mathrm{B}, \mathrm{C}, \mathrm{D}$ |
| Rated breaking capacity: | 10 kA acc. to IEC/EN 60898 |
| Energy limiting class | 3 |
| Rated impulse withstand voltage $(1,2 / 50) \mathrm{U}_{\text {imp }}$ | 6 kV |
| Dieelectric test voltage at ind. Freq. For 1 min. | 2 kV |
| Polution degree | 2 |


| Total powerloss at $I_{n}$ |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1P | $1+\mathrm{N}$ | 2P | 3P | $3+\mathrm{N}$ |
| 1 A | 2.0 W | 4.0W | 4.0W | 6.0W | 8.0W |
| 2A | 2.0 W | 4.0W | 4.0W | 6.0W | 8.0W |
| 3A | 2.0 W | 4.0W | 4.0W | 6.0 W | 8.0W |
| 4A | 2.0 W | 4.0W | 4.0W | 6.0W | 8.0W |
| 6A | 2.0 W | 4.0W | 4.0W | 6.0W | 8.0W |
| 10A | 2.0 W | 4.0W | 4.0W | 6.0W | 8.0W |
| 13A | 3.5 W | 7.0 W | 7.0 W | 10.5 W | 14.0 W |
| 16A | 3.5 W | 7.0 W | 7.0 W | 10.5 W | 14.0 W |
| 20A | 4.0 W | 7.0 W | 7.0 W | 11.0 W | 14.0 W |
| 25A | 4.0 W | 7.0 W | 7.0 W | 11.0 W | 14.0 W |
| 32A | 4.0 W | 7.0 W | 7.0 W | 11.0 W | 14.0 W |
| 40A | 5.0 W | 10.0 W | 10.0 W | 15.0 W | 20.0 W |
| 50A | 5.0 W | 10.0 W | 10.0 W | 15.0 W | 20.0 W |
| 63A | 5.0 W | 10.0 W | 10.0 W | 15.0 W | 20.0 W |
| Internal resistance |  |  |  |  |  |
|  |  |  | $\begin{aligned} & \hline 459.800 \mathrm{~m} \Omega \\ & 94.007 \mathrm{~m} \Omega \\ & 51.787 \mathrm{~m} \Omega \\ & 9.989 \mathrm{~m} \Omega \\ & 6.310 \mathrm{~m} \Omega \\ & 3.832 \mathrm{~m} \Omega \\ & 2.671 \mathrm{~m} \Omega \\ & 2.009 \mathrm{~m} \Omega \\ & 1.660 \mathrm{~m} \Omega \\ & 1.226 \mathrm{~m} \Omega \\ & 1.055 \mathrm{~m} \Omega \\ & \hline \end{aligned}$ |  |  |
| Electrical endurance |  |  | > 4.000 operating cycles |  |  |
| Mechanical endurance |  |  | > 20.000 operating cycles |  |  |
| Protection degree |  |  | IP 20 |  |  |
| Reference temperature |  |  | $30^{\circ} \mathrm{C}$ |  |  |
| Tripping temperature |  |  | $-5^{\circ} \mathrm{C}$ to $+40^{\circ} \mathrm{C}$ |  |  |
| Operating temperature |  |  | $-25^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |  |  |
| Terminal connection type |  |  | Cable/ U-type busbar / Pin-type busbar |  |  |
| Connection |  |  | From top and bottom |  |  |
| Terminal cross-section |  |  | 1-25 mm ${ }^{2}$ |  |  |
| Terminal tightening torque |  |  | 2.5 Nm |  |  |
| Terminal size for busbar |  |  | $10 \mathrm{~mm}^{2}$ |  |  |
| Mounting |  |  | on DIN rail EN 60715 ( 35 mm ) by means of fast clip device |  |  |
| Mounting position |  |  | Any |  |  |

