

## ZK7224-BR00-Axxx | B17, ENP cable, PUR, 4 x 1.5 mm<sup>2</sup> + (1 x 4 x AWG22), drag chain suitable, key 1 (2 x 24 V DC)

B17, square flange, straight, long, male+female, pins 4+4, EtherCAT-coded – RJ45 + 4 x open end, 8-pin

### Plugs

| Electrical data                  | Head A  | Head B                             |
|----------------------------------|---|------------------------------------|
| Rated voltage (Ethernet)         | 60 V DC   | 24 V DC                            |
| Rated current (Ethernet)         | 4 A at 40 °C  | 1.1 A at 30 °C                     |
| Rated voltage (power)            | 630 V AC / 850 V DC, 600V AC / DC (UL)                              | -                                  |
| Rated current (power)            | 15.5 A at 45 °C   | -                                  |
| Rated current (power)            | 15.5 A  | -                                  |
| Rated impulse voltage (power)    | 6.0 kV  | -                                  |
| Rated impulse voltage (Ethernet) | 1.0 kV  | -                                  |
| Voltage proof (contact/contact)  | 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)                                    | -                                  |
| Insulation resistance            | ≥ 100 MΩ (according to IEC 60512)                                   | ≥ 10 GΩ (according to IEC 60512-2) |
| Mechanical data                  |   |                                    |
| Installation size                | B17   | RJ45 + 4 x open end                |
| Connector type                   | square flange   | -                                  |
| Configuration                    | straight, long  | -                                  |
| Contact type                     | male+female   | -                                  |
| Number of positions (face)       | pins 4+4  | 8-pin                              |
| Coding                           | EtherCAT-coded  | -                                  |
| Mechanical coding                | key 1 (2 x 24 V DC)   | -                                  |
| Wire termination                 | crimp connection  | -                                  |
| Mating cycles                    | ≥ 100   | ≥ 750                              |
| Way of locking                   | bayonet   | -                                  |
| Weight per piece                 | 0.170 kg (0.375 lb)   | -                                  |
| Body colour                      | -   | black                              |
| Body material                    | -   | PC UL 94 V0                        |
| Flange housing material          | GD-Zn, Ni   | -                                  |
| Seal                             | NBR, FPM  | -                                  |

|                                   |  |                             |
|-----------------------------------|--|-----------------------------|
| Contact carrier material          | PA 6, UL 94 V0   | -                           |
| Contact carrier colour (Ethernet) | yellow   | -                           |
| Contact carrier colour (power)    | red  | -                           |
| Contact plating                   | Au over Ni   | Au over Ni                  |
| Contact material                  | 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                  | -                           |
| 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 | -                           |
| RoHS compliant                    | yes  | yes                         |
| Ambient temperature (operation)   | -30...+80 °C, -22...+176 °F  | -40...+85 °C, -40...+185 °F |
| Protection class                  | IP 65/67 in screwed condition (according to IEC 60529)   | IP 20                       |
| Pollution level                   | 3/2 (according to IEC 60664-1)   | -                           |
| Approvals                         | UL 2237: File E484763  | -                           |

