

Dane techniczne dla produktu: AM019410UL

# Miniature Circuit Breaker AMPARO 5kA, D 10A, 4-pole, UL1077

Product category AM10, Neutral on right side, Product standard EN 60898-1, IEC 60898-1, UL1077



## Schrack Info

- Contact position indicator
- Lift und Clamp terminals on both sides
- Back terminal design for safe connection
- Neutral on right side
- Terminal cross-section: 1-25mm<sup>2</sup>
- Snap-on mounting for DIN rail according to EN 60715
- Compliant to the product standard UL1077

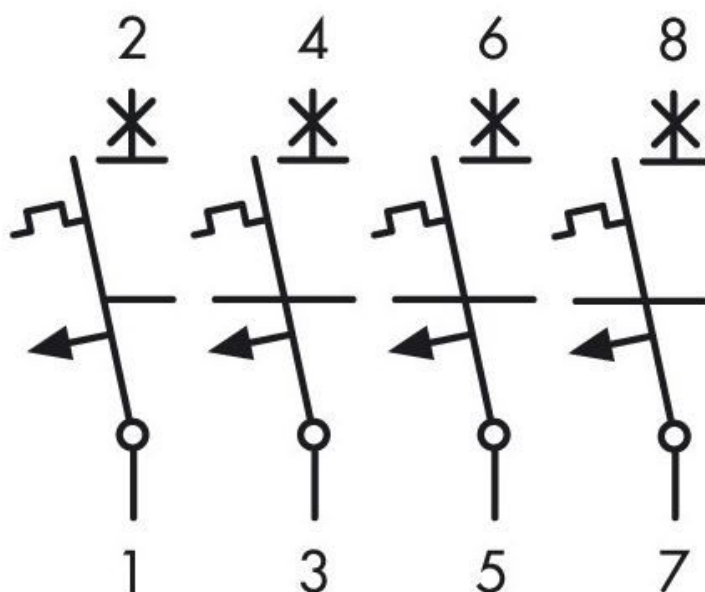
## Dane techniczne

|                               |                                     |
|-------------------------------|-------------------------------------|
| Norma / standard              | IEC 60898-1<br>UL1077<br>EN 60898-1 |
| Napięcie znamionowe           | 230/400 - 240/415V                  |
| Częstotliwość znamionowa (Hz) | 50/60                               |
| Charakterystyka wyzwalania    | D                                   |

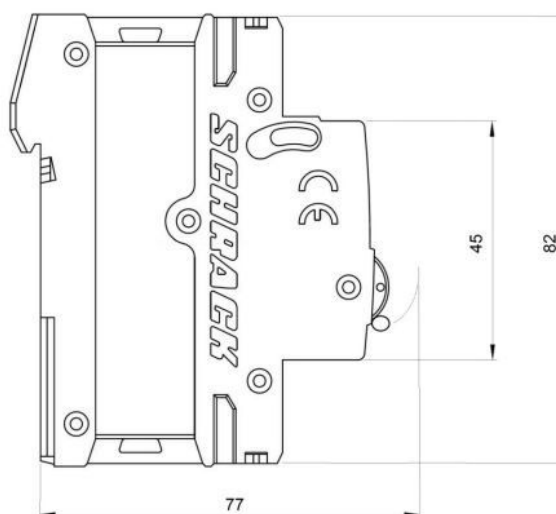
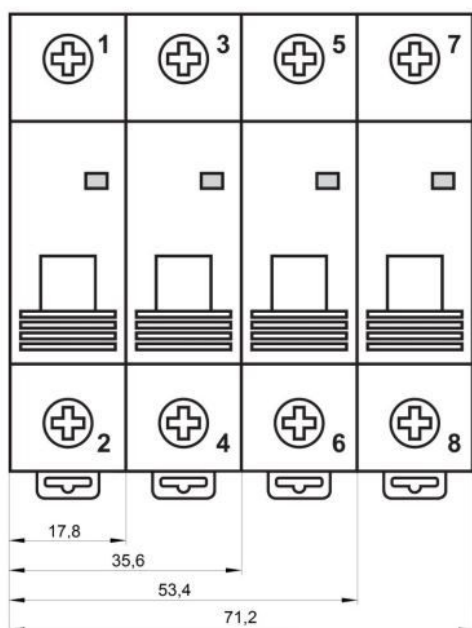
## Dane techniczne - kontynuacja