Tripping curves

## Characteristic B



Characteristic D


Characteristic C

$1^{2} t$


Influence of ambient temperature on tripping current

|  | $-35^{\circ} \mathrm{C}$ | $-30^{\circ} \mathrm{C}$ | $-20^{\circ} \mathrm{C}$ | $-10^{\circ} \mathrm{C}$ | $0^{\circ} \mathrm{C}$ | $10^{\circ} \mathrm{C}$ | $20^{\circ} \mathrm{C}$ | $\mathbf{3 0}{ }^{\circ} \mathbf{C}$ | $40^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | $60^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{1 A}$ | 1.30 | 1.26 | 1.23 | 1.19 | 1.15 | 1.11 | 1.05 | $\mathbf{1 . 0 0}$ | 0.96 | 0.93 | 0.88 | 0.83 |
| 2A | 2.60 | 2.52 | 2.46 | 2.38 | 2.28 | 2.20 | 2.08 | $\mathbf{2 . 0 0}$ | 1.92 | 1.86 | 1.76 | 1.66 |
| 3A | 3.90 | 3.78 | 3.69 | 3.57 | 3.42 | 3.30 | 3.12 | $\mathbf{3 . 0 0}$ | 2.88 | 2.79 | 2.64 | 2.49 |
| 4A | 5.20 | 5.04 | 4.92 | 4.76 | 4.56 | 4.40 | 4.16 | $\mathbf{4 . 0 0}$ | 3.84 | 3.76 | 3.52 | 3.32 |
| 6A | 7.80 | 7.56 | 7.38 | 7.14 | 6.84 | 6.60 | 6.24 | $\mathbf{6 . 0 0}$ | 5.76 | 5.64 | 5.28 | 4.98 |
| 10A | 13.20 | 12.70 | 12.50 | 12.00 | 11.50 | 11.10 | 10.60 | $\mathbf{1 0 . 0 0}$ | 9.60 | 9.30 | 8.90 | 8.40 |
| 16A | 21.12 | 20.48 | 20.00 | 19.20 | 18.40 | 17.76 | 16.96 | $\mathbf{1 6 . 0 0}$ | 15.36 | 14.88 | 14.24 | 13.44 |
| 20A | 26.40 | 25.60 | 25.00 | 24.00 | 23.00 | 22.20 | 21.20 | $\mathbf{2 0 . 0 0}$ | 19.20 | 18.60 | 17.80 | 16.80 |
| 25A | 33.00 | 32.00 | 31.25 | 30.00 | 28.75 | 27.75 | 26.50 | $\mathbf{2 5 . 0 0}$ | 24.00 | 23.25 | 22.25 | 21.00 |
| 32A | 42.56 | 41.28 | 40.00 | 38.72 | 37.12 | 35.52 | 33.92 | $\mathbf{3 2 . 0 0}$ | 30.72 | 29.76 | 28.16 | 26.88 |
| 40A | 53.20 | 51.20 | 50.00 | 48.00 | 46.40 | 44.80 | 42.40 | $\mathbf{4 0 . 0 0}$ | 38.40 | 37.20 | 35.60 | 33.60 |
| 50A | 67.00 | 65.50 | 63.00 | 60.50 | 58.00 | 56.00 | 53.00 | $\mathbf{5 0 . 0 0}$ | 48.00 | 46.50 | 44.00 | 41.50 |
| 63A | 83.79 | 81.90 | 80.01 | 76.86 | 73.71 | 70.56 | 66.78 | $\mathbf{6 3 . 0 0}$ | 60.48 | 58.90 | 55.44 | 52.29 |

Short-Circuit Selectivity D/DO - Back up fuse Characteristic gG/gL

|  | $\mathrm{I}_{\mathrm{N}}$ | Supply: Fuse Characteristic gG/gL |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 16A | 20A | 25A | 35A | 50A | 63A | 80A | 100A |
| MCB, <br> AMPARO series Characteristic B | $\leq 2 \mathrm{~A}$ | 0,5 kA | 0,8 kA | 1,6 kA | 10,0 kA | 10,0 kA | 10,0 kA | 10,0 kA | 10,0 kA |
|  | 3A | 0,5 kA | 0,8 kA | $1,4 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA | 10,0 kA | 10,0 kA |
|  | 4A | 0,5 kA | 0,6 kA | $1,0 \mathrm{kA}$ | 3,6 kA | $10,0 \mathrm{kA}$ | 10,0 kA | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 6A | 0,5 kA | 0,6 kA | 0,9 kA | 1,8 kA | 3,2 kA | $7,4 \mathrm{kA}$ | 10,0 kA | 10,0 kA |
|  | 10A | - | 0,5 kA | 0,8 kA | 1,4 kA | 2,2 kA | $3,9 \mathrm{kA}$ | 6,0 kA | $10,0 \mathrm{kA}$ |
|  | 13A | - | 0,5 kA | 0,7 kA | 1,3 kA | 2,0 kA | 3,6 kA | $5,4 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 16A | - | - | 0,6 kA | 1,2 kA | 1,9 kA | $3,2 \mathrm{kA}$ | 4,6 kA | $8,4 \mathrm{kA}$ |
|  | 20A | - | - | - | 1,2 kA | 1,8 kA | $3,1 \mathrm{kA}$ | 4,4 kA | $4,6 \mathrm{kA}$ |
|  | 25A | - | - | - | 1,2 kA | 1,8 kA | 3,0 kA | 4,2 kA | $4,1 \mathrm{kA}$ |
|  | 32A | - | - | - | - | 1,7 kA | 2,8 kA | $3,9 \mathrm{kA}$ | $3,8 \mathrm{kA}$ |
|  | 40A | - | - | - | - | - | 2,7 kA | 3,8 kA | 3 kA |
|  | 50A | - | - | - | - | - | 2,5 kA | 3,5 kA | 2,6 kA |
|  | 63A | - | - | - | - | - | - | - | 2,4 kA |


