



## ZK7502-BI00-0xxx | B12, ECP cable, PUR, 2 x 0.75 mm<sup>2</sup> + (1 x 4 x AWG22), drag chain suitable, key 2 (user-defined voltage)

B12, flange front assembly, straight, long, female+ female, pins 2+4, P-coded – M8 EtherCAT-P-coded + 2 x open end, plug, straight, male, 4-pin, 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)            | 60 V DC  | -                                  |
| Rated current (power)            | 10 A at 55 °C  | -                                  |
| Rated current (power)            | 10 A   | -                                  |
| Rated impulse voltage (power)    | 1.5 kV   | -                                  |
| Rated impulse voltage (Ethernet) | 1.0 kV   | -                                  |
| Voltage proof (contact/contact)  | 1.5 kV (power - Ethernet), 1.5 kV AC (power), 1.0 kV AC (Ethernet) | -                                  |
| Shielding (Ethernet)             | yes  | yes                                |
| Contact resistance               | < 10 mΩ (signal), < 5 mΩ (power)                                   | -                                  |
| Insulation resistance            | ≥ 100 MΩ (according to IEC 60512)                                  | ≥ 100 GΩ (according to IEC 60512)  |
| Mechanical data                  |  |                                    |
| Installation size                | B12  | M8 EtherCAT-P-coded + 2 x open end |
| Connector type                   | flange front assembly  | plug                               |
| Configuration                    | straight, long   | straight                           |
| Contact type                     | female+ female   | male                               |
| Number of positions (face)       | pins 2+4   | 4-pin                              |
| Coding                           | P-coded  | P-coded                            |
| Mechanical coding                | key 2 (user-defined voltage)                                       | -                                  |
| Wire termination                 | crimp connection   | crimp connection                   |
| Recommended torque, nut          | -  | 0.4 Nm                             |
| Mating cycles                    | ≥ 100  | ≥ 100                              |
| Way of locking                   | bayonet  | screw                              |
| Weight per piece                 | 0.070 kg (0.154 lb)  | -                                  |
| Body colour                      | -  | black                              |

|                                   |  |   |
|-----------------------------------|--|---|
| Body material                     | -  | TPU, UL 94  |
| Flange housing material           | GD-Zn, Ni  | -   |
| Coupling nut material             | -  | CuZn, Ni  |
| Seal                              | NBR  | FPM   |
| Contact carrier colour            | -  | red   |
| Contact carrier material          | PA, UL 94  | PA, UL 94   |
| Contact carrier colour (Ethernet) | red  | -   |
| Contact carrier colour (power)    | red  | -   |
| Contact plating                   | Au over Ni   | Ni, Au gal.   |
| Contact material                  | copper alloy   | CuZn  |
| <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                  | -   |
| 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 | -   |
| UV resistance                     | -  | yes   |
| RoHS compliant                    | yes  | yes   |
| Ambient temperature (operation)   | -30...+80 °C, -22...+176 °F  | -30...+70 °C, -22...+158 °F                         |
| Protection class                  | IP 65/67 in screwed condition (according to IEC 60529)   | IP 67 in screwed condition (according to IEC 60529) |
| Pollution level                   | 3/2 (according to IEC 60664-1)   | 3/2 (according to IEC 60664-1)                      |