|                                               |                                                                    |
|-----------------------------------------------|--------------------------------------------------------------------|
| Prąd znamionowy (A)                           | 10                                                                 |
| Liczba biegunów                               | 4                                                                  |
| Wytrzymałość zwarciowa                        | 10 kA (IEC/EN 60898) , 5 kA (UL 1077)                              |
| Znamionowe napięcie udarowe wytrzymywane Uimp | 6kV                                                                |
| Energy limiting class                         | 3                                                                  |
| Napięcie testowe (V)                          | 2000                                                               |
| Stopień zanieczyszczenia                      | 2                                                                  |
| Straty mocy (W)                               | 8,00                                                               |
| Internal resistance                           | 10A: 9.989mΩ                                                       |
| Lifetime, electric                            | 4000 Operations                                                    |
| Lifespan, mechanical                          | 20000 Operations                                                   |
| Stopień szczelności                           | IP20                                                               |
| Terminal cross section (mm²)                  | 1 - 25                                                             |
| Clamp size for busbar                         | 10 mm² / 16 mm²                                                    |
| Budowa żyły kabla                             | miedź                                                              |
| Typ zacisków                                  | zacisk dwufunkcyjny-montaż szyną łączeniową języczkową i widelkową |
| Calibration-Temperature (°C)                  | 30                                                                 |
| Zakres temperaturowy - Eksploatacja (°C)      | od -25 do +70                                                      |
| Ambient Temperature - nominal Tripping (°C)   | -5 to +40                                                          |
| Montaż                                        | zatraskowy na szynie DIN (35mm), zgodnie z EN 60715                |
| Dodatkowe akcesoria                           | AM900099--;BSB90113-A;BSB90114-A;AM900008--;AM900006--;AM900005--  |
| Pozycja montażowa                             | Dowolna                                                            |
| Certificates                                  | UL 1077, File No. E195102                                          |
| Prąd znamionowy (A)                           | 10                                                                 |