|  | $\mathrm{I}_{\mathrm{N}}$ | Supply: Fuse Characteristic gG/gL |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 16A | 20A | 25A | 35A | 50A | 63A | 80A | 100A |
| MCB, <br> AMPARO series Characterisric C | $\leq 2 \mathrm{~A}$ | 0,5 kA | 0,8 kA | 1,6 kA | 10,0 kA | 10,0 kA | 10,0 kA | 10,0 kA | 10,0 kA |
|  | 3A | 0,5 kA | 0,8 kA | 0,9 kA | 2,2 kA | $4,5 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA | 10,0 kA |
|  | 4A | 0,5 kA | $0,6 \mathrm{kA}$ | 0,8 kA | 1,8 kA | $3,6 \mathrm{kA}$ | 9,7 kA | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 6A | 0,5 kA | 0,5 kA | 0,6 kA | 1,4 kA | $2,4 \mathrm{kA}$ | $5,5 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 10A | - | 0,5 kA | 0,6 kA | 1,3 kA | $2,0 \mathrm{kA}$ | $3,6 \mathrm{kA}$ | $5,4 \mathrm{kA}$ | 10,0 kA |
|  | 13A | - | - | - | 1,3 kA | $1,9 \mathrm{kA}$ | $3,3 \mathrm{kA}$ | $5,0 \mathrm{kA}$ | 9,4 kA |
|  | 16A | - | - | - | 1,2 kA | $1,8 \mathrm{kA}$ | $3,2 \mathrm{kA}$ | $4,4 \mathrm{kA}$ | 8,0 kA |
|  | 20A | - | - | - | 1,2 kA | $1,8 \mathrm{kA}$ | $3,1 \mathrm{kA}$ | $4,1 \mathrm{kA}$ | 7,0 kA |
|  | 25A | - | - | - | - | 1,7 kA | $2,8 \mathrm{kA}$ | $3,8 \mathrm{kA}$ | 6,5 kA |
|  | 32A | - | - | - | - | - | 2,7 kA | $3,7 \mathrm{kA}$ | 6,2 kA |
|  | 40A | - | - | - | - | - | - | $3,5 \mathrm{kA}$ | 5,9 kA |
|  | 50A | - | - | - | - | - | - | - | 5,5 kA |
|  | 63A | - | - | - | - | - | - | - | - |


|  | $\mathrm{I}_{\mathrm{N}}$ | Supply: Fuse Characteristic gG/gl |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 16A | 20A | 25A | 35A | 50A | 63A | 80A | 100A |
| MCB, <br> AMPARO series <br> Characteristic D | $\leq 2 \mathrm{~A}$ | 0,5 kA | 0,6 kA | 1,0 kA | 2,8 kA | $5,8 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA | 10,0 kA |
|  | 3A | 0,5 kA | 0,6 kA | 0,9 kA | 2,3 kA | 4,3 kA | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 4A | 0,5 kA | 0,6 kA | 0,9 kA | 2,0 kA | $3,8 \mathrm{kA}$ | 9,5 kA | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 6A | - | 0,5 kA | 0,7 kA | 1,5 kA | 2,6 kA | $5,3 \mathrm{kA}$ | $9,1 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 10A | - | - | 0,7 kA | 1,2 kA | 1,9 kA | $3,4 \mathrm{kA}$ | $5,0 \mathrm{kA}$ | 9,5 kA |
|  | 13A | - | - | - | 1,2 kA | 1,8 kA | $3,2 \mathrm{kA}$ | $4,6 \mathrm{kA}$ | 8,6 kA |
|  | 16A | - | - | - | - | 1,6 kA | 3,2 kA | 4,4 kA | 8,0 kA |
|  | 20A | - | - | - | - | 1,5 kA | 2,5 kA | $3,5 \mathrm{kA}$ | 6,7 kA |
|  | 25A | - | - | - | - | - | 2,4 kA | $3,4 \mathrm{kA}$ | 6,2 kA |
|  | 32A | - | - | - | - | - | - | 2,8 kA | $5,0 \mathrm{kA}$ |
|  | 40A | - | - | - | - | - | - | - | 4,8 kA |
|  | 50A | - | - | - | - | - | - | - | - |
|  | 63A | - | - | - | - | - | - | - | - |

