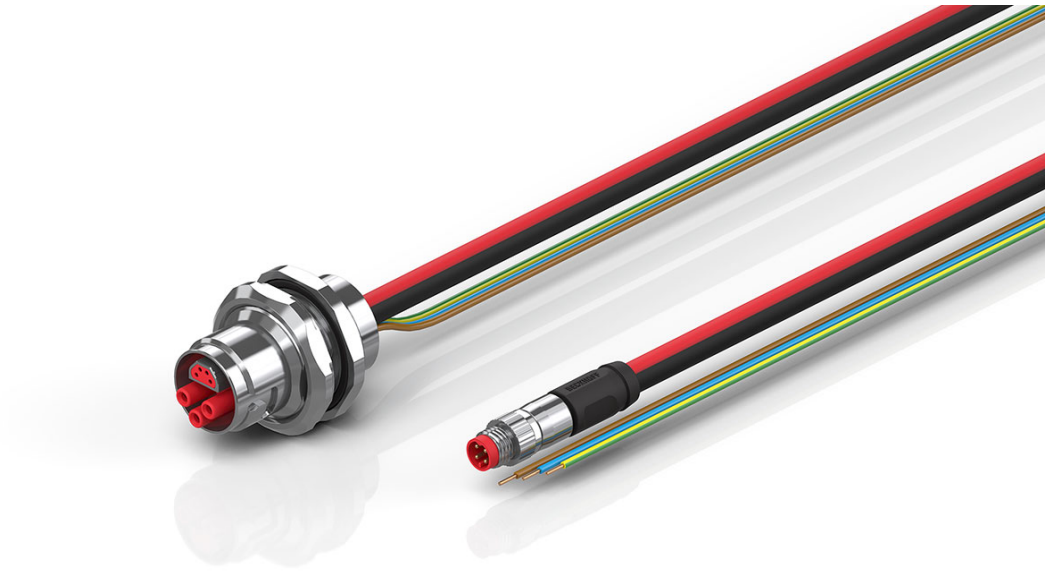
# ZK7610-AI00-0xxx | B17, ECP cable, PUR, 3 G 2.5 mm² + (1 x 4 x AWG22), drag-chain suitable, key 2 (230 V AC)

## B17, flange rear assembly, straight, short, female+ female, pins 2+PE+4, EtherCAT P-coded – M8, plug, straight, male, 4-pin, EtherCAT P-coded – open end, 3-wire



## Plugs

| Electrical data | Head A | Head B | Head C |
|---|---|---|---|
| Rated voltage | - | 24 V DC (according to IEC 61076-2-104) | - |
| Rated voltage (Ethernet) | 24 V DC | - | - |
| Rated current (Ethernet) | 3 A at 40°C | - | - |
| Rated voltage (power) | 250 V AC/DC | - | - |
| Rated current (power) | 21 A at 55°C | - | - |
| Rated current | - | 3 A at 40°C (according to IEC 61076-2-104) | - |
| Rated impulse voltage (power) | 2.5 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 | - | yes | - |
| Shielding (Ethernet) | yes | - | - |
| Contact resistance | < 10 mΩ (signal),<br>< 5 mΩ (power) | - | - |
| Insulation resistance | ≥ 100 MΩ (according to IEC 60512) | ≥ 100 GΩ (according to IEC 60512) | - |
| **Mechanical data** | | | |
| Installation size | B17 | M8 | open end |
| Connector type | flange rear assembly | plug | - |
| Configuration | straight, short | straight | - |
| Contact type | female+ female | male | - |
| Number of positions (face) | pins 2+PE+4 | 4-pin | 3-wire |
| Coding | EtherCAT P-coded | EtherCAT P-coded | - |
| Mechanical coding | key 2 (230 V AC) | - | - |
| Wire termination | crimp connection | - | - |
| Recommended torque, nut | - | 0.4 Nm | - |
| Mating cycles | ≥ 100 | ≥ 100 | - |
| Way of locking | bayonet | screw | - |
| Weight | 0.170 kg (0.375 lb) | - | - |
| Body color | - | black | - |
| Body material | - | TPU, UL 94 | - |
| Flange housing material | GD-Zn, Ni | - | - |
| Coupling nut material | - | CuZn, Ni | - |
| Seal | NBR | FPM | - |
| Contact carrier color | - | red | - |
| Contact carrier material | PA, UL 94 | PA, UL 94 | - |
| Contact carrier color (Ethernet) | red | - | - |
| Contact carrier color (power) | red | - | - |
| Contact plating | Au over Ni | Ni, Au gal. | - |
| Contact material | copper alloy | CuZn | - |
| **Environmental data** | | | |
| Shock resistance | 50 g (490 m/s$^2$) conforms to IEC 60512-6c, 11 ms; 18 shocks per direction, 3 axes | - | - |
| Vibration resistance | 5 g (50 m /s$^2$) 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 rating | IP65/67 in screwed condition (according to IEC 60529) | IP67 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 | - | - |