## Circuit diagram

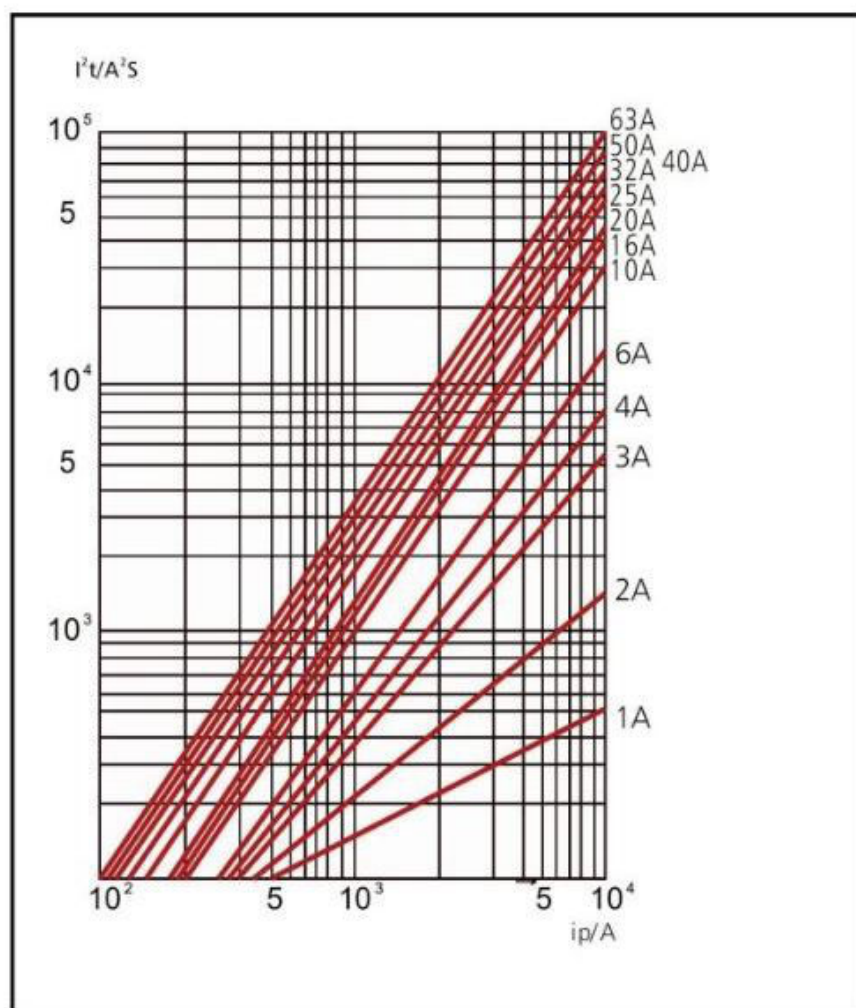


## Dimensions



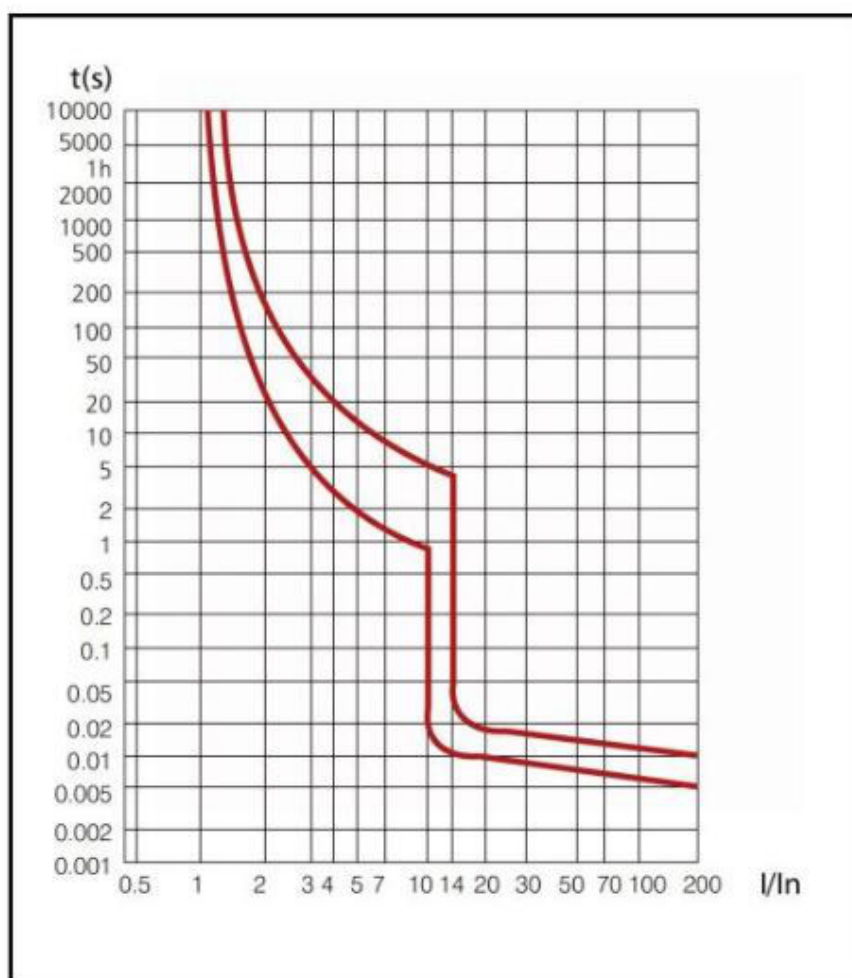
## Let-through energy characteristic

$I^2t$  Durchlassenergie/ let-through energy



## Tripping characteristic according to IEC 60898

Kennlinie D



## Short-circuit selectivity to D/D0 and cylindrical fuse links with characteristic curve gG/gL

| In  | 16A    | 20A    | 25A    | 35A    | 50A    | 63A     | 80A     | 100A    |
|-----|--------|--------|--------|--------|--------|---------|---------|---------|
| ≤2A | 0.5 kA | 0.6 kA | 1.0 kA | 2.8 kA | 5.8 kA | 10.0 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 kA | 10.0 kA | 10.0 kA |
| 4A  | 0.5 kA | 0.6 kA | 0.9 kA | 2.0 kA | 3.8 kA | 9.5 kA  | 10.0 kA | 10.0 kA |
| 6A  | -      | 0.5 kA | 0.7 kA | 1.5 kA | 2.6 kA | 5.3 kA  | 9.1 kA  | 10.0 kA |
| 10A | -      | -      | 0.7 kA | 1.2 kA | 1.9 kA | 3.4 kA  | 5.0 kA  | 9.5 kA  |
| 13A | -      | -      | -      | 1.2 kA | 1.8 kA | 3.2 kA  | 4.6 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 kA  | 6.7 kA  |
| 25A | -      | -      | -      | -      | -      | 2.4 kA  | 3.4 kA  | 6.2 kA  |
| 32A | -      | -      | -      | -      | -      | -       | 2.8 kA  | 5.0 kA  |
| 40A | -      | -      | -      | -      | -      | -       | -       | 4.8 kA  |
| 50A | -      | -      | -      | -      | -      | -       | -       | -       |
| 63A | -      | -      | -      | -      | -      | -       | -       | -       |