Short-Circuit Selectivity NH - Back up fuse Characteristic gG/gL

|  | $\mathrm{I}_{\mathrm{N}}$ | Supply: Fuse Characteristic gG/gL |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 16A | 20A | 25A | 35A | 40A | 50A | 63A | 80A | 100A | 125A | 160A |
| MCB, | $\leq 2 \mathrm{~A}$ | 0,5 kA | 0,5 kA | 1,0 kA | $10,0 \mathrm{kA}$ | 10,0 kA | 10,0 kA | 10,0 kA | 10,0 kA | $10,0 \mathrm{kA}$ | 10,0 kA | 10,0 kA |
|  | 3A | 0,5 kA | 0,5 kA | 0,9 kA | 8,0 kA | $10,0 \mathrm{kA}$ | 10,0 kA | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA |
| AMPARO series | 4A | 0,5 kA | 0,5 kA | 0,8 kA | 2,3 kA | 4,3 kA | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA |
| Characteristic B | 6A | 0,5 kA | 0,5 kA | 0,7 kA | 1,5 kA | 2,0 kA | $3,3 \mathrm{kA}$ | $4,3 \mathrm{kA}$ | $7,6 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 10A | - | 0,5 kA | 0,6 kA | 1,2 kA | 1,5 kA | 2,2 kA | $2,7 \mathrm{kA}$ | $4,0 \mathrm{kA}$ | 9,0 kA | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 13A | - | 0,5 kA | 0,6 kA | $1,1 \mathrm{kA}$ | $1,4 \mathrm{kA}$ | $2,1 \mathrm{kA}$ | $2,6 \mathrm{kA}$ | $3,8 \mathrm{kA}$ | $7,9 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 16A | - | - | 0,5 kA | $1,0 \mathrm{kA}$ | 1,3 kA | 1,9 kA | $2,4 \mathrm{kA}$ | $3,4 \mathrm{kA}$ | 6,4 kA | 9,3 kA | 10,0 kA |
|  | 20A | - | - | - | $1,0 \mathrm{kA}$ | 1,3 kA | 1,9 kA | $2,4 \mathrm{kA}$ | $3,3 \mathrm{kA}$ | 6,0 kA | $8,7 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 25A | - | - | - | $1,0 \mathrm{kA}$ | $1,3 \mathrm{kA}$ | 1,8 kA | $2,3 \mathrm{kA}$ | $3,2 \mathrm{kA}$ | $5,7 \mathrm{kA}$ | $8,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 32A | - | - | - | 0,9 kA | 1,2 kA | 1,7 kA | 2,2 kA | $3,1 \mathrm{kA}$ | $5,4 \mathrm{kA}$ | $7,6 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 40A | - | - | - | - | - | - | 2,1 kA | $3,0 \mathrm{kA}$ | $5,1 \mathrm{kA}$ | 7,2 kA | $10,0 \mathrm{kA}$ |
|  | 50A | - | - | - | - | - | - | 1,9 kA | 2,8 kA | 4,7 kA | $6,6 \mathrm{kA}$ | 9,5 kA |
|  | 63A | - | - | - | - | - | - | - | - | 4,4 kA | 6,3 kA | 8,6 kA |



