



## ZK7714-3031-0xxx | B23, ECP cable, PUR, 5 G 4.0 mm<sup>2</sup> + (1 x 4 x AWG22), drag chain suitable, key 2 (400 V AC)

B23, plug, straight, male+male, pins 4+PE+4, P-coded – B23, 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)            | 28 A at 40 °C   | 28 A at 40 °C   |
| Rated current (power)            | 28 A  | 28 A  |
| 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                | B23   | B23   |
| Connector type                   | plug  | 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 2 (400 V AC)  | key 2 (400 V AC)  |
| Wire termination                 | crimp connection  | crimp connection  |
| Mating cycles                    | ≥ 100   | ≥ 100   |
| Way of locking                   | bayonet   | bayonet   |
| Weight per piece                 | 0.100 kg (0.220 lb)   | 0.100 kg (0.220 lb)   |
| Body colour                      | black   | black   |
| Body material                    | TPU, UL 94 HB   | TPU, UL 94 HB   |
| Coupling nut material            | GD-Zn, Ni   | GD-Zn, Ni   |
| Seal                             | NBR   | NBR   |

|                                   |  |  |
|-----------------------------------|--|--|
| Contact carrier material          | PA, UL 94  | PA, UL 94  |
| 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>         |  |  |
| 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  |

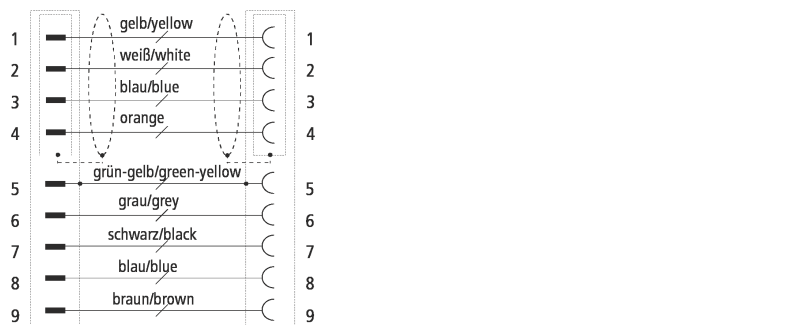
## Cable

|   |   |
|---|---|
| <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)  |
| 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)                         | ≤ 4.95 Ω/km (DIN EN 50395)  |
| Wire resistance (Ethernet)                      | ≤ 58.0 Ω/km according to DIN EN 50395   |
| Characteristic impedance (Ethernet)             | 100 Ω ±15 Ω (100 MHz)   |
| 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 4.0 mm <sup>2</sup> (approx. AWG12)   |
| 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  | 370 kg/km (248.60 lb/1000 ft)   |
| Outer cable diameter                            | 15.0 mm ± 0.2 mm (0.5906" ± 0.0118")  |
| Conductor material (power)                      | copper bare, Class 6 according to DIN EN 60228  |
| Conductor material (Ethernet)                   | copper, tinned  |
| 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)       | 0.6 mm  |
| Jacket colour                                   | black (similar to RAL 9005) with red stripe (similar to RAL 3020)   |
| Material jacket                                 | PUR (polyurethane)  |
| Wire colour code                                | Ethernet: white, yellow, blue, orange Power: red, blue, grey, black, green/yellow   |