## Short-circuit selectivity to NH fuses with characteristic curve gG/gL

| In  | 16A    | 20A    | 25A    | 35A    | 40A    | 50A    | 63A    | 80A     | 100A    | 125A    | 160A    |
|-----|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| ≤2A | 0.5 kA | 0.5 kA | 0.8 kA | 2.1 kA | 3.1 kA | 6.0 kA | 8.6 kA | 10.0 kA | 10.0 kA | 10.0 kA | 10.0 kA |
| 3A  | 0.5 kA | 0.5 kA | 0.7 kA | 1.7 kA | 2.4 kA | 4.3 kA | 6.0 kA | 10.0 kA | 10.0 kA | 10.0 kA | 10.0 kA |
| 4A  | 0.5 kA | 0.5 kA | 0.7 kA | 1.6 kA | 2.2 kA | 3.8 kA | 5.2 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 kA  | 10.0 kA | 10.0 kA | 10.0 kA |
| 10A | -      | -      | 0.5 kA | 1.0 kA | 1.3 kA | 1.9 kA | 2.5 kA | 3.6 kA  | 7.2 kA  | 10.0 kA | 10.0 kA |
| 13A | -      | -      | -      | 1.0 kA | 1.3 kA | 1.9 kA | 2.3 kA | 3.4 kA  | 6.5 kA  | 9.5 kA  | 10.0 kA |
| 16A | -      | -      | -      | -      | 1.1 kA | 1.6 kA | 2.0 kA | 3.0 kA  | 5.5 kA  | 8.0 kA  | 10.0 kA |
| 20A | -      | -      | -      | -      | -      | 1.4 kA | 1.8 kA | 2.8 kA  | 5.0 kA  | 7.5 kA  | 10.0 kA |
| 25A | -      | -      | -      | -      | -      | -      | 1.8 kA | 2.7 kA  | 4.8 kA  | 7.0 kA  | 10.0 kA |
| 32A | -      | -      | -      | -      | -      | -      | -      | 2.4 kA  | 4.1 kA  | 6.2 kA  | 9.3 kA  |
| 40A | -      | -      | -      | -      | -      | -      | -      | -       | 4.0 kA  | 6.0 kA  | 9.0 kA  |
| 50A | -      | -      | -      | -      | -      | -      | -      | -       | -       | -       | -       |
| 63A | -      | -      | -      | -      | -      | -      | -      | -       | -       | -       | -       |