|  | $\mathrm{I}_{\mathrm{N}}$ | Supply: Fuse Characteristic gG/gL |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 16A | 20A | 25A | 35A | 40A | 50A | 63A | 80A | 100A | 125A | 160A |
| MCB, <br> AMPARO series Characteristic D | $\leq 2 \mathrm{~A}$ | 0,5 kA | 0,5 kA | 0,8 kA | $2,1 \mathrm{kA}$ | $3,1 \mathrm{kA}$ | 6,0 kA | 8,6 kA | $10,0 \mathrm{kA}$ | 10,0 kA | 10,0 kA | 10,0 kA |
|  | 3A | 0,5 kA | 0, 5 kA | $0,7 \mathrm{kA}$ | $1,7 \mathrm{kA}$ | $2,4 \mathrm{kA}$ | $4,3 \mathrm{kA}$ | 6,0 kA | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 4A | 0, 5 kA | 0, 5 kA | 0,7 kA | $1,6 \mathrm{kA}$ | 2,2 kA | 3,8 kA | $5,2 \mathrm{kA}$ | 10,0 kA | 10,0 kA | 10,0 kA | 10,0 kA |
|  | 6A | - | 0,5 kA | 0,5 kA | 1,2 kA | 1,6 kA | 2,6 kA | 3,3 kA | $5,5 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | 10,0 kA |
|  | 10A | - | - | 0,5 kA | $1,0 \mathrm{kA}$ | 1,3 kA | 1,9 kA | $2,5 \mathrm{kA}$ | 3,6 kA | $7,2 \mathrm{kA}$ | $10,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 13A | - | - | - | 1,0 kA | $1,3 \mathrm{kA}$ | $1,9 \mathrm{kA}$ | $2,3 \mathrm{kA}$ | $3,4 \mathrm{kA}$ | 6,5 kA | 9,5 kA | 10,0 kA |
|  | 16A | - | - | - | - | $1,1 \mathrm{kA}$ | $1,6 \mathrm{kA}$ | $2,0 \mathrm{kA}$ | 3,0 kA | $5,5 \mathrm{kA}$ | 8,0 kA | 10,0 kA |
|  | 20A | - | - | - | - | - | 1,4 kA | 1,8 kA | 2,8 kA | $5,0 \mathrm{kA}$ | $7,5 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 25A | - | - | - | - | - | - | 1,8 kA | 2,7 kA | 4,8 kA | $7,0 \mathrm{kA}$ | $10,0 \mathrm{kA}$ |
|  | 32A | - | - | - | - | - | - | - | 2,4 kA | $4,1 \mathrm{kA}$ | 6,2 kA | 9,3 kA |
|  | 40A | - | - | - | - | - | - | - | - | 4,0 kA | 6,0 kA | $9,0 \mathrm{kA}$ |
|  | 50A | - | - | - | - | - | - | - | - | - | - | - |
|  | 63A | - | - | - | - | - | - | - | - | - | - | - |

Short-Circuit Selectivity MCCB Framesize 1

| $\mathrm{I}_{\mathrm{cu}}=25 \mathrm{kA}(50 \mathrm{kA})$ |  | Supply: MCCB Framesize 1 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40 A | 50 A | 63 A | 80 A | 100 A | 125 A |
| MCB, | 1 A | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| A | 2A | 2 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 3A | 1,2 kA | 2 kA | 3 kA | 3 kA | 10 kA | 15 kA |
| Characteristic B | 4A | 1,2 kA | 2 kA | 3 kA | 3 kA | 8 kA | 15 kA |
|  | 6A | 1,2 kA | 2 kA | 2,5 kA | 3 kA | 5 kA | 10 kA |
|  | 10A | 1,2 kA | 1,5 kA | 2 kA | 2 kA | 4 kA | 10 kA |
|  | 13A | 1 kA | 1,5 kA | 2 kA | 2 kA | 4 kA | 10 kA |
|  | 16A | 1 kA | 1,2 kA | 1,5 kA | 2 kA | 3 kA | 8 kA |
|  | 20A | 0,8 kA | 1,2 kA | 1,5 kA | 1,5 kA | 3 kA | 8 kA |
|  | 25A | 0,7 kA | 1,2 kA | 1,5 kA | 1,5 kA | 3 kA | 7 kA |
|  | 32A | - | 1,2 kA | 1 kA | 1,5 kA | 2 kA | 6 kA |
|  | 40A | - | - | 1 kA | 1,5 kA | 2 kA | 5 kA |
|  | 50A | - | - | - | 1,2 kA | 1,5 kA | 4 kA |
|  | 63A | - | - | - | - | 1,5 kA | 3 kA |


| $\mathrm{I}_{\mathrm{cu}}=25 \mathrm{kA}(50 \mathrm{kA})$ |  | Supply: MCCB Framesize 1 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40 A | 50 A | 63 A | 80 A | 100 A | 125 A |
| MCB, | 1 A | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| AMPA | 2A | 2 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 3A | 1,2 kA | 2 kA | 3 kA | 3 kA | 10 kA | 15 kA |
| Characteristic $C$ | 4A | 1,2 kA | 2 kA | 3 kA | 3 kA | 8 kA | 15 kA |
|  | 6A | 1,2 kA | 2 kA | 2,5 kA | 3 kA | 5 kA | 10 kA |
|  | 10A | 1,2 kA | 1,5 kA | 2 kA | 2 kA | 4 kA | 10 kA |
|  | 13A | 1 kA | 1,5 kA | 2 kA | 2 kA | 4 kA | 10 kA |
|  | 16A | 1 kA | 1,2 kA | 1,5 kA | 2 kA | 3 kA | 8 kA |
|  | 20A | 0,8 kA | 1,2 kA | 1,5 kA | 1,5 kA | 3 kA | 8 kA |
|  | 25A | 0,7 kA | 1,2 kA | 1,5 kA | 1,5 kA | 3 kA | 7 kA |
|  | 32A | - | 1,2 kA | 1 kA | 1,5 kA | 2 kA | 6 kA |
|  | 40A | - | - | 1 kA | 1,5 kA | 2 kA | 5 kA |
|  | 50A | - | - | - | 1,2 kA | 1,5 kA | 4 kA |
|  | 63A | - | - | - | - | 1,5 kA | 3 kA |