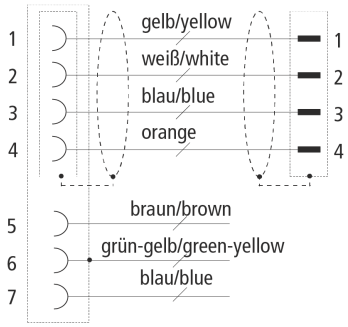
## Cable

| Electrical data | |
|---|---|
| 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 |
| 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) |
| **Mechanical data** | |
| Cable structure (Ethernet) | star quad |
| Conductor construction (power) | 19 x 0.375 mm |
| Cross-section (power) | 3 x 2.5 $mm^2$ (approx. AWG14) |
| Cross-section (Ethernet) | 1 x 4 x 0.34 $mm^2$ (AWG22) |
| Outer cable diameter | 6.5 mm ± 0.2 mm (0.2559" ± 0.0079") |
| 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) |
| Conductor material (Ethernet) | tinned copper |
| Shielding | aluminum-clad foil, braiding of tinned copper wires, coupling |
| Optical covering factor of shielding (Ethernet) | ≥ 85 % |
| Use | drag-chain suitable |
| Max. acceleration | 3 $m/s^2$ |
| Max. speed | 3 m/s |

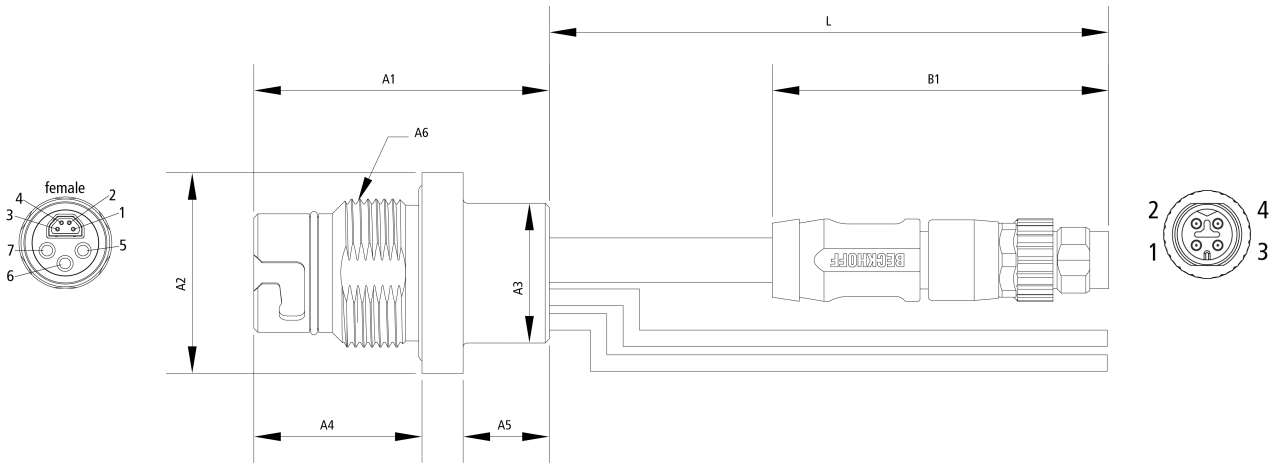
| | |
|---|---|
| Max. travel distance | 4.5 m |
| Max. number of cycles | 3 million |
| Jacket color | black (similar to RAL 9005) with red stripe (similar to RAL 3020) |
| Material jacket | PUR (polyurethane) |
| Wire color code | yellow, orange, white, blue (Ethernet) green/yellow, blue, brown (Power) |
| 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 20549 AWM I/II A/B 80°C 300 V MM/YY RoHS |
| Printing color | white |
| **Environmental data** | |
| 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 or according to DIN VDE 0282 part 10 |
| Flame-retardant | Horizontal flame test according to UL 1581 part 1090 |
| Halogen-free | according to IEC 60754 or DIN VDE 0472 part 815 |

