# ZK1093-6292-0xxx | EtherCAT cable, PUR, AWG22, drag-chain suitable

## M12, flange, straight, female, 4-pin, D-coded – RJ45, plug, straight, male, 8-pin



## Plugs

| Electrical data | Head A | Head B |
|---|---|---|
| Rated voltage | 160 V (according to IEC 61076-2-101) | 160 V |
| Rated current | 4 A at 40°C (according to IEC 61076-2-101) | 1 A at 50°C |
| Shielding | yes | yes |
| Insulation resistance | ≥ 100 MΩ (according to IEC 60512) | ≥ 10 GΩ (according to IEC 60512-2) |
| **Mechanical data** | | |
| Accessories type | - | Connectors/Cables |
| Installation size | M12 | RJ45 |
| Connector type | flange | plug |
| Configuration | straight | straight |
| Contact type | female | male |
| Number of positions (face) | 4-pin | 8-pin |
| Coding | D-coded | - |
| Recommended torque, nut | 1...1.2 Nm | - |

| | | |
|---|---|---|
| Mating cycles | ≥ 100 (according to IEC 60512-9a) | ≥ 750 |
| Way of locking | screw | - |
| Body color | metal | green |
| Body material | CuZn, Ni | PUR |
| Coupling nut material | CuZn, Ni | - |
| Seal | FPM | - |
| Contact carrier color | green | - |
| Contact carrier material | PBT GF, UL 94 | - |
| Contact plating | Ni, Au gal. | Ni, Au gal. |
| Contact material | CuZn | CuZn |
| **Environmental data** | | |
| Special features | halogen-free, flame-resistant as per IEC 60332-1-2, oil-resistant as per DIN EN 60811-2-1 | UL94 V0 |
| UV resistance | - | according to IEC 60068-2-5 |
| RoHS compliant | yes | yes |
| Oil resistance | - | according to IEC 60811-2-1 or according to DIN VDE 0282 part 10 |
| Ambient temperature (operation) | -30...+70°C, -22...+158°F | -40...+85°C, -40...+185°F |
| Protection rating | IP65/67 in screwed condition (according to IEC 60529) | IP20 |
| Pollution level | 3/2 (according to IEC 60664-1) | - |

# Cable

| | |
|---|---|
| **Electrical data** | |
| Rated voltage | 600 V |
| Operating voltage | ≤ 125 V (peak value, not for high voltage purposes) |
| 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 (Ethernet) | 7 x 0.25 mm |
| Cross-section (Ethernet) | 1 x 4 x 0.34 mm² (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, moved in drag-chain | 15 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. travel distance | 4.5 m |
| Max. number of cycles | 3 million |
| Wall thickness of wire insulation (Ethernet) | 0.375 mm |
| Jacket color | yellow |
| Material jacket | PUR (polyurethane) |
| Wire color code | yellow, orange, white, blue |
| Wire insulation material | PP (polypropylene) |
| Printing on the jacket | BECKHOFF ZB9024 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 |
| Torsion angle in °/m | max. ± 30 °/m |
| **Environmental data** | |
| Operation temperature range, moved | -30...+80°C, -22...+176°F |
| Operation temperature range, fixed installation | -40...+80°C, -40...+176°F |
| UV resistance | yes |
| Oil resistance | according to DIN EN 60811-404 (7x24 h/90 °C) |
| Acid, lye and solvent resistance | depends on medium, concentration, temperature and duration |

| | |
|---|---|
| LABS-free | yes |
| Flame-retardant | VW-1 Flame Test UL 1581 section 1080 and IEC 60332-1-2 |
| CFC-free | yes |
| Halogen-free | yes |
| Silicone-free | yes |
| RoHS compliant | yes |
| UL | yes, UL E-file number: E119100 |
| Approvals | UL, CMX according to UL 444 |

## Attenuation

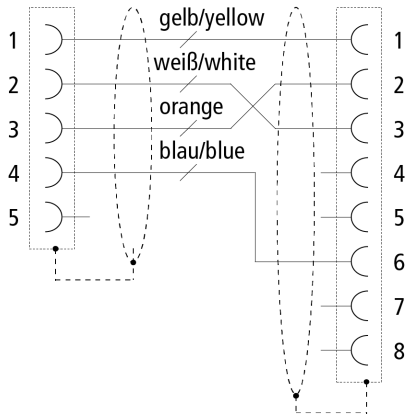
Max. insertion loss

| 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 |

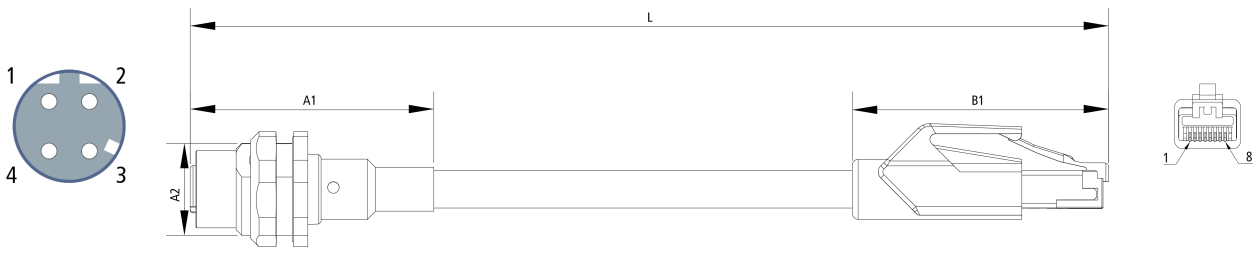
Min. near-end crosstalk attenuation

| 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



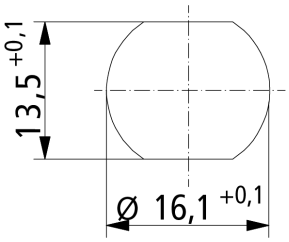
| | |
|---|---|
| A1 | 43.00 mm |
| A2 | M12 inner diameter, M16 outer diameter |
| B1 | 37.00 mm |

## 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 |
|---|---|
| ZK1093-6292-0010 | 1.00 m |
| ZK1093-6292-0011 | 1.10 m |
| ZK1093-6292-0020 | 2.00 m |
| ZK1093-6292-0030 | 3.00 m |
| ZK1093-6292-0040 | 4.00 m |
| ZK1093-6292-0050 | 5.00 m |

Further length on request

| Accessories | |
|---|---|
| ZB8801-0000 | torque wrench for hexagonal plugs, adjustable |
| ZB8801-0002 | torque cable key, M12/wrench size 13, for ZB8801-0000 |
| ZB8803-0003 | Flange/Panel feed-through for M12 pre-assembled, for fixing the connector, plastic, including screws, washers and lock nuts |
| ZK1096-9696-0000 | RJ45, socket, straight, female, 8-pin – RJ45, socket, straight, female, 8-pin |



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.

Beckhoff®, ATRO®, EtherCAT®, EtherCAT G®, EtherCAT G10®, EtherCAT P®, MX-System®, Safety over EtherCAT®, TC/BSD®, TwinCAT®, TwinCAT/BSD®, TwinSAFE®, XFC®, XPlanar® and XTS® are registered trademarks of and licensed by Beckhoff Automation GmbH. Other designations used in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owners.

© Beckhoff Automation GmbH & Co. KG 02/2026

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual application do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressively agreed in the terms of contract.