| $\mathrm{I}_{\mathrm{cu}}=25 \mathrm{kA}(50 \mathrm{kA})$ |  | Supply: MCCB Framesize 1 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40 A | 50 A | 63 A | 80 A | 100 A | 125 A |
| MCB, | 1 A | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 2A | 2 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| AMPARO series | 3A | 1,2 kA | 2 kA | 3 kA | 3 kA | 10 kA | 15 kA |
| Characteristic D | 4A | 1,2 kA | 2 kA | 3 kA | 3 kA | 8 kA | 15 kA |
|  | 6A | 1,2 kA | 2 kA | 2,5 kA | 3 kA | 5 kA | 10 kA |
|  | 10A | 1,2 kA | 1,5 kA | 2 kA | 2 kA | 4 kA | 10 kA |
|  | 13A | 1 kA | 1,5 kA | 2 kA | 2 kA | 4 kA | 10 kA |
|  | 16A | 1 kA | 1,2 kA | 1,5 kA | 2 kA | 3 kA | 8 kA |
|  | 20A | 0,8 kA | 1,2 kA | 1,5 kA | 1,5 kA | 3 kA | 8 kA |
|  | 25A | 0,7 kA | 1,2 kA | 1,5 kA | 1,5 kA | 3 kA | 7 kA |
|  | 32A | - | 1,2 kA | 1 kA | 1,5 kA | 2 kA | 6 kA |
|  | 40A | - | - | 1 kA | 1,5 kA | 2 kA | 5 kA |
|  | 50A | - | - | - | 1,2 kA | 1,5 kA | 4 kA |
|  | 63A | - | - | - | - | 1,5 kA | 3 kA |

Short-Circuit Selectivity MCCB Framesize 2

| $\begin{gathered} \mathrm{I}_{\mathrm{cu}}=25 \mathrm{kA}(50 \mathrm{kA}),(100 \mathrm{kA}), \\ (150 \mathrm{kA}) \end{gathered}$ |  | Supply: MCCB Framesize 2 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40 A | 50 A | 63 A | 80 A | 100 A | 125 A | 160 A | 200 A | 250 A |
| MCB, | 1A | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| AMPARO | 2A | 3 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 3A | 1,5 kA | 1,5 kA | 3 kA | 5 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| aracteristic B | 4A | 1,2 kA | 1,5 kA | 3 kA | 4 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 6A | 1,2 kA | 1,5 kA | $2,5 \mathrm{kA}$ | 3 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 10A | 1 kA | 1,5 kA | $2,5 \mathrm{kA}$ | 3 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 13A | 1 kA | 1,2 kA | 2 kA | 3 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 16A | 1 kA | 1,2 kA | $1,5 \mathrm{kA}$ | 2,5 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 20A | 1 kA | 1,2 kA | 1,5 kA | $1,5 \mathrm{kA}$ | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 25A | 0,8 kA | 1 kA | 1,5 kA | 2 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 32A | - | 1 kA | 1,5 kA | 2 kA | 8 kA | 8 kA | 8 kA | 8 kA | 10 kA |
|  | 40 A | - | - | 1,2 kA | $1,5 \mathrm{kA}$ | 7 kA | 7 kA | 7 kA | 7 kA | 10 kA |
|  | 50A | - | - | - | 1,5 kA | 6 kA | 6 kA | 6 kA | 6 kA | 10 kA |
|  | 63 A | - | - | - | - | 6 kA | 6 kA | 6 kA | 6 kA | 10 kA |


