

## ZK7208-3431-0xxx | B17, ECP cable, PUR, 5 G 1.5 mm<sup>2</sup> + (1 x 4 x AWG22), drag chain suitable, key 1 (2 x 24 V DC + PE)

B17, socket, straight, male+male, pins 4+PE+4, P-coded – B17, plug, straight, female+ female, pins 4+PE+4, P-coded

### Plugs

| Electrical data                  | Head A  | Head B  |
|----------------------------------|---|---|
| Rated voltage (Ethernet)         | 24 V DC   | 24 V DC   |
| Rated current (Ethernet)         | 3 A at 40 °C  | 3 A at 40 °C  |
| Rated voltage (power)            | 630 V AC / 850 V DC, 600V AC / DC (UL)                              | 630 V AC / 850 V DC, 600V AC / DC (UL)                              |
| Rated current (power)            | 15.5 A at 40 °C   | 15.5 A at 40 °C   |
| Rated impulse voltage (power)    | 6.0 kV  | 6.0 kV  |
| Rated impulse voltage (Ethernet) | 1.0 kV  | 1.0 kV  |
| Voltage proof (contact/contact)  | 1.5 kV (power - Ethernet), 3.31 kV AC (power), 1.0 kV AC (Ethernet) | 1.5 kV (power - Ethernet), 3.31 kV AC (power), 1.0 kV AC (Ethernet) |
| Shielding (Ethernet)             | yes   | yes   |
| Contact resistance               | < 10 mΩ (signal), < 5 mΩ (power)                                    | < 10 mΩ (signal), < 5 mΩ (power)                                    |
| Insulation resistance            | ≥ 100 MΩ (according to IEC 60512)                                   | ≥ 100 MΩ (according to IEC 60512)                                   |
| Mechanical data                  |   |   |
| Installation size                | B17   | B17   |
| Connector type                   | socket  | plug  |
| Configuration                    | straight  | straight  |
| Contact type                     | male+male   | female+ female  |
| Number of positions (face)       | pins 4+PE+4   | pins 4+PE+4   |
| Coding                           | P-coded   | P-coded   |
| Mechanical coding                | key 1 (2 x 24 V DC + PE)  | key 1 (2 x 24 V DC + PE)  |
| Wire termination                 | crimp connection  | crimp connection  |
| Mating cycles                    | ≥ 100   | ≥ 100   |
| Way of locking                   | bayonet   | bayonet   |
| Weight per piece                 | -   | 0.090 kg (0.198 lb)   |
| Body colour                      | black   | black   |
| Body material                    | TPU, UL94   | TPU, UL 94 HB   |
| Coupling nut material            | GD-Zn, Ni   | GD-Zn, Ni   |
| Seal                             | NBR, FPM  | NBR, FPM  |
| Contact carrier material         | PA 6, UL 94 V0  | PA 6, UL 94 V0  |

|                                   |  |  |
|-----------------------------------|--|--|
| Contact carrier colour (Ethernet) | red  | red  |
| Contact carrier colour (power)    | red  | red  |
| Contact plating                   | Au over Ni   | Au over Ni   |
| Contact material                  | copper alloy   | copper alloy   |
| <b>Environmental data</b>         |  |  |
| Special features                  | RoHS-compliant, halogen-free, flame-resistant as per IEC 60332-1-2, oil-resistant as per DIN EN 60811-2-1      | RoHS-compliant, halogen-free, flame-resistant as per IEC 60332-1-2, oil-resistant as per DIN EN 60811-2-1      |
| Shock resistance                  | 50 g (490 m/s <sup>2</sup> ) conforms to IEC 60512-6c, 11 ms; 18 shocks per direction, 3 axes                  | 50 g (490 m/s <sup>2</sup> ) conforms to IEC 60512-6c, 11 ms; 18 shocks per direction, 3 axes                  |
| Vibration resistance              | 5 g (50 m/s <sup>2</sup> ) conforms to IEC 60512-6d, 10 Hz. ... 500 Hz.; 10 cycles per axis; 6 h full duration | 5 g (50 m/s <sup>2</sup> ) conforms to IEC 60512-6d, 10 Hz. ... 500 Hz.; 10 cycles per axis; 6 h full duration |
| RoHS compliant                    | yes  | yes  |
| Ambient temperature (operation)   | -30...+80 °C, -22...+176 °F  | -30...+80 °C, -22...+176 °F  |
| Protection class                  | IP 65/67 in screwed condition (according to IEC 60529)   | IP 65/67 in screwed condition (according to IEC 60529)   |
| Pollution level                   | 3/2 (according to IEC 60664-1)   | 3/2 (according to IEC 60664-1)   |
| Approvals                         | UL 2237: File E484763  | UL 2237: File E484763  |

