# Technical data

# 4

## 4.1 LI system in general

| System-specific data | Unit | LI... |
|---|---|---|
| Standards and regulations | | IEC 61439-1 / -6, EN 61439-1 / -6 |
| **Resistance to extreme climates** | | |
| Damp heat, constant, acc. to IEC 60068-2-78 | - | 40 °C / 93 % RH / 56d |
| Damp heat, cyclic, acc. to IEC 60068-2-30 | - | 56 x (25 … 40 °C / 3 h; 40 °C / 9 h; 40 … 25 °C / 3 … 6 h; 25 °C / 6 h) / 95 % RH |
| Cold according to IEC 60068-2-1 | - | -45 °C, 16 h |
| Temperature change in accordance with IEC 60068-2-14 | - | -45 °C … 55 °C; 5 cycles (1 °C / min); holding time at least 30 min |
| Salt spray test in accordance with IEC 60068-2-52 | - | Degree of severity 3 |
| Ice formation acc. to IEC 60068-2-61 | - | Testing based on a combination of moist heat, cyclic + low temperature |
| **Environmental classes in accordance with IEC 60721** (as derived from climatic proofing tests) | | |
| Climatic: | - | 1K5 (storage) = 3K7L (operation without direct sunlight); 2K2 (transport) |
| Chemically active: | - | Salt spray, other contaminants optional, 1C2 (storage) = 3C2 (operation) = 2C2 (transport) |
| Biological: | - | Covered by IP degrees of protection and packaging method 1B2 (storage) = 3B2 (operation) = 2B2 (transport) |
| Mechanically active: | - | Covered by IP degrees of protection and packaging method 1S2 (storage) = 3S2 (operation); 2S2 (transport) |
| Ambient temperature min. / max. 24 h average[1)] | °C | -5 / +40 / +35 (all positions) |
| Degree of protection | - | IP55, IP66[2)] |
| Mounting positions | - | horizontal edgewise, horizontal flat, vertical |
| Torque for bolt terminal (reuse) | Nm | 50 ± 5 |
| Busbar surface treatment | - | Insulated along entire length.<br>Aluminium nickel-plated and tinned at the current transitions<br>Copper tinned at the current transitions<br>Current transitions at the tap-off points silver-coated |
| Insulation (thermal class) | - | Mylar; |
| Protection class against external mechanical stress | - | IK 08 (IP55)[3)] |
| Trunking unit material | - | Aluminium powder-coated |
| Tap-off unit material | - | Sheet steel with powdered paint finish |

| System-specific data | Unit | LI... |
|---|---|---|
| Colour of trunking units, tap-off units | - | RAL 7035 (light grey) |
| Dimensions | - | See "Dimensions" |
| Weight | - | See "Weight data per system" |
| Rated insulation voltage in acc. with IEC 61439-1 | V AC | Up to 1000 |
| Rated operating voltage (power transmission) with overvoltage category III/3 | V AC | 1000 |
| Rated operating voltage (power distribution with tap-off units)<br>with overvoltage category III/3 | V AC | Up to 690 |
| Rated frequency | Hz | 50 / 60[4)] |

1) Temperature factor k1 for min. and max. ambient temperature on request; higher temperatures are also permitted depending on the mounting position (values on request)
2) For power transmission and interior installation
3) Not applicable to built-in devices in tap-off units, the measuring device box and the cover of the tap-off points.
4) In accordance with IEC 61439-1, a reduction to 95 % must be taken into account for currents > 800 A at a frequency of 60 Hz.

| Load factors | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Ambient temperature (24-hour average) | 25 °C | 30 °C | 35 °C | 40 °C | 45 °C | 50 °C | 55 °C | 60 °C | 65 °C |
| All mounting positions; 50 Hz | 1.05 | 1.025 | 1 | 0.95 | 0.9 | 0.85 | 0.8 | 0.75 | 0.665 |
| Harmonics | On request | | | | | | | | |
| Frequencies not equal to 50 Hz, direct current | Factor of 0.95 at 60 Hz; at higher/lower frequencies, direct current on request | | | | | | | | |