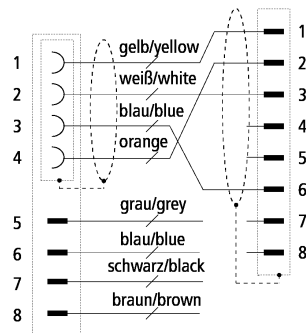
## Cable

|   |   |  |
|---|---|--|
| <b>Electrical data</b>                          |   |  |
| Rated voltage (Ethernet)                        | max. 300 V (peak value, not for high voltage purposes)  |  |
| Rated voltage (power)                           | 600 V   |  |
| Attenuation of shielding                        | ≥ 40 dB   |  |
| Insulation resistance                           | ≥ 500 MΩ/km   |  |
| Unbalanced capacitance to ground                | 1600 pF/km  |  |
| Mutual capacitance                              | 52 nF/km (1 kHz)  |  |
| Characteristic impedance (Ethernet)             | 100 Ω ± 15 Ω (100 MHz)  |  |
| Loop resistance (Ethernet)                      | ≤ 115 Ω/km  |  |
| Differential impedance (Ethernet)               | 250 Ω/km  |  |
| Unbalanced resistance (Ethernet)                | 2 %   |  |
| Dielectric strength wire/wire (Ethernet)        | 1000 V DC/700 V AC  |  |
| Dielectric strength wire/shield (Ethernet)      | 1000 V DC/700 V AC  |  |
| Signal running time (Ethernet)                  | 5.3 ns/m  |  |
| Electrical parameters (Ethernet)                | based on CAT 5  |  |
| Test voltage                                    | ≥ 2000 V  |  |
| <b>Mechanical data</b>                          |   |  |
| Cable structure (Ethernet)                      | star quad   |  |
| Conductor construction (power)                  | 19 x 0.30 mm  |  |
| Conductor construction (Ethernet)               | 7 x 0.25 mm   |  |
| Cross section (power)                           | 4 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                      | 7.5 x outer cable diameter  |  |
| Min. bending radius, fixed installation         | 5 x outer cable diameter  |  |
| Weight  | 61 kg/km (41.0 lb/1000 ft)  |  |
| Outer cable diameter                            | 6.5 mm ± 0.2 mm (0.142" ± 0.0079")  |  |
| Conductor material (Ethernet)                   | copper, tinned  |  |
| Shielding                                       | aluminium-clad foil, braiding of tinned copper wires  |  |
| Optical covering factor of shielding (Ethernet) | ≥ 85 %  |  |
| Use   | drag-chain suitable   |  |
| Max. acceleration                               | 4 m/s <sup>2</sup>  |  |
| Max. speed                                      | 4 m/s   |  |
| Max. number of cycles                           | 3 million   |  |
| Wall thickness of wire insulation (Ethernet)    | 0.375 mm  |  |
| Jacket colour                                   | green   |  |
| Material jacket                                 | PUR (polyurethane)  |  |
| Wire colour code                                | yellow, orange, white, blue (Ethernet) grey, blue, black, brown (Power)   |  |
| Wire insulation material                        | PP polypropylene (Ethernet), PPE polyphenyl ether (Power)   |  |
| Printing on the jacket                          | BECKHOFF ZB9020 Industrial Ethernet<br>/ EtherCAT Trailing Cable * CAT5PLUS * 22AWG (SHIELDED) (UL) E119100 CMX 75°C VERIFIED (UL) CAT 5E PATCH CABLE<br>FRNC *"length in meters" |  |