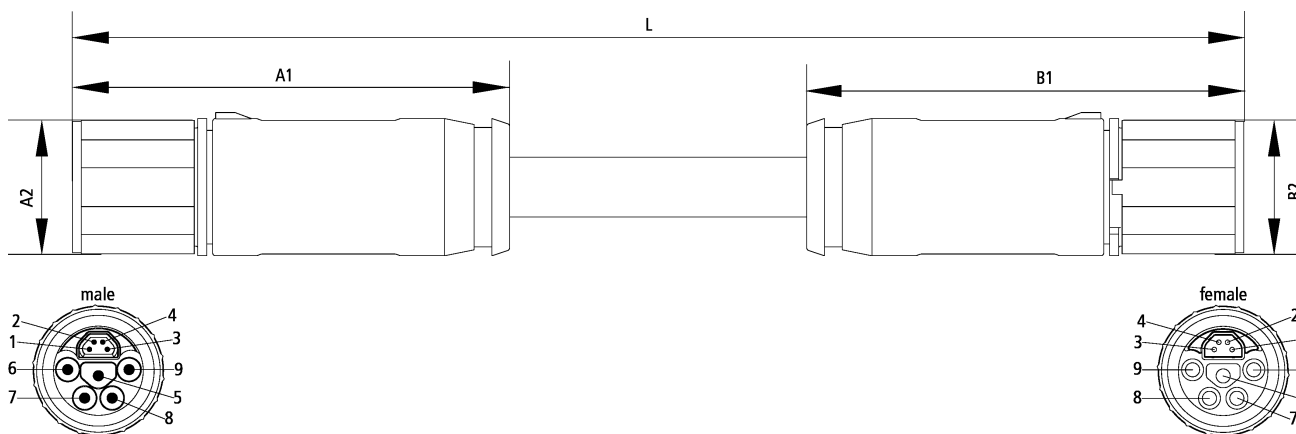
|   |  |
|---|--|
| Wire insulation material                        | PO (Polyolefine)   |
| Printing on the jacket                          | XXXXM Beckhoff Automation GmbH & Co. KG-Germany-EtherCAT P- 5G4 + (4xAWG22)/C E170315 AWM 20233 AWM I/II A/B 80°C 300V FT1 RoHS MM/JJ CE |
| Printing colour                                 | 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  |
| LABS-free                                       | yes  |
| Flame-retardant                                 | yes  |
| CFC-free  | yes  |
| Halogen-free                                    | yes  |
| Silicone-free                                   | yes  |
| Approvals                                       | cRUus  |

|                                     |  |
|-------------------------------------|--|
| <b>Attenuation</b>                  |  |
| Max. insertion loss                 |  |
| Frequency [MHz]                     | <b>1      4      10      16      20      31.25      62.5      100</b>        |
| [db/100 m]                          | ≤ 2.3    ≤ 4.2    ≤ 6.8    ≤ 8.6    ≤ 9.7    ≤ 12.3    ≤ 18.0    ≤ 23.6      |
| [db/100 ft]                         | ≤ 0.7    ≤ 1.3    ≤ 2.1    ≤ 2.6    ≤ 3        ≤ 3.7    ≤ 5.5    ≤ 7.2       |
| Min. near-end crosstalk attenuation |  |
| Frequency [MHz]                     | <b>1      4      10      16      20      31.25      62.5      100</b>        |
| [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 |

**Contact assembly**



**Dimensions**



|    |          |
|----|----------|
| A1 | 93.60 mm |
| A2 | 28.50 mm |
| B1 | 93.60 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

| Ordering information | Length |
|----------------------|--------|
| ZK7714-3031-0008     | 0.80 m |
| ZK7714-3031-0050     | 5.00 m |
| ZK7714-3031-0060     | 6.00 m |

| Accessories |  |
|-------------|--|
| ZS7300-B003 | B23 protection cap, plug, plastic, IP 67, packaging unit = 10 pieces         |
| ZS7300-B004 | B23 protection cap, plug, metal, IP 67, packaging unit = 5 pieces            |
| ZS7300-B005 | B23 color coding connector/square flange, red, packaging unit = 10 pieces    |
| ZS7300-B006 | B23 color coding connector/square flange, yellow, packaging unit = 10 pieces |
| ZS7300-B007 | B23 color coding connector/square flange, blue, packaging unit = 10 pieces   |
| ZS7300-B008 | B23 color coding connector/square flange, green, packaging unit = 10 pieces  |
| ZS7300-B015 | B23 color coding connector/square flange, orange, packaging unit = 10 pieces |
| ZS7300-B016 | B23 color coding connector/square flange, gray, packaging unit = 10 pieces   |
| ZB8802-0003 | assembly tool for B23 connector, AF27  |

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