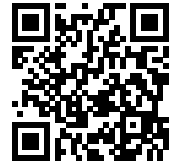
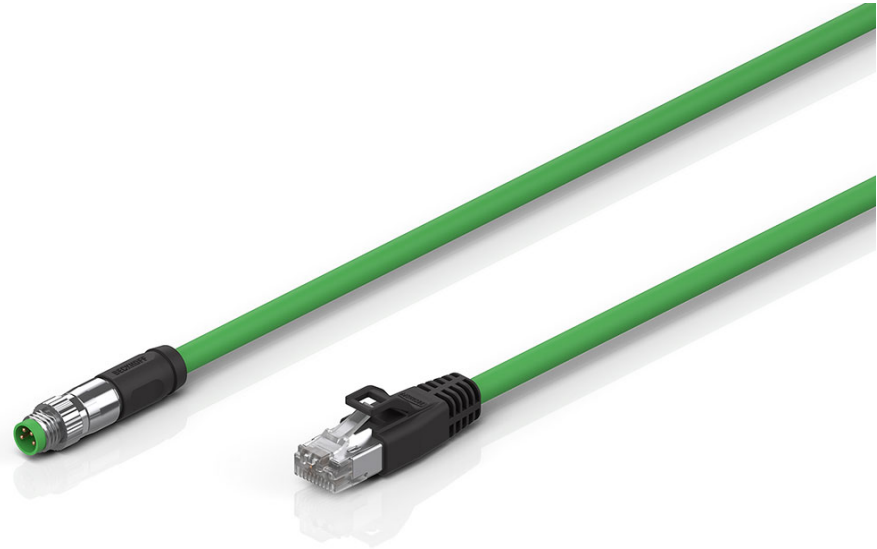


ZK1090-3191-6xxx | EtherCAT cable, PUR, 1 x 4 x AWG22, capable of torsion



M8, plug, straight, male, 4-pin, A-coded – RJ45, plug, straight, male, 4-pin



Plugs

| Electrical data | Head A | Head B |
|----------------------------|--|------------------------------------|
| Rated voltage | 63 V (according to IEC 61076-2-111) | 150 V |
| Rated current | 4 A at 40°C (according to IEC 61076-2-104) | 1.5 A |
| Shielding | yes | yes |
| Insulation resistance | ≥ 100 GΩ (according to IEC 60512) | ≥ 10 GΩ (according to IEC 60512-2) |
| Mechanical data | | |
| Installation size | M8 | RJ45 |
| Connector type | plug | plug |
| Configuration | straight | straight |
| Contact type | male | male |
| Number of positions (face) | 4-pin | 4-pin |
| Coding | A-coded | - |
| Recommended torque, nut | 0.4 Nm | - |
| Mating cycles | ≥ 100 | ≥ 750 |
| Way of locking | screw | - |

| | | |
|---------------------------------|---|---------------------------|
| Weight per piece | 0.028 kg (0.0617 lb) | - |
| Body color | black | black |
| Body material | TPU, UL94 | TPU, UL 94 HB |
| Coupling nut material | GD-Zn, Ni | - |
| Seal | FPM | - |
| Contact carrier color | green | - |
| Contact carrier material | PA 6, UL 94 V0 | PC UL 94 V-0 |
| 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 | - |
| RoHS compliant | yes | yes |
| Ambient temperature (operation) | -30...+70°C, -22...+158°F | -40...+70°C, -40...+158°F |
| Protection rating | IP65/67 in screwed condition (according to IEC 60529) | IP20 |
| Pollution level | 3/2 (according to IEC 60664-1) | - |

Cable

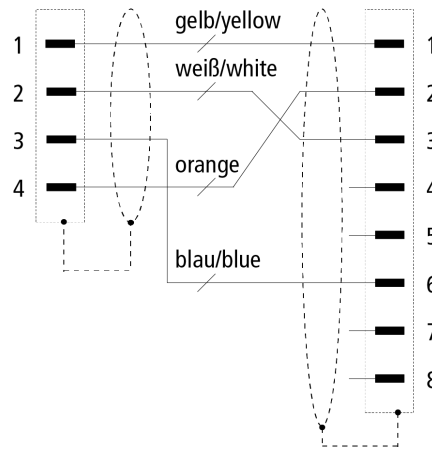
| | | |
|---|---|--|
| Electrical data | | |
| Rated voltage | 600 V | |
| Insulation resistance | $\geq 5\text{G}\Omega \cdot \text{km}$ | |
| Mutual capacitance | 48 nF/km | |
| Characteristic impedance (Ethernet) | 100 $\Omega \pm 15 \Omega$ | |
| Loop resistance (Ethernet) | $\leq 115 \Omega/\text{km}$ | |
| Signal running time (Ethernet) | 5.3 ns/m | |
| Electrical parameters (Ethernet) | based on Cat.5 | |
| Test voltage | 1500 V, 50 Hz, 1 min. | |
| Mechanical data | | |
| Cable structure (Ethernet) | star quad | |
| Conductor construction (Ethernet) | 19-strand | |
| Cross-section (Ethernet) | 1 x 4 x 0.34 mm ² (AWG22) | |
| Outer cable diameter | 6.6 mm \pm 0.2mm (0.259" \pm 0.0079") | |
| Min. bending radius, moved | 10 x outer cable diameter | |
| Min. bending radius, fixed installation | 5 x outer cable diameter | |
| Conductor material (Ethernet) | copper, tinned | |

