ZK7001-0102-2xxx | EtherCAT P cable, AWG24, PUR, drag-chain suitable, for 40 mm bending radius

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
Environmental data		
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

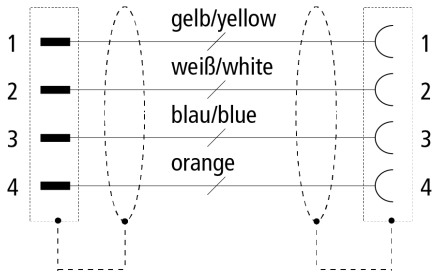
Electrical data	
Rated voltage	30 V
Operating voltage	≤ 300 V
Insulation resistance	≥ 5GΩ * km
Unbalanced capacitance to ground	≤ 2000 pF/km
Mutual capacitance	nom. 50 nF/km
Characteristic impedance (Ethernet)	100 Ω ±15 Ω
Dielectric strength wire/wire (Ethernet)	1.5 kV (50 Hz, 1 min)
Dielectric strength wire/shield (Ethernet)	1.5 kV (50 Hz, 1 min)
Signal running time	< 520 ns/100 m
Electrical parameters (Ethernet)	based on Cat.5
Test voltage	2000 V, 50 Hz, 1 min.
Mechanical data	
Cable structure (Ethernet)	star quad
Conductor construction (Ethernet)	19-strand
Cross-section (Ethernet)	1 x 4 x 0.25 mm² (AWG24)
Outer cable diameter	5.7 mm ± 0.3 mm (0.2244" ± 0.0118")

Min. bending radius, moved	10 x outer cable diameter
Min. bending radius, moved in drag-chain	7 x cable outher diameter (2 million cycles) 10 x cable outher diameter (5 million cycles) 15 x cable outher diameter(10 million cycles)
Min. bending radius, fixed installation	4 x outer cable diameter
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. number of cycles	10 million with R = 90 mm, 5 million with R = 60 mm, 2 million with R = 40 mm, 5 million with 30 x D (v = 2 m/s, a = 30 m/s^2)
Jacket color	black (similar to RAL 9005) with red stripe (similar to RAL 3020)
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	XXXX m Beckhoff Automation GmbH & Co. KG – Germany – EtherCAT P ZB7005 Cat5e 4xAWG24/19 E63216 AWM 22203 AWM I A/B 80°C 600V FT2 RoHS MM/YY
Printing color	white
Environmental data	
Operation temperature range, moved	-20...+80°C, -4...+176°F
Operation temperature range, fixed installation	-40...+80°C, -40...+176°F
LABS-free	yes
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: E63216
Approvals	c(UL)us AWM Style 22203
Application Note	This cable is suitable for use in highly dynamic drag chain applications including very a tight bending radius of 40 mm. The use of EtherCAT-P technology and the flexible properties of the ZB7005 reduce the space requirements of drag chains by up to 50 %. In addition, the cable's fire behavior meets all required conditions according to UL VW-1 and has a 600 V approval according to AWM Style 22203.

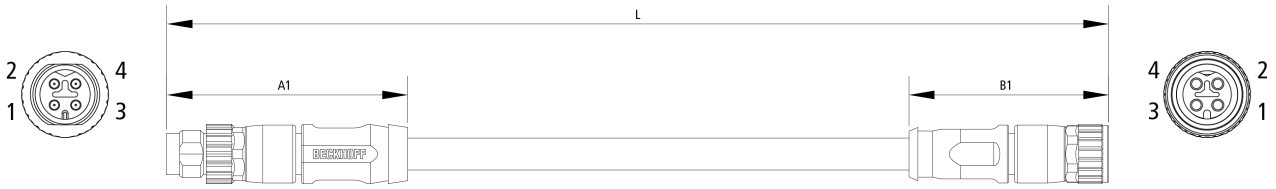
Attenuation								
Max. insertion loss								
Frequency [MHz]	**1**	**4**	**10**	**16**	**20**	**31.25**	**62.5**	**100**
[db/100 m]	-	4.9	7.8	9.9	11.1	14.1	62.5	26.4

[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

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: ± 10 mm | 0.2...4.0 m: + 40 mm | ≥ 4.0 m: + 1%
- Illustrations similar
- Further cable length on request.

CE, UL

CE	yes

Ordering information	Length
ZK7001-0102-2010	1.00 m
ZK7001-0102-2020	2.00 m
ZK7001-0102-2030	3.00 m

ZK7001-0102-2050	5.00 m
ZK7001-0102-2075	7.50 m
ZK7001-0102-2100	10.00 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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