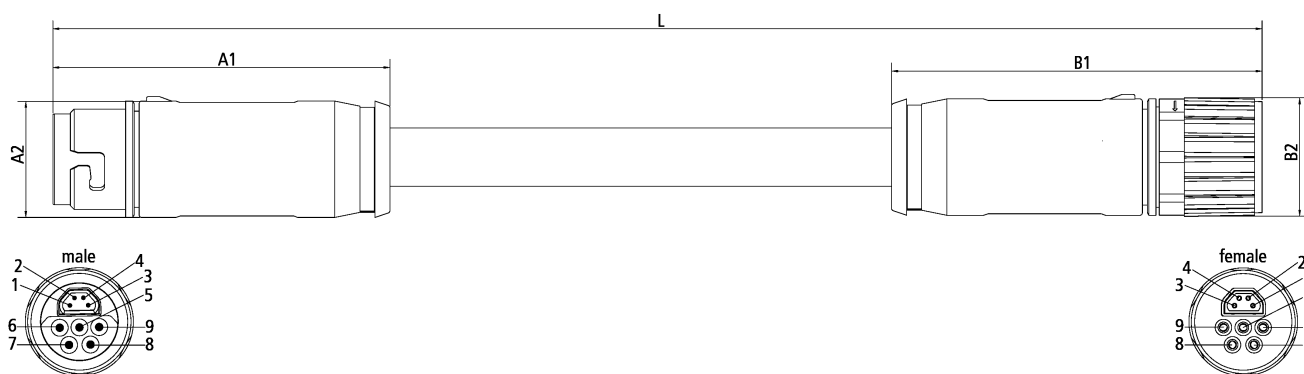
## Cable

|   |   |
|---|---|
| <b>Electrical data</b>                          |   |
| Operating voltage                               | ≤ 1000 V AC   |
| Mutual capacitance wire/wire (Ethernet)         | 50 ± 15 pF/m at 800 Hz (EN 50289-1-5)   |
| Attenuation of shielding                        | 0,01 - 4 MHz ≤ 20 mΩ/m<br>10 MHz ≤ 50 mΩ/m<br>30 MHz ≤ 150 mΩ/m   |
| Insulation resistance                           | ≥ 500 MΩ * km (DIN EN 50395)  |
| Mutual capacitance                              | AWG 22: 50 ± 15 pF/m at 800 Hz according to EN 50289-1-5  |
| Wire resistance (power)                         | ≤ 13.3 Ω/km (DIN EN 50395)  |
| Wire resistance (Ethernet)                      | ≤ 55.0 Ω/km (DIN EN 50395)  |
| Characteristic impedance (Ethernet)             | 100 Ω ± 5 Ω (100 MHz) (EN 50289-1-11)   |
| Dielectric strength wire/wire (power)           | 4 kV 50 Hz 5 min. (DIN VDE 0472 T.509C)   |
| Dielectric strength wire/shield (power)         | 4 kV 50 Hz 5 min. (DIN VDE 0472 T.509C)   |
| Dielectric strength wire/wire (Ethernet)        | 2 kV ( 50 Hz, 1 min)  |
| Dielectric strength wire/shield (Ethernet)      | 2 kV ( 50 Hz, 1 min)  |
| <b>Mechanical data</b>                          |   |
| Cable structure (Ethernet)                      | star quad   |
| Conductor construction (Ethernet)               | 7-strand  |
| Cross section (power)                           | 5 x 1.5 mm <sup>2</sup> (approx. AWG16)   |
| Cross section (Ethernet)                        | 1 x 4 x 0.34 mm <sup>2</sup> (AWG 22)   |
| Min. bending radius, moved                      | 7 x outer cable diameter  |
| Min. bending radius, fixed installation         | 4 x outer cable diameter  |
| Weight  | 190 kg/km (127.7 lb/1000 ft)  |
| Outer cable diameter                            | 11.0 mm ± 0.2 mm (0.4331" ± 0.0079")  |
| Conductor material (power)                      | copper bare, Class 6 according to DIN EN 60228  |
| Conductor material (Ethernet)                   | bare copper   |
| Shielding                                       | braiding of tinned copper wires, metallised plastic fleece, aluminium-clad foil   |
| Optical covering factor of shielding (Ethernet) | ≥ 85 %  |
| Optical covering factor of shielding (total)    | no  |
| Use   | drag-chain suitable   |
| UL-Style Conductor                              | UL758 (AWM) Style 21223 (jacket) and Style 10492 (core)   |
| Max. acceleration                               | 30 m/s <sup>2</sup> by 5 m travel distance<br>15 m/s <sup>2</sup> by 10 m travel distance<br>5 m/s <sup>2</sup> by 20 m travel distance |
| Max. speed                                      | 4 m/s   |
| Max. travel distance                            | 20 m (horizontal)<br>5 m (vertical)   |
| Max. number of cycles                           | 3 million   |
| Wall thickness of wire insulation (power)       | 0.4 mm  |