| $\begin{gathered} I_{\mathrm{cu}}=25 \mathrm{kA}(50 \mathrm{kA}),(100 \mathrm{kA}), \\ (150 \mathrm{kA}) \end{gathered}$ |  | Supply: MCCB Framesize 2 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40 A | 50 A | 63 A | 80 A | 100 A | 125 A | 160 A | 200 A | 250 A |
| MCB, | 1 A | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| AMPARO series | 2A | 3 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| AMPARO series | 3A | 1,5 kA | 1,5 kA | 3 kA | 5 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| Characteristic C | 4A | 1,2 kA | 1,5 kA | 3 kA | 4 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 6A | 1,2 kA | 1,5 kA | $2,5 \mathrm{kA}$ | 3 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 10A | 1 kA | 1,5 kA | 2,5 kA | 3 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 13A | 1 kA | 1,2 kA | 2 kA | 3 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 16A | 1 kA | 1,2 kA | 1,5 kA | 2,5 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 20A | 1 kA | 1,2 kA | 1,5 kA | $1,5 \mathrm{kA}$ | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 25A | 0,8 kA | 1 kA | 1,5 kA | 2 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 32A | - | 1 kA | 1,5 kA | 2 kA | 8 kA | 8 kA | 8 kA | 8 kA | 10 kA |
|  | 40A | - | - | 1,2 kA | 1,5 kA | 7 kA | 7 kA | 7 kA | 7 kA | 10 kA |
|  | 50A | - | - | - | 1,5 kA | 6 kA | 6 kA | 6 kA | 6 kA | 10 kA |
|  | 63A | - | - | - | - | 6 kA | 6 kA | 6 kA | 6 kA | 10 kA |


| $\begin{gathered} \mathrm{I}_{\mathrm{cu}}=25 \mathrm{kA}(50 \mathrm{kA}),(100 \mathrm{kA}), \\ (150 \mathrm{kA}) \end{gathered}$ |  | Supply: MCCB Framesize 2 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40 A | 50 A | 63 A | 80 A | 100 A | 125 A | 160 A | 200 A | 250 A |
| AMPARO series Characteristic D | 1 A | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 2A | 3 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 3A | 1,5 kA | 1,5 kA | 3 kA | 5 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 4A | 1,2 kA | 1,5 kA | 3 kA | 4 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 6A | 1,2 kA | 1,5 kA | 2,5 kA | 3 kA | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
|  | 10A | 1 kA | 1,5 kA | $2,5 \mathrm{kA}$ | 3 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 13A | 1 kA | 1,2 kA | 2 kA | 3 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 16A | 1 kA | 1,2 kA | 1,5 kA | 2,5 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 20A | 1 kA | 1,2 kA | 1,5 kA | $1,5 \mathrm{kA}$ | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 25A | 0,8 kA | 1 kA | 1,5 kA | 2 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
|  | 32A | - | 1 kA | 1,5 kA | 2 kA | 8 kA | 8 kA | 8 kA | 8 kA | 10 kA |
|  | 40A | - | - | 1,2 kA | 1, 5 kA | 7 kA | 7 kA | 7 kA | 7 kA | 10 kA |
|  | 50A | - | - | - | $1,5 \mathrm{kA}$ | 6 kA | 6 kA | 6 kA | 6 kA | 10 kA |
|  | 63A | - | - | - | - | 6 kA | 6 kA | 6 kA | 6 kA | 10 kA |

Dimensions


## Articles

MCB, Miniature circuit breaker, AMPARO series, 10kA, 1-pole

| Description | Order No. |
| :---: | :---: |
| Characteristic B |  |
| 1A | AM018101-- |
| 2A | AM018102-- |
| 3A | AM018103-- |
| 4A | AM018104-- |
| 6A | AM018106-- |
| 10A | AM018110-- |
| 13A | AM018113-- |
| 16A | AM018116-- |
| 20A | AM018120-- |
| 25A | AM018125-- |
| 32A | AM018132-- |
| 40A | AM018140-- |
| 50A | AM018150-- |
| 63A | AM018163-- |

MCB, Miniature circuit breaker, AMPARO series, 10kA, 1-pole

| Description | Order No. |
| :---: | :---: |
| Characteristic C |  |
| 1A | AM017101-- |
| 2A | AM017102-- |
| 3A | AM017103-- |
| 4A | AM017104-- |
| 6A | AM017106-- |
| 10A | AM017110-- |
| 13A | AM017113-- |
| 16A | AM017116-- |
| 20A | AM017120-- |
| 25A | AM017125-- |
| 32A | AM017132-- |
| 40A | AM017140-- |
| 50A | AM017150-- |
| 63A | AM017163-- |

Characteristic D

| 1 A | AM019101-- |
| :---: | :---: |
| 2A | AM019102-- |
| 3A | AM019103-- |
| 4A | AM019104-- |
| 6A | AM019106-- |
| 10A | AM019110-- |
| 13A | AM019113-- |
| 16A | AM019116-- |
| 20A | AM019120-- |
| 25A | AM019125-- |
| 32A | AM019132-- |
| 40A | AM019140-- |
| 50A | AM019150-- |
| 63A | AM019163-- |
| MCB |  |


| Description | Order No. |
| :--- | :--- |
| Characteristic C |  |
| 6A | AM617606-- |
| 10A | AM617610-- |
| $13 A$ | AM617613-- |
| $16 A$ | AM617616-- |
| 20A | AM617620-- |
| $25 A$ | AM617625-- |
| $32 A$ | AM617632-- |
| $40 A$ | AM617640-- |
| $50 A$ | AM617650-- |
| 63A | AM617663-- |
| SCHRACK TECHNIK GMBH |  |