## Short-circuit selectivity to circuit breaker size 1

| I <sub>cu</sub> = 25kA<br>(50 kA) | 40A    | 50A    | 63A    | 80A    | 100A   | 125A  |
|-----------------------------------|--------|--------|--------|--------|--------|-------|
| <b>1A</b>                         | 15 kA  | 15kA   | 15kA   | 15kA   | 15kA   | 15kA  |
| <b>2A</b>                         | 2 kA   | 15 kA  | 15 kA  | 15 kA  | 15 kA  | 15 kA |
| <b>3A</b>                         | 1.2 kA | 2 kA   | 3 kA   | 3 kA   | 10 kA  | 15 kA |
| <b>4A</b>                         | 1.2 kA | 2 kA   | 3 kA   | 3 kA   | 8 kA   | 15 kA |
| <b>6A</b>                         | 1.2 kA | 2 kA   | 2.5 kA | 3 kA   | 5 kA   | 10 kA |
| <b>10A</b>                        | 1.2 kA | 1.5 kA | 2 kA   | 2 kA   | 4 kA   | 10 kA |
| <b>13A</b>                        | 1 kA   | 1.5 kA | 2 kA   | 2 kA   | 4 kA   | 10 kA |
| <b>16A</b>                        | 1 kA   | 1.2 kA | 1.5 kA | 2 kA   | 3 kA   | 8 kA  |
| <b>20A</b>                        | 0.8 kA | 1.2 kA | 1.5 kA | 1.5 kA | 3 kA   | 8 kA  |
| <b>25A</b>                        | 0.7 kA | 1.2 kA | 1.5 kA | 1.5 kA | 3 kA   | 7 kA  |
| <b>32A</b>                        | -      | 1.2 kA | 1 kA   | 1.5 kA | 2 kA   | 6 kA  |
| <b>40A</b>                        | -      | -      | 1 kA   | 1.5 kA | 2 kA   | 5 kA  |
| <b>50A</b>                        | -      | -      | -      | 1.2 kA | 1.5 kA | 4 kA  |
| <b>63A</b>                        | -      | -      | -      | -      | 1.5 kA | 3 kA  |

## Short-circuit selectivity to circuit breaker size 2

| I <sub>cu</sub> =25kA<br>(50kA),<br>(100kA),<br>(150kA) | 40A    | 50A    | 63A    | 80A    | 100A  | 125A  | 160A  | 200A  | 250A  |
|---------------------------------------------------------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
| <b>1A</b>                                               | 15 kA  | 15 kA  | 15 kA  | 15 kA  | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| <b>2A</b>                                               | 3 kA   | 15 kA  | 15 kA  | 15 kA  | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| <b>3A</b>                                               | 1.5 kA | 1.5 kA | 3 kA   | 5 kA   | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| <b>4A</b>                                               | 1.2 kA | 1.5 kA | 3 kA   | 4 kA   | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| <b>6A</b>                                               | 1.2 kA | 1.5 kA | 2.5 kA | 3 kA   | 15 kA | 15 kA | 15 kA | 15 kA | 15 kA |
| <b>10A</b>                                              | 1 kA   | 1.5 kA | 2.5 kA | 3 kA   | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
| <b>13A</b>                                              | 1 kA   | 1.2 kA | 2 kA   | 3 kA   | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
| <b>16A</b>                                              | 1 kA   | 1.2 kA | 1.5 kA | 2.5 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
| <b>20A</b>                                              | 1 kA   | 1.2 kA | 1.5 kA | 1.5 kA | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
| <b>25A</b>                                              | 0.8 kA | 1kA    | 1.5 kA | 2 kA   | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
| <b>32A</b>                                              | -      | 1 kA   | 1.5 kA | 2 kA   | 8 kA  | 8 kA  | 8 kA  | 8 kA  | 10 kA |
| <b>40A</b>                                              | -      | -      | 1.2 kA | 1.5 kA | 7 kA  | 7 kA  | 7 kA  | 7 kA  | 10 kA |
| <b>50A</b>                                              | -      | -      | -      | 1.5 kA | 6 kA  | 6 kA  | 6 kA  | 6 kA  | 10 kA |
| <b>63A</b>                                              | -      | -      | -      | -      | 6 kA  | 6 kA  | 6kA   | 6 kA  | 10 kA |