|   |   |
|---|---|
| Wall thickness of wire insulation (Ethernet)    | 0.38 mm   |
| Jacket colour                                   | black (similar to RAL 9005) with red stripe (similar to RAL 3020)   |
| Material jacket                                 | PUR (polyurethane)  |
| Wire colour code                                | white, yellow, blue, orange power: green/yellow, black, brown, grey, blue   |
| Wire insulation material                        | PP (polypropylene)  |
| Printing on the jacket                          | "length in meters" Beckhoff Automation GmbH & Co. KG - Germany - EtherCATp 5 G 1,5 + 4xAWG22)/C E-number cRUus AWM21223 AWM  /  A/B 80 °C 1000V FT1 XX/YY RoHS production month/production year |
| Printing colour                                 | white   |
| Torsion angle in °/m                            | max. ± 30 °/m   |
| <b>Environmental data</b>                       |   |
| Operation temperature range, moved              | -30...+80 °C, -22...+176 °F, in drag-chain applications: -20...+60 °C, -4...+140 °F   |
| Operation temperature range, fixed installation | -40...+80 °C, -40...+176 °F   |
| UV resistance                                   | yes   |
| Oil resistance                                  | according to DIN EN 60811-404   |
| Flame-retardant                                 | according to IEC 60332-1-2  |
| CFC-free  | yes   |
| Halogen-free                                    | DIN VDE 0472 part 815   |
| Silicone-free                                   | yes   |
| Approvals                                       | cRUus   |

|                                     |        |        |        |        |        |        |        |        |  |
|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| <b>Attenuation</b>                  |        |        |        |        |        |        |        |        |  |
| Max. insertion loss                 |        |        |        |        |        |        |        |        |  |
| Frequency [MHz]                     | 1      | 4      | 10     | 16     | 20     | 31.25  | 62.5   | 100    |  |
| [db/100 m]                          | ≤ 2.5  | ≤ 4.2  | ≤ 6.8  | ≤ 8.6  | ≤ 9.7  | ≤ 12.3 | ≤ 18.0 | ≤ 23.6 |  |
| [db/100 ft]                         | ≤ 0.8  | ≤ 1.3  | ≤ 2.1  | ≤ 2.6  | ≤ 3    | ≤ 3.7  | ≤ 5.5  | ≤ 7.2  |  |
| Min. near-end crosstalk attenuation |        |        |        |        |        |        |        |        |  |
| Frequency [MHz]                     | 1      | 4      | 10     | 16     | 20     | 31.25  | 62.5   | 100    |  |
| [db/100 m]                          | ≥ 80   | ≥ 76.0 | ≥ 70.0 | ≥ 65.0 | ≥ 63.0 | ≥ 60.0 | ≥ 55.0 | ≥ 50.0 |  |
| [db/100 ft]                         | ≥ 24.4 | ≥ 23.2 | ≥ 21.3 | ≥ 19.8 | ≥ 19.2 | ≥ 18.3 | ≥ 16.8 | ≥ 15.2 |  |

## Dimensions



|    |          |
|----|----------|
| B1 | 73.60 mm |
| B2 | 23.00 mm |

## Notes

- Depending on the cable length (L), the following length tolerances apply:  
0 m...3.0 m: + 100 mm | 3.0...10.0 m: ± 100 mm | ≥ 10.0 m: ± 2 %
- Illustrations similar
- Further cable length on request. The last three digits of the ordering information is the cable length in decimeters, e.g. ZKxxxx-xxxx-x020 = cable length 2.00 m

|                             |               |
|-----------------------------|---------------|
| <b>Ordering information</b> | <b>Length</b> |
| ZK7208-3431-0030            | 3.00 m        |

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