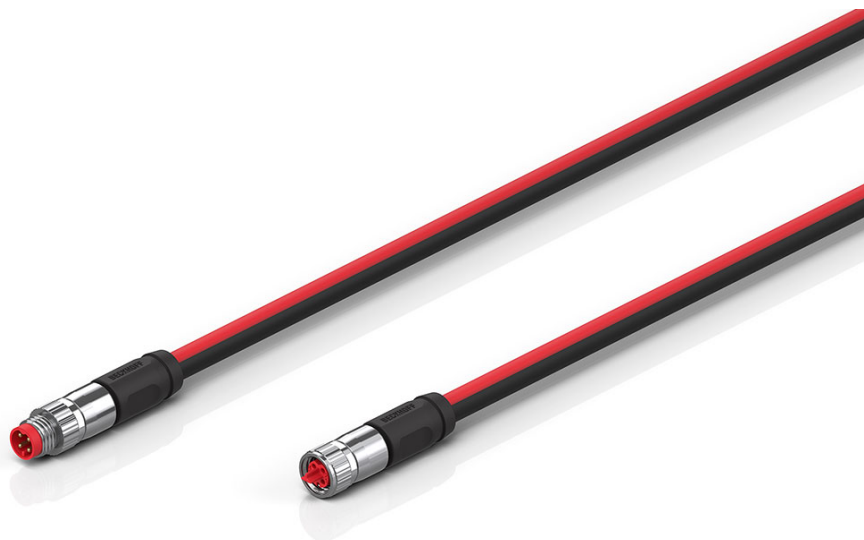


# ZK7001-0102-0xxx | EtherCAT P cable, AWG24, PUR, drag-chain suitable



M8, plug, straight, male, 4-pin, EtherCAT P-coded – M8, socket, straight, female, 4-pin, EtherCAT P-coded



## Plugs

| Electrical data            | Head A                                     | Head B                                     |
|----------------------------|--------------------------------------------|--------------------------------------------|
| Rated voltage              | 24 V DC (according to IEC 61076-2-104)     | 24 V DC (according to IEC 61076-2-104)     |
| Rated current              | 3 A at 40°C (according to IEC 61076-2-104) | 3 A at 40°C (according to IEC 61076-2-104) |
| Shielding                  | yes                                        | yes                                        |
| Insulation resistance      | ≥ 100 GΩ (according to IEC 60512)          | ≥ 100 GΩ (according to IEC 60512)          |
| Mechanical data            |                                            |                                            |
| Installation size          | M8                                         | M8                                         |
| Connector type             | plug                                       | socket                                     |
| Configuration              | straight                                   | straight                                   |
| Contact type               | male                                       | female                                     |
| Number of positions (face) | 4-pin                                      | 4-pin                                      |
| Coding                     | EtherCAT P-coded                           | EtherCAT P-coded                           |
| Recommended torque, nut    | 0.4 Nm                                     | 0.4 Nm                                     |
| Mating cycles              | ≥ 100                                      | ≥ 100                                      |

|                                 |                                                       |                                                    |
|---------------------------------|-------------------------------------------------------|----------------------------------------------------|
| Way of locking                  | screw                                                 | screw                                              |
| Body color                      | black                                                 | black                                              |
| Body material                   | TPU, UL 94                                            | TPU, UL 94                                         |
| Coupling nut material           | CuZn, Ni                                              | CuZn, Ni                                           |
| Seal                            | FPM                                                   | FPM                                                |
| Contact carrier color           | red                                                   | red                                                |
| Contact carrier material        | PA, UL 94                                             | PA, UL 94                                          |
| Contact plating                 | Ni, Au gal.                                           | Ni, Au gal.                                        |
| Contact material                | CuZn                                                  | CuZn                                               |
| <b>Environmental data</b>       |                                                       |                                                    |
| UV resistance                   | yes                                                   | yes                                                |
| RoHS compliant                  | yes                                                   | yes                                                |
| Ambient temperature (operation) | -40...+85°C, -40...+185°F                             | -40...+85°C, -40...+185°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)                     |

## Cable

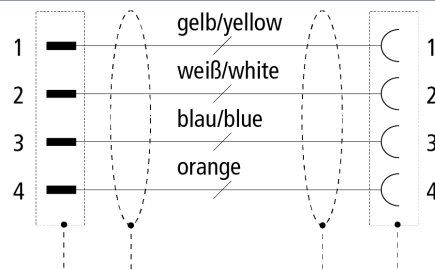
| Electrical data                            |                                                     |
|--------------------------------------------|-----------------------------------------------------|
| Rated voltage                              | max. 300 V (not for high voltage purposes)          |
| Operating voltage                          | ≤ 125 V (peak value, not for high voltage purposes) |
| Attenuation of shielding                   | min. 80 dB between 30 MHz and 125 MHz (type test)   |
| Insulation resistance                      | ≥ 5GΩ * km                                          |
| Unbalanced capacitance to ground           | ≤ 2000 pF/km                                        |
| Mutual capacitance                         | nom. 50 nF/km                                       |
| Characteristic impedance (Ethernet)        | 100 Ω ±15 Ω                                         |
| Loop resistance                            | 175.2 Ω/km                                          |
| Dielectric strength wire/wire (Ethernet)   | 1 kV (50 Hz, 1 min)                                 |
| Dielectric strength wire/shield (Ethernet) | 1 kV AC (50 Hz, 1 min.)/1 kV DC (50 Hz)             |
| Signal running time (Ethernet)             | 4.8 ns/m                                            |
| Electrical parameters (Ethernet)           | based on Cat.5                                      |
| Test voltage                               | 750 V, 50 Hz, 1 min.                                |
| Mechanical data                            |                                                     |
| Cable structure (Ethernet)                 | star quad                                           |
| Conductor construction (Ethernet)          | 7-strand                                            |
| Cross-section (Ethernet)                   | 1 x 4 x 0.22 mm <sup>2</sup> (AWG24)                |