## Influence of the ambient temperature on the thermal tripping behavior

| I <sub>n</sub> (A) | Ambient temperature T (°C) |       |       |       |       |       |       |              |       |       |       |       |
|--------------------|----------------------------|-------|-------|-------|-------|-------|-------|--------------|-------|-------|-------|-------|
|                    | -35                        | -30   | -20   | -10   | 0     | 10    | 20    | 30           | 40    | 50    | 60    | 70    |
| <b>1</b>           | 1.30                       | 1.26  | 1.23  | 1.19  | 1.15  | 1.11  | 1.05  | <b>1.00</b>  | 0.96  | 0.93  | 0.88  | 0.83  |
| <b>2</b>           | 2.60                       | 2.52  | 2.46  | 2.38  | 2.28  | 2.20  | 2.08  | <b>2.00</b>  | 1.92  | 1.86  | 1.76  | 1.66  |
| <b>3</b>           | 3.90                       | 3.78  | 3.69  | 3.57  | 3.42  | 3.30  | 3.12  | <b>3.00</b>  | 2.88  | 2.79  | 2.64  | 2.49  |
| <b>4</b>           | 5.20                       | 5.04  | 4.92  | 4.76  | 4.56  | 4.40  | 4.16  | <b>4.00</b>  | 3.84  | 3.76  | 3.52  | 3.32  |
| <b>6</b>           | 7.80                       | 7.56  | 7.38  | 7.14  | 6.84  | 6.60  | 6.24  | <b>6.00</b>  | 5.76  | 5.64  | 5.28  | 4.98  |
| <b>10</b>          | 13.20                      | 12.70 | 12.50 | 12.00 | 11.50 | 11.10 | 10.60 | <b>10.00</b> | 9.60  | 9.30  | 8.90  | 8.40  |
| <b>16</b>          | 21.12                      | 20.48 | 20.00 | 19.20 | 18.40 | 17.76 | 16.96 | <b>16.00</b> | 15.36 | 14.88 | 14.24 | 13.44 |
| <b>20</b>          | 26.40                      | 25.60 | 25.00 | 24.00 | 23.00 | 22.20 | 21.20 | <b>20.00</b> | 19.20 | 18.60 | 17.80 | 16.80 |
| <b>25</b>          | 33.00                      | 32.00 | 31.25 | 30.00 | 28.75 | 27.75 | 26.50 | <b>25.00</b> | 24.00 | 23.25 | 22.25 | 21.00 |
| <b>32</b>          | 42.56                      | 41.28 | 40.00 | 38.72 | 37.12 | 35.52 | 33.92 | <b>32.00</b> | 30.72 | 29.76 | 28.16 | 26.88 |
| <b>40</b>          | 53.20                      | 51.20 | 50.00 | 48.00 | 46.40 | 44.80 | 42.40 | <b>40.00</b> | 38.40 | 37.20 | 35.60 | 33.60 |
| <b>50</b>          | 67.00                      | 65.5  | 63.00 | 60.50 | 58.00 | 56.00 | 53.00 | <b>50.00</b> | 48.00 | 46.50 | 44.00 | 41.50 |
| <b>63</b>          | 83.79                      | 81.90 | 80.01 | 76.86 | 73.71 | 70.56 | 66.78 | <b>63.00</b> | 60.48 | 58.90 | 55.44 | 52.29 |



