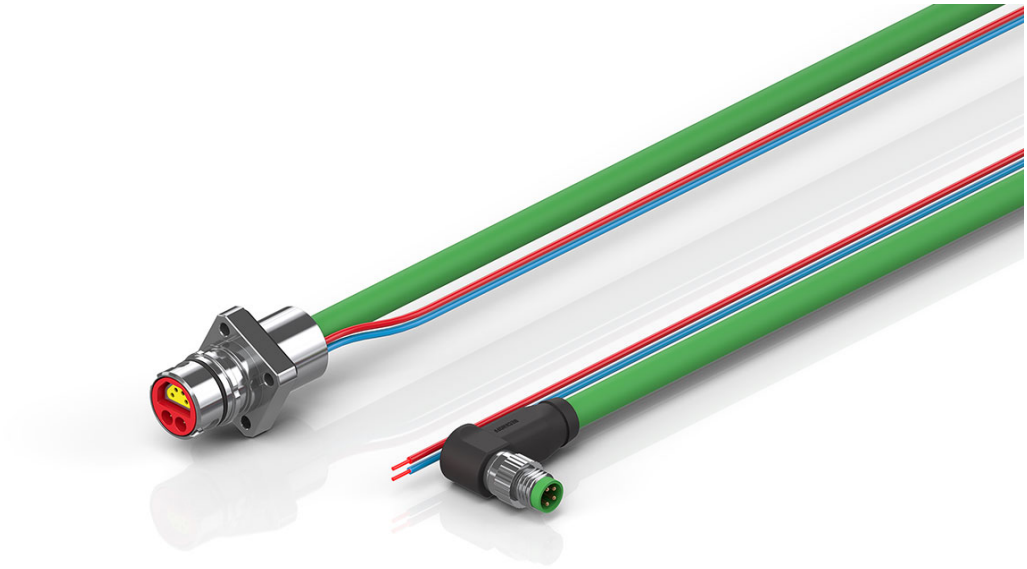
# ZK7102-AB03-Axxx | B12, ENP cable, PUR, 2 x 0.75 mm² + (1 x 4 x AWG22), drag-chain suitable, key 1 (24 V DC)

## B12, square flange, straight, short, male+female, pins 2+4, EtherCAT-coded – M8, plug, angled, male, 4-pin, A-coded – open end, 2-wire



## Plugs

| Electrical data | Head A | Head B | Head C |
|---|---|---|---|
| Rated voltage | - | 50 V AC/60 V DC (according to IEC 61076-2-104) | - |
| Rated voltage (Ethernet) | 60 V DC | - | - |
| Rated current (Ethernet) | 4 A at 40°C | - | - |
| Rated voltage (power) | 60 V DC | - | - |
| Rated current (power) | 10 A at 60°C | - | - |
| Rated current | - | 4 A at 40°C (according to IEC 61076-2-104) | - |
| 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 | - | 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 | B12 | M8 | open end |
| Connector type | square flange | plug | - |
| Configuration | straight, short | angled | - |
| Contact type | male+female | male | - |
| Number of positions (face) | pins 2+4 | 4-pin | 2-wire |
| Coding | EtherCAT-coded | A-coded | - |
| Mechanical coding | key 1 (24 V DC) | - | - |
| Wire termination | crimp connection | - | - |
| Recommended torque, nut | - | 0.4 Nm | - |
| Mating cycles | ≥ 100 | ≥ 100 | - |
| Way of locking | bayonet | screw | - |
| Weight | 0.070 kg (0.1543 lb) | 0.028 kg (0.0617 lb) | - |
| Body color | - | black | - |
| Body material | - | TPU, UL94 | - |
| Flange housing material | GD-Zn, Ni | - | - |
| Coupling nut material | - | GD-Zn, Ni | - |
| Seal | NBR, FPM | FPM | - |
| Contact carrier color | - | green | - |
| Contact carrier material | PA 6, UL 94 V0 | PA, UL 94 | - |
| Contact carrier color (Ethernet) | yellow | - | - |
| Contact carrier color (power) | red | - | - |
| Contact plating | Au over Ni | Ni, Au gal. | - |
| Contact material | copper alloy | CuZn | - |
| **Environmental data** | | | |
| Special features | - | 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$^2$) 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 | - | - |

| | | | |
|---|---|---|---|
| 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) | IP65/67 in screwed condition (according to IEC 60529) | - |
| Pollution level | 3/2 (according to IEC 60664-1) | 3/2 (according to IEC 60664-1) | - |