# 4.5 Trunking units LI-C

| System | | | LI-C. | 1000 | 1250 | 1600 | 2000 | 2500 |
|---|---|---|---|---|---|---|---|---|
| **System-specific data** | | | **Unit** | | | | | |
| **Rated current** | - | $I_{nA}$ | A | 1 000 | 1 250 | 1 600 | 2 000 | 2 500 |
| **Conductor material** | - | - | - | | | Copper | | |
| **Conductor impedance** | | | | | | | | |
| At 50 Hz and ambient temperature +20 °C | Resistance | $R_{20}$ | mΩ/m | 0.053 | 0.047 | 0.031 | 0.024 | 0.018 |
| At 50 Hz, final heat development of the busbars and ambient temperature +35 °C | Resistance | $R_1$ | mΩ/m | 0.074 | 0.065 | 0.044 | 0.034 | 0.025 |
| | Reactance | $X_1$ | mΩ/m | 0.021 | 0.019 | 0.012 | 0.010 | 0.008 |
| | Impedance | $Z_1$ | mΩ/m | 0.077 | 0.068 | 0.045 | 0.035 | 0.026 |
| **Impedance of PE path as pure return conductor** | | | | | | | | |
| At 50 Hz and ambient temperature +20 °C | Resistance | $R_{20}$ | mΩ/m | 0.047 | 0.046 | 0.041 | 0.039 | 0.036 |
| **Short-circuit rating 3-pole phases, 1-pole N (PEN), 1-pole PE bar (100 %)** | | | | | | | | |
| Rated short-time withstand current | rms value t = 1 s | $I_{CW}$ | kA | 43 | 60 | 65 | 80 | 100 |
| | rms value t = 0.5 s[1] | $I_{CW}$ | kA | 61 | 85 | 92 | 113 | 141 |
| Rated impulse withstand current | Peak value | $I_{pk}$ | kA | 90 | 132 | 143 | 176 | 220 |
| Max. thermal load | Amount of heat (1 s) | $I^2t$ | $A^2s\ 10^6$ | 1 849 | 3 600 | 4 225 | 6 400 | 10 000 |
| **Short-circuit rating 1-pole PE housing** | | | | | | | | |
| Rated short-time withstand current | rms value t = 1 s | $I_{CW}$ | kA | 26 | 36 | 39 | 48 | 60 |
| | rms value t = 0.5 s[1] | $I_{CW}$ | kA | 37 | 51 | 55 | 68 | 85 |
| Rated impulse withstand current | Peak value | $I_{pk}$ | kA | 54 | 79 | 86 | 106 | 132 |
| Max. thermal load | Amount of heat (1 s) | $I^2t$ | $A^2s\ 10^6$ | 676 | 1 296 | 1 521 | 2 304 | 3 600 |
| **Conductor cross-section** | | | | | | | | |
| | L1, L2, L3, N, CPE, 100 % PE = busbar | A | $mm^2$ | 328 | 397 | 562 | 795 | 1 068 |
| | 200 % N | A | $mm^2$ | [2] | [2] | [2] | [2] | [2] |
| | PEN | A | $mm^2$ | 328 | 397 | 562 | 795 | 1 068 |
| **Voltage drop dU[3]** | | | | | | | | |
| | | cos φ | | | | | | |
| | | 1 | mV/m/A | 0.0670 | 0.0594 | 0.0397 | 0.0306 | 0.0225 |
| | | 0.9 | mV/m/A | 0.0686 | 0.0609 | 0.0403 | 0.0315 | 0.0235 |
| | | 0.8 | mV/m/A | 0.0650 | 0.0577 | 0.0381 | 0.0300 | 0.0224 |
| | | 0.7 | mV/m/A | 0.0605 | 0.0537 | 0.0354 | 0.0280 | 0.0210 |

1) Calculated values
2) Available soon
3) Voltage drop applies after final heat development of the busbars and with evenly distributed load in the case of power distribution (k ~ 0.5). The values must be doubled in the case of power transmission (k = 1).