MCB, Miniature circuit breaker, AMPARO series, 10kA, 2-polig

| Description | Order No. |
| :---: | :---: |
| Characteristic B |  |
| 1A | AM018201-- |
| 2A | AM018202-- |
| 3A | AM018203-- |
| 4A | AM018204-- |
| 6A | AM018206-- |
| 10A | AM018210-- |
| 13A | AM018213-- |
| 16A | AM018216-- |
| 20A | AM018220-- |
| 25A | AM018225-- |
| 32A | AM018232-- |
| 40A | AM018240-- |
| 50A | AM018250-- |
| 63A | AM018263-- |
|  |  |
| Characteristic C |  |
| 1A | AM017201-- |
| 2A | AM017202-- |
| 3A | AM017203-- |
| 4A | AM017204-- |
| 6A | AM017206-- |
| 10A | AM017210-- |
| 13A | AM017213-- |
| 16A | AM017216-- |
| 20A | AM017220-- |
| 25A | AM017225-- |
| 32A | AM017232-- |
| 40A | AM017240-- |
| 50A | AM017250-- |
| 63A | AM017263-- |

MCB, Miniature circuit breaker, AMPARO series, 10kA, 2-polig

| Description | Order No. |
| :---: | :---: |
| Characteristic D |  |
| 1A | AM019201-- |
| 2A | AM019202-- |
| 3A | AM019203-- |
| 4A | AM019204-- |
| 6A | AM019206-- |
| 10A | AM019210-- |
| 13A | AM019213-- |
| 16A | AM019216-- |
| 20A | AM019220-- |
| 25A | AM019225-- |
| 32A | AM019232-- |
| 40A | AM019240-- |
| 50A | AM019250-- |
| 63A | AM019263-- |

MCB, Miniature circuit breaker, AMPARO series, 10kA, 3-polig

| Description | Order No. |
| :---: | :---: |
| Characteristic B |  |
| 1A | AM018301-- |
| 2A | AM018302-- |
| 3A | AM018303-- |
| 4A | AM018304-- |
| 6A | AM018306-- |
| 10A | AM018310-- |
| 13A | AM018313-- |
| 16A | AM018316-- |
| 20A | AM018320-- |
| 25A | AM018325-- |
| 32A | AM018332-- |
| 40A | AM018340-- |
| 50A | AM018350-- |
| 63A | AM018363-- |

MCB, Miniature circuit breaker, AMPARO series, 10kA, 3-polig

| Description | Order No. |
| :---: | :---: |
| Characteristic C |  |
| 1A | AM017301-- |
| 2A | AM017302-- |
| 3A | AM017303-- |
| 4A | AM017304-- |
| 6A | AM017306-- |
| 10A | AM017310-- |
| 13A | AM017313-- |
| 16A | AM017316-- |
| 20A | AM017320-- |
| 25A | AM017325-- |
| 32A | AM017332-- |
| 40A | AM017340-- |
| 50A | AM017350-- |
| 63A | AM017363-- |
| Characteristic D |  |
| 1A | AM019301-- |
| 2A | AM019302-- |
| 3A | AM019303-- |
| 4A | AM019304-- |
| 6A | AM019306-- |
| 10A | AM019310-- |
| 13A | AM019313-- |
| 16A | AM019316-- |
| 20A | AM019320-- |
| 25A | AM019325-- |
| 32A | AM019332-- |
| 40A | AM019340-- |
| 50A | AM019350-- |
| 63A | AM019363-- |

MCB, Miniature circuit breaker, AMPARO series, $10 \mathrm{kA}, 3+\mathrm{N}$

| Description | Order No. |
| :--- | :--- |
| Characteristic C | AMO17806-- |
| 6A | AMO17810-- |
| $10 A$ | AMO17813-- |
| $13 A$ | AM017816-- |
| $16 A$ | AMO17820-- |
| $20 A$ | AMO17825-- |
| $25 A$ | AMO17832-- |
| $32 A$ | AMO17840-- |
| $40 A$ | AMO17850-- |
| $50 A$ | AMO17863-- |
| 63A |  |
| SCHRACK TECHNIK GMBH | PAGE 1/15 |