## Number of possible wires

| Cross-section<br>[mm <sup>2</sup> ] | Number of rigid single wire conductors |   |   |   |   |   |
|-------------------------------------|----------------------------------------|---|---|---|---|---|
|                                     | 1                                      | 2 | 3 | 4 | 5 | 6 |
| 1                                   | +                                      | + | + | + | + | + |
| 1.5                                 | +                                      | + | + | + | + | + |
| 2.5                                 | +                                      | + | + | - | - | - |
| 4                                   | +                                      | + | + | - | - | - |
| 6                                   | +                                      | + | + | - | - | - |

| Cross-section<br>[mm <sup>2</sup> ] | Number of rigid multi wire conductors |   |   |   |   |   |
|-------------------------------------|---------------------------------------|---|---|---|---|---|
|                                     | 1                                     | 2 | 3 | 4 | 5 | 6 |
| 10                                  | +                                     | + | - | - | - | - |
| 16                                  | +                                     | - | - | - | - | - |
| 25                                  | +                                     | - | - | - | - | - |

| Cross-section<br>[mm <sup>2</sup> ] | Number of flexible single wire conductors (without ferrule) |   |   |   |   |   |
|-------------------------------------|-------------------------------------------------------------|---|---|---|---|---|
|                                     | 1                                                           | 2 | 3 | 4 | 5 | 6 |
| 1                                   | +                                                           | + | + | + | + | + |
| 1.5                                 | +                                                           | + | + | + | + | + |
| 2.5                                 | +                                                           | + | + | + | - | - |
| 4                                   | +                                                           | + | + | - | - | - |
| 6                                   | +                                                           | + | - | - | - | - |
| 10                                  | +                                                           | + | - | - | - | - |
| 16                                  | +                                                           | - | - | - | - | - |
| 25                                  | +                                                           | - | - | - | - | - |

| Cross-section<br>[mm <sup>2</sup> ] | Number of flexible single wire conductors (with ferrule) |   |   |   |   |   |
|-------------------------------------|----------------------------------------------------------|---|---|---|---|---|
|                                     | 1                                                        | 2 | 3 | 4 | 5 | 6 |
| 1                                   | +                                                        | - | - | - | - | - |
| 1.5                                 | +                                                        | - | - | - | - | - |
| 2.5                                 | +                                                        | - | - | - | - | - |
| 4                                   | +                                                        | - | - | - | - | - |
| 6                                   | +                                                        | - | - | - | - | - |
| 10                                  | +                                                        | - | - | - | - | - |
| 16                                  | +                                                        | - | - | - | - | - |
| 25                                  | -                                                        | - | - | - | - | - |

## Lista produktów

| OPIS                                                                                                                                                            | Waga miedzi (kg/km) | Nr katalogowy |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|
| Miniature Circuit Breaker AMPARO 5kA, D 10A, 4-pole, UL1077<br>Product category AM10, Neutral on right side, Product standard EN 60898-1, IEC 60898-1, UL1077   |                     | AM019410UL    |
| <b>Dodatkowe akcesoria</b>                                                                                                                                      |                     |               |
| Styk pomocniczy, 1 przełączny, seria AMPARO AK<br>Styk pasuje do serii AM                                                                                       |                     | AM900099      |
| Szyna grzebieniowa 1m, 3P, 10mm <sup>2</sup><br>Szyna łączeniowa, zbiorcza, izolowana, wersja widelkowa, 3-biegunowa, rozstaw 18 mm, bez możliwości wyłamywania | 480                 | BSB90113-A    |
| Szyna grzebieniowa 1m, 3P, 16mm <sup>2</sup><br>Szyna łączeniowa, zbiorcza, izolowana, wersja widelkowa, 3-biegunowa, rozstaw 18 mm, bez możliwości wyłamywania | 670                 | BSB90114-A    |
| Wyzwalacz pod napięciowy 230VAC do wyl. instalacyjnych AMPARO<br>IEC/EN 60947-5-1                                                                               |                     | AM900008      |
| Wyzwalacz 230V/400V AC, do wyłączników instalacyjnych AMPARO<br>IEC/EN 60947-5-1                                                                                |                     | AM900006      |
| Wyzwalacz 24V AC/DC, do wyłączników instalacyjnych AMPARO<br>IEC/EN 60947-5-1                                                                                   |                     | AM900005      |