| System | | | LI-C. | 3200 | 4000 | 5000 | 6300 |
|---|---|---|---|---|---|---|---|
| **System-specific data** | | | **Unit** | | | | |
| **Rated current** | - | $I_{nA}$ | A | 3 200 | 4 000 | 4 890 | 6 300 |
| **Conductor material** | - | - | - | | Copper | | |
| **Conductor impedance** | | | | | | | |
| At 50 Hz and ambient temperature +20 °C | Resistance | $R_{20}$ | mΩ/m | 0.012 | 0.012 | 0.009 | 0.006 |
| At 50 Hz, final heat development of the busbars and ambient temperature +35 °C | Resistance | $R_1$ | mΩ/m | 0.017 | 0.017 | 0.012 | 0.009 |
| | Reactance | $X_1$ | mΩ/m | 0.006 | 0.005 | 0.004 | 0.003 |
| | Impedance | $Z_1$ | mΩ/m | 0.018 | 0.017 | 0.013 | 0.009 |
| **Impedance of PE path as pure return conductor** | | | | | | | |
| At 50 Hz and ambient temperature +20 °C | Resistance | $R_{20}$ | mΩ/m | 0.033 | 0.020 | 0.019 | 0.017 |
| **Short-circuit rating 3-pole phases, 1-pole N (PEN), 1-pole PE bar (100 %)** | | | | | | | |
| Rated short-time withstand current | rms value t = 1 s | $I_{CW}$ | kA | 100[1] / 120[2] | 150 | 150 | 150 |
| | rms value t = 0.5 s[3] | $I_{CW}$ | kA | 141[1] / 170[2] | 212 | 212 | 212 |
| Rated impulse withstand current | Peak value | $I_{pk}$ | kA | 220[1] / 264[2] | 330 | 330 | 330 |
| Max. thermal load | Amount of heat (1 s) | $I^2t$ | $A^2s\ 10^6$ | 10 000[1] / 14 400[2] | 22 500 | 22 500 | 22 500 |
| **Short-circuit rating 1-pole PE housing** | | | | | | | |
| Rated short-time withstand current | rms value t = 1 s | $I_{CW}$ | kA | 60 | 90 | 90 | 90 |
| | rms value t = 0.5 s[3] | $I_{CW}$ | kA | 85 | 127 | 127 | 127 |
| Rated impulse withstand current | Peak value | $I_{pk}$ | kA | 132 | 198 | 198 | 198 |
| Max. thermal load | Amount of heat (1 s) | $I^2t$ | $A^2s\ 10^6$ | 3 600 | 8 100 | 8 100 | 8 100 |
| **Conductor cross-section** | | | | | | | |
| | L1, L2, L3, N, CPE, 100 % PE = busbar | A | $mm^2$ | 1 537 | 1 589 | 2 135 | 3 073 |
| | 200 % N | A | $mm^2$ | [4] | [4] | [4] | [4] |
| | PEN | A | $mm^2$ | 1 537 | 1 589 | 2 135 | 3 073 |
| **Voltage drop dU[5]** | | | | | | | |
| | | cos φ | | | | | |
| | | 1 | mV/m/A | 0.0157 | 0.0151 | 0.0112 | 0.0079 |
| | | 0.9 | mV/m/A | 0.0164 | 0.0157 | 0.0118 | 0.0083 |
| | | 0.8 | mV/m/A | 0.0157 | 0.0150 | 0.0113 | 0.0079 |
| | | 0.7 | mV/m/A | 0.0148 | 0.0140 | 0.0106 | 0.0074 |

1) With PE housing $I_{CW}$ (1 s) = 100 kA, $I_{CW}$ (0.5 s) = 141 kA; $I_{pk}$ = 220 kA
2) With PE busbar (100 %) $I_{CW}$ (1 s) = 120 kA, $I_{CW}$ (0.5 s) = 141 kA; $I_{pk}$ = 264 kA
3) Calculated values
4) Available soon
5) Voltage drop applies after final heat development of the busbars and with evenly distributed load in the case of power distribution (k ~ 0.5). The values must be doubled in the case of power transmission (k = 1).