|                                                 |                                                                                                                            |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Outer cable diameter                            | 5.2 mm ± 0.2 mm (0.2047" ± 0.0079")                                                                                        |
| Min. bending radius, moved                      | 15 x outer cable diameter                                                                                                  |
| Min. bending radius, moved in drag-chain        | 15 x outer cable diameter                                                                                                  |
| Min. bending radius, fixed installation         | 8 x outer cable diameter                                                                                                   |
| Weight                                          | 42 kg/km (28.22 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                               | 35 m/s <sup>2</sup>                                                                                                        |
| Max. speed                                      | 5 m/s                                                                                                                      |
| Max. travel distance                            | 10 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                                                                                                |
| Wire insulation material                        | PO (Polyolefine)                                                                                                           |
| Printing on the jacket                          | Beckhoff Automation GmbH & Co. KG - Germany - EtherCATp Cat5e AWG24/7 E170315 AWM 21198 AWM I/II A/B 80°C 300 V MM/YY RoHS |
| Printing color                                  | white                                                                                                                      |
| <b>Environmental data</b>                       |                                                                                                                            |
| 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 DIN EN 60811-404                                                                                              |
| Flame-retardant                                 | Horizontal flame test according to UL 1581 part 1090                                                                       |
| Halogen-free                                    | according to IEC 60754 or DIN VDE 0472 part 815                                                                            |
| UL                                              | yes, UL E-file number: E170315                                                                                             |

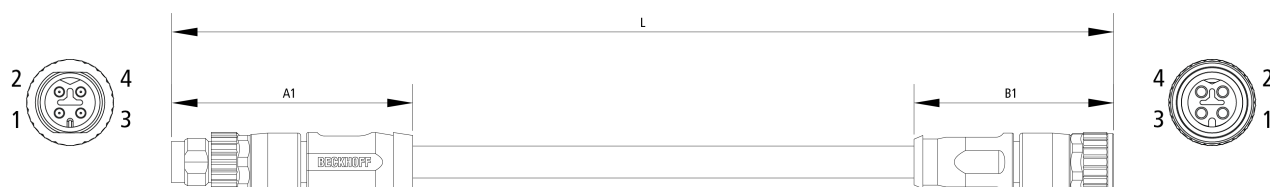
|                                     |     |     |     |      |      |       |      |      |
|-------------------------------------|-----|-----|-----|------|------|-------|------|------|
| <b>Attenuation</b>                  |     |     |     |      |      |       |      |      |
| Max. insertion loss                 |     |     |     |      |      |       |      |      |
| Frequency [MHz]                     | 1   | 4   | 10  | 16   | 20   | 31.25 | 62.5 | 100  |
| [db/100 m]                          | 3.0 | 6.0 | 9.5 | 12.1 | 13.5 | 17.1  | 24.8 | 32.0 |
| [db/100 ft]                         | 0.9 | 1.8 | 2.9 | 3.7  | 4.1  | 5.2   | 7.6  | 9.8  |
| Min. near-end crosstalk attenuation |     |     |     |      |      |       |      |      |

| Frequency [MHz] | 1    | 4    | 10   | 16   | 20   | 31.25 | 62.5 | 100  |
|-----------------|------|------|------|------|------|-------|------|------|
| [db/100 m]      | 65   | 56.3 | 50.3 | 47.2 | 45.8 | 42.9  | 38.4 | 35.3 |
| [db/100 ft]     | 19.8 | 17.2 | 15.3 | 14.4 | 14   | 13.1  | 11.7 | 10.8 |

## Pin assignment



## Dimensions



|    |           |
|----|-----------|
| A1 | 41.00 mm  |
| A2 | Ø10.10 mm |
| B1 | 35.00 mm  |
| B2 | Ø10.10 mm |

## Notes

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

## CE, UL

|    |                                |
|----|--------------------------------|
| CE | yes                            |
| UL | yes, UL E-file number: E480185 |

## Ordering information

| Ordering information | Length |
|----------------------|--------|
| ZK7001-0102-0010     | 1.00 m |
| ZK7001-0102-0020     | 2.00 m |
| ZK7001-0102-0040     | 4.00 m |
| ZK7001-0102-0050     | 5.00 m |

|                  |         |
|------------------|---------|
| ZK7001-0102-0100 | 10.00 m |
| ZK7001-0102-0150 | 15.00 m |
| ZK7001-0102-0200 | 20.00 m |

Further length on request

| 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, including screws, washers and lock nuts |



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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