| | |
|---|--|
| Shielding | two layers of conductive wrapping and braiding of special wires |
| Optical covering factor of shielding (Ethernet) | ≥ 85 % |
| Use | suitable for torsion/robotic application |
| Max. acceleration | 20 m/s ² |
| Max. speed | 4 m/s |
| Max. travel distance | 5 m |
| Max. number of cycles | 1 million |
| Jacket color | green |
| Material jacket | PUR (polyurethane) |
| Material jacket, further characteristics of | halogen-free, flame-retardant, matt and low adhesion |
| Wire color code | yellow, orange, white, blue |
| Wire insulation material | PO (Polyolefine) |
| Printing on the jacket | XXX Beckhoff Automation GmbH & Co. KG-Germany-ZB9021 EtherCAT Cat5e Torsion AWG22/19 E170315 cRUus> AWM21209 AWM I/II A/B 90°C 600V MM/YY CE |
| Printing color | black |
| Torsion angle in °/m | max. ± 180°/m |
| Torsion speed | 36 cycle/min. |
| Number of torsion cycles | 5 million |
| Load weight | 20 N |
| Claimed torsion length | 1 m |
| Environmental data | |
| Operation temperature range, moved | -30...+90°C, -22...+194°F |
| Operation temperature range, fixed installation | -40...+90°C, -40...+194°F |
| Oil resistance | according to DIN EN 60811-404 (7x24 h/90 °C) |
| Flame-retardant | VW-1 Flame Test UL 1581 section 1080 and IEC 60332-1-2 |
| Halogen-free | according to IEC 60754 or DIN VDE 0472 part 815 |
| UL | yes, UL E-file number: E170315 |

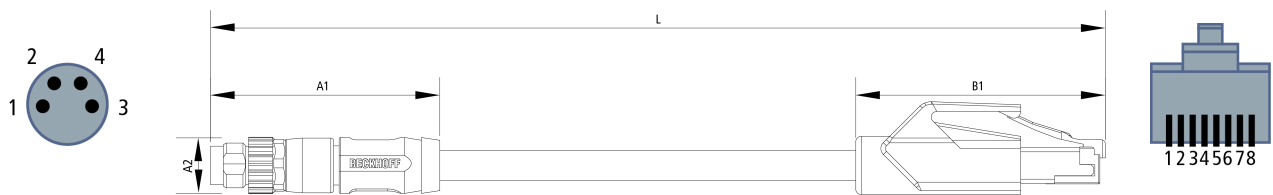
| | |
|-------------------------------------|---|
| Attenuation | |
| Max. insertion loss | |
| Frequency [MHz] | 1 4 10 16 20 31.25 62.5 100 |
| [db/100 m] | - 4.9 7.8 9.9 11.1 14.1 62.5 26.4 |
| [db/100 ft] | - 1.5 2.4 3 3.4 4.3 19.1 8 |
| Min. near-end crosstalk attenuation | |
| Frequency [MHz] | 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 |
|-------------|---|------|------|------|----|------|------|------|

Contact assembly



Dimensions



| | |
|----|-----------|
| A1 | 41.00 mm |
| A2 | ∅ 10.1 mm |
| B1 | 43.80 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.

Ordering information

Length

| | |
|------------------|---------|
| ZK1090-3191-6050 | 5.00 m |
| ZK1090-3191-6120 | 12.00 m |

Accessories

| | |
|------------------|---|
| ZB8801-0000 | torque wrench for hexagonal plugs, adjustable |
| ZB8801-0001 | torque cable key, M8/wrench size 9, for ZB8801-0000 |
| ZB8803-0001 | Flange/Panel feed-through for M8 pre-assembled, for fixing the connector, plastic |
| ZK1096-9696-0000 | RJ45, socket, straight, female, 8-pin – RJ45, socket, straight, female, 8-pin |

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