# 4.6 Impedances LI-C for calculating fault currents according to the method of the impedance

| System | | | | LI-C. | 1000 | 1250 | 1600 | 2000 | 2500 |
|---|---|---|---|---|---|---|---|---|---|
| Rated current | | | $I_{nA}$ | A | 1 000 | 1 250 | 1 600 | 2 000 | 2 500 |
| Conductor configurations | Ambient temperature | | | Unit | | | | | |
| **Impedance of fault loops, phase with PE and phase with PEN at 50 Hz** | | | | | | | | | |
| 3Ph-PE(H)<br>3Ph-N-PE(H)<br>3Ph-200%N-PE(H)<br>3Ph-N-PE(H)-CPE<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.101 | 0.093 | 0.073 | 0.063 | 0.054 |
| | | Reactance | $X_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.050 | 0.047 | 0.038 | 0.030 | 0.024 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.112 | 0.104 | 0.082 | 0.070 | 0.059 |
| 3Ph-N-100%PE(B) | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.086 | 0.079 | 0.056 | 0.045 | 0.035 |
| | | Reactance | $X_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.041 | 0.037 | 0.028 | 0.022 | 0.017 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.096 | 0.087 | 0.062 | 0.050 | 0.039 |
| 3Ph-PEN | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.086 | 0.079 | 0.056 | 0.045 | 0.035 |
| | | Reactance | $X_{b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.041 | 0.037 | 0.028 | 0.022 | 0.017 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.096 | 0.087 | 0.062 | 0.050 | 0.039 |
| **Impedance of fault loops, phase with N and phase with phase at 50 Hz** | | | | | | | | | |
| 3Ph-N-PE(H)<br>3Ph-N-100%PE(B)<br>3Ph-N-PE(H)-CPE | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.0116 | 0.103 | 0.069 | 0.053 | 0.040 |
| | | Reactance | $X_{b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.047 | 0.047 | 0.030 | 0.024 | 0.021 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.126 | 0.114 | 0.076 | 0.058 | 0.045 |
| 3Ph-200%N-PE(H)<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] | [1] |
| | | Reactance | $X_{b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] | [1] |
| | | Impedance | $Z_{b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] | [1] |
| | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}ph}$ | mΩ/m | 0.106 | 0.094 | 0.063 | 0.048 | 0.036 |
| | | Reactance | $X_{b20\text{-}ph\text{-}ph}$ | mΩ/m | 0.040 | 0.036 | 0.026 | 0.019 | 0.016 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}ph}$ | mΩ/m | 0.113 | 0.100 | 0.068 | 0.052 | 0.039 |

[1] Available soon

| System | | | | LI-C. | 3200 | 4000 | 5000 | 6300 |
|---|---|---|---|---|---|---|---|---|
| Rated current | | | $I_{nA}$ | A | 3200 | 4000 | 4890 | 6300 |
| Conductor configurations | Ambient temperature | | | Unit | | | | |
| **Impedance of fault loops, phase with PE and phase with PEN at 50 Hz** | | | | | | | | |
| 3Ph-PE(H)<br>3Ph-N-PE(H)<br>3Ph-200%N-PE(H)<br>3Ph-N-PE(H)-CPE<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.045 | 0.032 | 0.028 | 0.023 |
| | | Reactance | $X_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.017 | 0.016 | 0.012 | 0.009 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.049 | 0.036 | 0.030 | 0.025 |
| 3Ph-N-100%PE(B) | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.025 | 0.023 | 0.018 | 0.014 |
| | | Reactance | $X_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.012 | 0.011 | 0.008 | 0.006 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.028 | 0.025 | 0.020 | 0.015 |
| 3Ph-PEN | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.025 | 0.023 | 0.018 | 0.014 |
| | | Reactance | $X_{b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.012 | 0.011 | 0.008 | 0.006 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.028 | 0.025 | 0.020 | 0.015 |
| **Impedance of fault loops, phase with N and phase with phase at 50 Hz** | | | | | | | | |
| 3Ph-N-PE(H)<br>3Ph-N-100%PE(B)<br>3Ph-N-PE(H)-CPE | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.028 | 0.027 | 0.021 | 0.014 |
| | | Reactance | $X_{b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.014 | 0.014 | 0.011 | 0.008 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.031 | 0.030 | 0.023 | 0.016 |
| 3Ph-200%N-PE(H)<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] |
| | | Reactance | $X_{b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] |
| | | Impedance | $Z_{b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] |
| | 20 °C | Resistance | $R_{b20\text{-}ph\text{-}ph}$ | mΩ/m | 0.025 | 0.024 | 0.018 | 0.013 |
| | | Reactance | $X_{b20\text{-}ph\text{-}ph}$ | mΩ/m | 0.010 | 0.009 | 0.008 | 0.006 |
| | | Impedance | $Z_{b20\text{-}ph\text{-}ph}$ | mΩ/m | 0.027 | 0.026 | 0.019 | 0.014 |