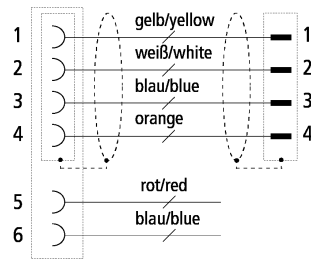
## Cable

|   |   |
|---|---|
| <b>Electrical data</b>                          |   |
| Rated voltage (Ethernet)                        | max. 300 V (peak value, not for high voltage purposes)  |
| Rated voltage (power)                           | 300 V   |
| Operating voltage                               | ≤ 125 V (peak value, not for high voltage purposes)   |
| Attenuation of shielding                        | ≥ 65 dB (30...100 MHz)  |
| Insulation resistance                           | ≥ 5GΩ * km  |
| Unbalanced capacitance to ground                | ≤ 2000 pF/km  |
| Mutual capacitance                              | 48 nF/km  |
| Characteristic impedance (Ethernet)             | 100 Ω ±15 Ω   |
| Loop resistance                                 | ≤ 110.8 Ω/km  |
| Loop resistance (Ethernet)                      | 110.8 Ω/km  |
| Signal running time (Ethernet)                  | 5.3 ns/m  |
| Electrical parameters (Ethernet)                | CAT 5e, according to EN 50288-2-2   |
| Test voltage                                    | 1000 V, 50 Hz, 1 min. (wire/wire and wire/screen)   |
| <b>Mechanical data</b>                          |   |
| Cable structure (Ethernet)                      | star quad   |
| Conductor construction (power)                  | 19 x 0.254 mm   |
| Conductor construction (Ethernet)               | 7 x 0.25 mm   |
| Cross section (power)                           | 2 x 0.75 mm <sup>2</sup> (approx. AWG18)  |
| Cross section (Ethernet)                        | 1 x 4 x 0.34 mm <sup>2</sup> (AWG 22)   |
| Min. bending radius, moved                      | 8 x outer cable diameter  |
| Min. bending radius, fixed installation         | 5 x outer cable diameter  |
| Weight  | 72 kg/km (48.38 lb/1000 ft)   |
| Outer cable diameter                            | 6.5 mm ± 0.2 mm (0.2559" ± 0.0079")   |
| Conductor material (Ethernet)                   | copper, tinned  |
| Shielding                                       | aluminium-clad foil, braiding of tinned copper wires, coupling  |
| Optical covering factor of shielding (Ethernet) | ≥ 85 %  |
| Use   | drag-chain suitable   |
| Max. acceleration                               | 3 m/s <sup>2</sup>  |
| Max. speed                                      | 3 m/s   |
| Max. travel distance                            | 4.5 m   |
| Max. number of cycles                           | 3 million   |
| Jacket colour                                   | black (similar to RAL 9005) with red stripe (similar to RAL 3020)   |
| Material jacket                                 | PUR (polyurethane)  |
| Wire colour code                                | yellow, orange, white, blue (Ethernet), blue, red (Power)   |
| Wire insulation material                        | PP polypropylene (Ethernet), PPE polyphenyl ether (Power)   |
| Printing on the jacket                          | Beckhoff Automation GmbH & Co. KG - Germany - EtherCATp Cat5e AWG22/7 E170315 AWM 21198 AWM I/II A/B 80°C 300 V |

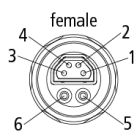
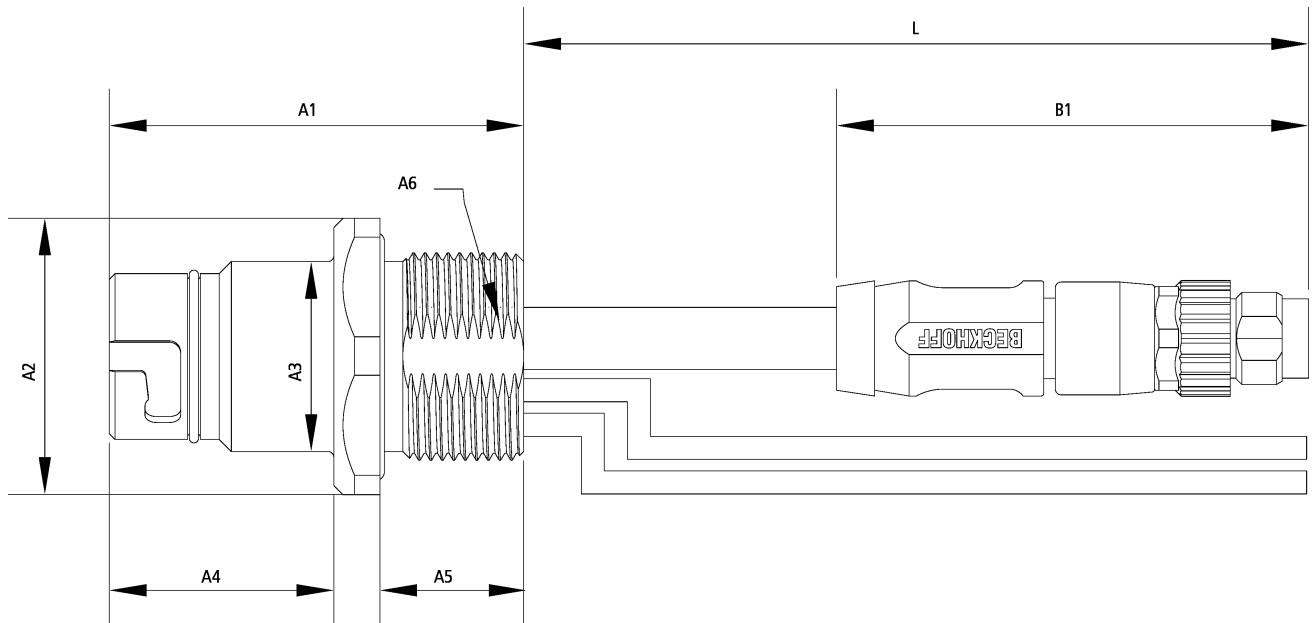
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|---|---|
| Printing colour                                 | white   |
| <b>Environmental data</b>                       |   |
| Operation temperature range, moved              | -30...+70 °C, -22...+158 °F   |
| Operation temperature range, fixed installation | -40...+80 °C, -40...+176 °F   |
| UV resistance                                   | good  |
| Oil resistance                                  | according to IEC 60811-2-1 respectively according to DIN VDE 0282 part 10 |
| Flame-retardant                                 | Horizontal flame test according to UL 1581 part 1090                      |
| Halogen-free                                    | according to IEC 60754 respectively DIN VDE 0472 part 815                 |