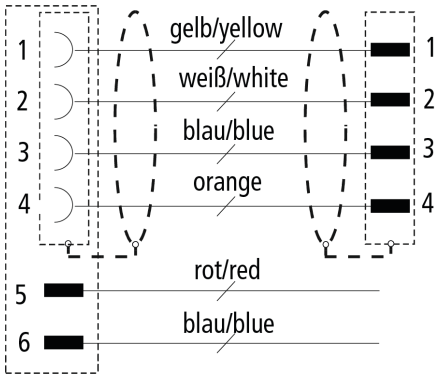
## Cable

| Electrical data | |
|---|---|
| Rated voltage (Ethernet) | max. 300 V (peak value, not for high voltage purposes) |
| Rated voltage (power) | 300 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 |
| **Mechanical data** | |
| 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 $mm^2$ (approx. AWG18) |
| Cross-section (Ethernet) | 1 x 4 x 0.34 $mm^2$ (AWG22) |
| Outer cable diameter | 6.5 mm ± 0.2 mm (0.142" ± 0.0079") |
| Min. bending radius, moved | 7.5 x outer cable diameter |
| Min. bending radius, fixed installation | 5 x outer cable diameter |
| Weight | 61.0 kg/km (41.0 lb/1000 ft) |
| Conductor material (Ethernet) | tinned copper |
| Shielding | aluminum-clad foil, braiding of tinned copper wires |

| | |
|---|---|
| Optical covering factor of shielding (Ethernet) | ≥ 85 % |
| Use | drag-chain suitable |
| Max. acceleration | 4 m/s² |
| Max. speed | 4 m/s |
| Max. number of cycles | 3 million |
| Wall thickness of wire insulation (Ethernet) | 0.375 mm |
| Jacket color | green |
| Material jacket | PUR (polyurethane) |
| Wire color code | yellow, orange, white, blue (Ethernet), blue, red (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 FRNC *"length in meters" |
| Printing color | black |
| **Environmental data** | |
| 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 |

| **Attenuation** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Max. insertion loss | | | | | | | | |
| 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 |
| 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 |

## Pin assignment




## Dimensions




| | |
|---|---|
| A1 | 36.00 mm |
| A2 | 20.00 mm |
| A3 | 15.70 mm |
| A4 | 13.20 mm |
| A5 | 17.80 mm |
| B1 | 29.80 mm |
| B2 | 26.30 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.

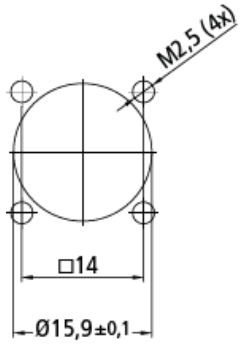
# Notes

- Depending on the cable length (L), the following length tolerances apply:
  0 m...<0.2 m: ± 10 mm | 0.2...4.0 m: + 40 mm | ≥ 4.0 m: + 1%
- Illustrations similar
- Further cable length on request.

## CE, UL

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

## Installation dimensions




| Ordering information | Length |
|---|---|
| ZK7102-AB03-A005 | 0.50 m |

Further length on request

| Accessories | |
|---|---|
| ZS7100-B001 | B12 protection cap, socket/flange, plastic, IP67, packaging unit = 10 pieces, including loss protection |
| ZS7100-B002 | B12 protection cap, socket/flange, metal, IP67, packaging unit = 5 pieces, including loss protection |
| ZS7100-B005 | B12 color coding connector/square flange, red, packaging unit = 10 pieces |
| ZS7100-B006 | B12 color coding connector/square flange, yellow, packaging unit = 10 pieces |
| ZS7100-B007 | B12 color coding connector/square flange, blue, packaging unit = 10 pieces |
| ZS7100-B008 | B12 color coding connector/square flange, green, packaging unit = 10 pieces |
| ZS7100-B015 | B12 color coding connector/square flange, orange, packaging unit = 10 pieces |
| ZS7100-B016 | B12 color coding connector/square flange, 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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