[1] Available soon

# 4.7 Impedances LI-C for calculating fault currents according to the method of the symmetrical components

| System | | | | LI-C. | 1000 | 1250 | 1600 | 2000 | 2500 |
|---|---|---|---|---|---|---|---|---|---|
| Rated current | | | $I_{nA}$ | A | 1 000 | 1 250 | 1 600 | 2 000 | 2 500 |
| Conductor configurations | Ambient temperature | | | Unit | | | | | |
| **Zero impedance of the phases with PE and phase with PEN at 50 Hz** | | | | | | | | | |
| 3Ph-PE(H)<br>3Ph-N-PE(H)<br>3Ph-200%N-PE(H)<br>3Ph-N-PE(H)-CPE<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.196 | 0.185 | 0.156 | 0.140 | 0.127 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.123 | 0.120 | 0.093 | 0.078 | 0.063 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.231 | 0.221 | 0.181 | 0.160 | 0.142 |
| 3Ph-N-100%PE(B) | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.154 | 0.144 | 0.106 | 0.088 | 0.069 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.090 | 0.084 | 0.060 | 0.048 | 0.036 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.179 | 0.167 | 0.122 | 0.100 | 0.078 |
| 3Ph-PEN | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.154 | 0.144 | 0.106 | 0.088 | 0.069 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.090 | 0.084 | 0.060 | 0.048 | 0.036 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.179 | 0.167 | 0.122 | 0.100 | 0.078 |
| **Zero impedance of fault loops, phases with N at 50 Hz** | | | | | | | | | |
| 3Ph-N-PE(H)<br>3Ph-N-100%PE(B)<br>3Ph-N-PE(H)-CPE | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.240 | 0.213 | 0.144 | 0.111 | 0.084 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.108 | 0.105 | 0.066 | 0.051 | 0.045 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}N(ph)}$ | mΩ/m | 0.263 | 0.237 | 0.158 | 0.122 | 0.095 |
| 3Ph-200%N-PE(H)<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] | [1] |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] | [1] |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] | [1] |

[1] Available soon

| System | | | | LI-C. | 3200 | 4000 | 5000 | 6300 |
|---|---|---|---|---|---|---|---|---|
| Rated current | | | $I_{nA}$ | A | 3 200 | 4 000 | 4 890 | 6 300 |
| Conductor configurations | Ambient temperature | | | Unit | | | | |
| **Zero impedance of the phases with PE and phase with PEN at 50 Hz** | | | | | | | | |
| 3Ph-PE(H)<br>3Ph-N-PE(H)<br>3Ph-200%N-PE(H)<br>3Ph-N-PE(H)-CPE<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.111 | 0.072 | 0.066 | 0.056 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.045 | 0.042 | 0.033 | 0.024 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.120 | 0.083 | 0.073 | 0.061 |
| 3Ph-N-100%PE(B) | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.051 | 0.045 | 0.036 | 0.029 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.027 | 0.024 | 0.021 | 0.012 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}PE}$ | mΩ/m | 0.058 | 0.051 | 0.042 | 0.031 |
| 3Ph-PEN | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.051 | 0.045 | 0.036 | 0.029 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.027 | 0.024 | 0.021 | 0.012 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}PEN}$ | mΩ/m | 0.058 | 0.051 | 0.042 | 0.031 |
| **Zero impedance of fault loops, phases with N at 50 Hz** | | | | | | | | |
| 3Ph-N-PE(H)<br>3Ph-N-100%PE(B)<br>3Ph-N-PE(H)-CPE | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | 0.060 | 0.054 | 0.042 | 0.030 |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | 0.033 | 0.030 | 0.024 | 0.015 |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | 0.068 | 0.062 | 0.048 | 0.034 |
| 3Ph-200%N-PE(H)<br>3Ph-200%N-PE(H)-CPE | 20 °C | Resistance | $R_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] |
| | | Reactance | $X_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] |
| | | Impedance | $Z_{0\ b20\text{-}ph\text{-}N}$ | mΩ/m | [1] | [1] | [1] | [1] |

[1] Available soon