|  |   |      |      |      |      |       |      |      |
|--|---|------|------|------|------|-------|------|------|
| <b>Attenuation</b>                         |   |      |      |      |      |       |      |      |
| <b>Max. insertion loss</b>                 |   |      |      |      |      |       |      |      |
| Frequency [MHz]                            | 1 | 4    | 10   | 16   | 20   | 31.25 | 62.5 | 100  |
| [db/100 m]                                 | - | 4.9  | 7.8  | 9.9  | 11.1 | 14.1  | 20.4 | 26.4 |
| [db/100 ft]                                | - | 1.5  | 2.4  | 3    | 3.4  | 4.3   | 6.2  | 8    |
| <b>Min. near-end crosstalk attenuation</b> |   |      |      |      |      |       |      |      |
| Frequency [MHz]                            | 1 | 4    | 10   | 16   | 20   | 31.25 | 62.5 | 100  |
| [db/100 m]                                 | - | 56.3 | 50.3 | 47.2 | 45.8 | 42.9  | 38.4 | 35.3 |
| [db/100 ft]                                | - | 17.2 | 15.3 | 14.4 | 14   | 13.1  | 11.7 | 10.8 |

**Contact assembly**



**Dimensions**



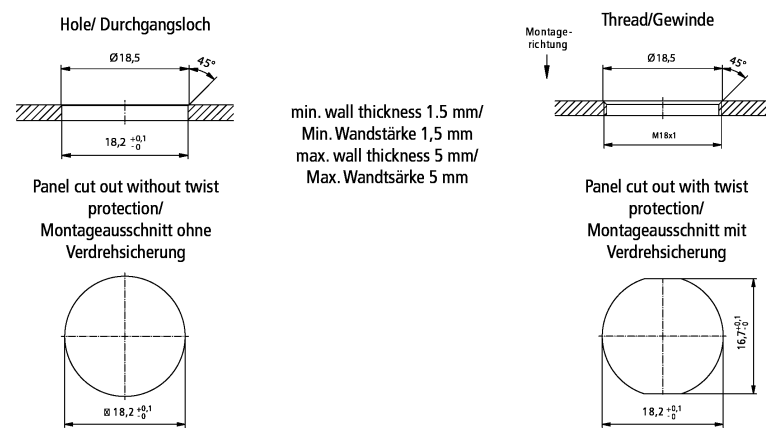
|    |          |
|----|----------|
| A1 | 36.00 mm |
| A2 | WAF24    |
| A3 | 16.50 mm |
| A4 | 19.50 mm |

|    |          |
|----|----------|
| A5 | 12.50 mm |
| A6 | M18      |
| B1 | 41.00 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
- Delivery with counter nut
- 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

### Installation dimensions



| Ordering information | Length |
|----------------------|--------|
| ZK7502-B100-0xxx     | —      |

| Accessories |  |
|-------------|--|
| ZS7100-B001 | B12 protection cap, socket/flange, plastic, IP 67, packaging unit = 10 pieces        |
| ZS7100-B002 | B12 protection cap, socket/flange, metal, IP 67, packaging unit = 5 pieces           |
| ZS7100-B009 | B12 colour coding flange for front/rear assembly, red, packaging unit = 10 pieces    |
| ZS7100-B010 | B12 colour coding flange for front/rear assembly, yellow, packaging unit = 10 pieces |
| ZS7100-B011 | B12 colour coding flange for front/rear assembly, blue, packaging unit = 10 pieces   |
| ZS7100-B012 | B12 colour coding flange for front/rear assembly, green, packaging unit = 10 pieces  |
| ZS7100-B013 | B12 colour coding flange for front/rear assembly, orange, packaging unit = 10 pieces |
| ZS7100-B014 | B12 colour coding flange for front/rear assembly, grey, packaging unit = 10 pieces   |

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