| **Attenuation** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Max. insertion loss | | | | | | | | |
| 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 |
| Min. near-end crosstalk attenuation | | | | | | | | |
| 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 |

**Pin assignment**



## Dimensions




| | |
|---|---|
| A1 | 42.00 mm |
| A2 | 30.40 mm |
| A3 | 21.00 mm |
| A4 | 29.00 mm |
| A5 | 8.00 mm |
| A6 | M24 |
| B1 | 41.00 mm |

### Mechanical coding

Mechanical keying uses defined keyways that only allow insertion and subsequent locking rotation when correctly aligned. For more information, please refer to the keying guide for correct use.

# 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
- B17 3-pin 1.5 mm² and B17 3 3-pin 2.5 mm² are not pin compatible

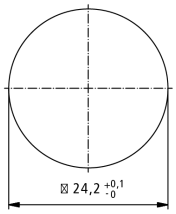
## CE, UL

| | |
|---|---|
| CE | yes |

## Installation dimensions

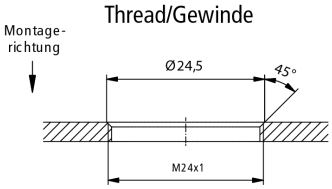
Hole/ Durchgangsloch

Panel cut out without twist protection/
Montageausschnitt ohne Verdrehsicherung

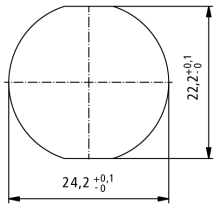



min. wall thickness 1.5 mm/
Min. Wandstärke 1,5 mm
max. wall thickness 5 mm/
Max. Wandtsärke 5 mm

Thread/Gewinde




Panel cut out with twist protection/
Montageausschnitt mit Verdrehsicherung




| Ordering information | Length |
|---|---|
| ZK7610-AI00-0005 | 0.50 m |
| ZK7610-AI00-0010 | 1.00 m |

Further length on request

| Accessories | |
|---|---|
| ZS7200-B001 | B17 protection cap, socket/flange, plastic, IP67, packaging unit = 10 pieces, including loss protection |
| ZS7200-B002 | B17 protection cap, socket/flange, metal, IP67, packaging unit = 5 pieces, including loss protection |
| ZS7200-B009 | B17 color coding flange for front/rear assembly, red, packaging unit = 10 pieces |
| ZS7200-B010 | B17 color coding flange for front/rear assembly, yellow, packaging unit = 10 pieces |
| ZS7200-B011 | B17 color coding flange for front/rear assembly, blue, packaging unit = 10 pieces |
| ZS7200-B012 | B17 color coding flange for front/rear assembly, green, packaging unit = 10 pieces |
| ZS7200-B013 | B17 color coding flange for front/rear assembly, orange, packaging unit = 10 pieces |
| ZS7200-B014 | B17 color coding flange for front/rear assembly, gray, packaging unit = 10 pieces |

Products marked with a crossed-out wheeled bin shall not be discarded with the normal waste stream. The device is considered as waste electrical and electronic equipment. The national regulations for the disposal of waste electrical and electronic equipment must be observed.

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