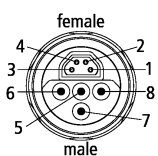
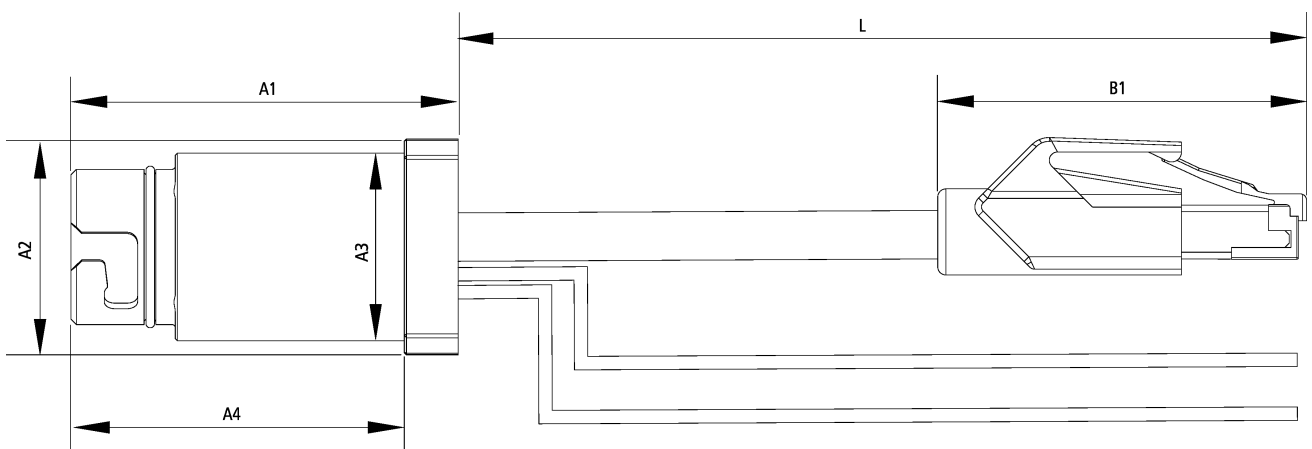
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| Printing colour                                 | black  |
| <b>Environmental data</b>                       |  |
| Operation temperature range, moved              | -40...+70 °C, -40...+158 °F                                |
| Operation temperature range, fixed installation | -20...+60 °C, -4...+140 °F                                 |
| UV resistance                                   | yes  |
| Oil resistance                                  | according to DIN EN 60811-2-1                              |
| Acid, lye and solvent resistance                | depends on medium, concentration, temperature and duration |
| LABS-free                                       | yes  |
| Flame-retardant                                 | yes  |
| CFC-free  | yes  |
| Halogen-free                                    | yes  |
| Silicone-free                                   | yes  |
| Approvals                                       | UL-Style AWM 20963   |

|  |      |      |      |      |      |       |      |      |
|--|------|------|------|------|------|-------|------|------|
| <b>Attenuation</b>                         |      |      |      |      |      |       |      |      |
| <b>Max. insertion loss</b>                 |      |      |      |      |      |       |      |      |
| Frequency [MHz]                            | 1    | 4    | 10   | 16   | 20   | 31.25 | 62.5 | 100  |
| [db/100 m]                                 | 2.1  | 4.0  | 6.3  | 8.0  | 9.0  | 11.4  | 16.5 | 21.3 |
| [db/100 ft]                                | 0.6  | 1.2  | 1.9  | 2.4  | 2.7  | 3.5   | 5    | 6.5  |
| <b>Min. near-end crosstalk attenuation</b> |      |      |      |      |      |       |      |      |
| 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 |

**Contact assembly**



**Dimensions**



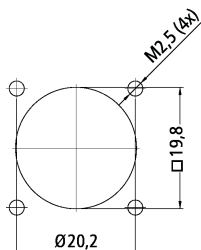
|    |          |
|----|----------|
| A1 | 38.00 mm |
|----|----------|

|    |          |
|----|----------|
| A2 | 25.00 mm |
| A3 | 25.00 mm |
| A4 | 33.00 mm |
| B1 | 43.80 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 |
|----------------------|--------|
| ZK7224-BR00-Axxx     | –      |

| Accessories |   |
|-------------|---|
| ZS7200-B001 | B17 protection cap, socket/flange, plastic, IP 67, packaging unit = 10 pieces |
| ZS7200-B002 | B17 protection cap, socket/flange, metal, IP 67, packaging unit = 5 pieces    |
| ZS7200-B005 | B17 colour coding connector/square flange, red, packaging unit = 10 pieces    |
| ZS7200-B006 | B17 colour coding connector/square flange, yellow, packaging unit = 10 pieces |
| ZS7200-B007 | B17 colour coding connector/square flange, blue, packaging unit = 10 pieces   |
| ZS7200-B008 | B17 colour coding connector/square flange, green, packaging unit = 10 pieces  |
| ZS7200-B015 | B17 colour coding connector/square flange, orange, packaging unit = 10 pieces |
| ZS7200-B016 | B17 colour coding connector/square flange, grey, packaging unit = 10 pieces   |

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