

## ZK7102-1007-Axxx | B12, ENP cable, PUR, 2 x 0.75 mm<sup>2</sup> + (1 x 4 x AWG22), drag chain suitable, key 1 (24 V DC)

B12, socket, straight, male+female, pins 2+4, EtherCAT-coded – B12, plug, straight, female+male, pins 2+4, EtherCAT-coded

### Plugs

Electrical data	Head A	Head B
Rated voltage (Ethernet)	60 V DC	60 V DC
Rated current (Ethernet)	4 A at 40 °C	4 A at 40 °C
Rated voltage (power)	60 V DC	60 V DC
Rated current (power)	10 A at 60 °C	10 A at 60 °C
Rated impulse voltage (power)	1.5 kV	1.5 kV
Rated impulse voltage (Ethernet)	1.0 kV	1.0 kV
Voltage proof (contact/contact)	1.5 kV (power - Ethernet), 1.5 kV AC (power), 1.0 kV AC (Ethernet)	1.5 kV (power - Ethernet), 1.5 kV AC (power), 1.0 kV AC (Ethernet)
Shielding (Ethernet)	yes	yes
Contact resistance	< 10 mΩ (signal), < 5 mΩ (power)	< 10 mΩ (signal), < 5 mΩ (power)
Insulation resistance	≥ 100 MΩ (according to IEC 60512)	≥ 100 MΩ (according to IEC 60512)
Mechanical data		
Installation size	B12	B12
Connector type	socket	plug
Configuration	straight	straight
Contact type	male+female	female+male
Number of positions (face)	pins 2+4	pins 2+4
Coding	EtherCAT-coded	EtherCAT-coded
Mechanical coding	key 1 (24 V DC)	key 1 (24 V DC)
Wire termination	crimp connection	crimp connection
Mating cycles	≥ 100	≥ 100
Way of locking	bayonet	bayonet
Weight per piece	-	0.050 kg (0.110 lb)
Body colour	black	black
Body material	TPU, UL 94	TPU, UL 94 HB
Coupling nut material	GD-Zn, Ni	GD-Zn, Ni
Seal	NBR, FPM	NBR, FPM
Contact carrier material	PA 6, UL 94 V0	PA 6, UL 94 V0

Contact carrier colour (Ethernet)	yellow	yellow
Contact carrier colour (power)	red	red
Contact plating	Au over Ni	Au over Ni
Contact material	copper alloy	copper alloy
<b>Environmental data</b>		
Shock resistance	50 g (490 m/s <sup>2</sup> ) conforms to IEC 60512-6c, 11 ms; 18 shocks per direction, 3 axes	50 g (490 m/s <sup>2</sup> ) conforms to IEC 60512-6c, 11 ms; 18 shocks per direction, 3 axes
Vibration resistance	5 g (50 m/s <sup>2</sup> ) conforms to IEC 60512-6d, 10 Hz. ... 500 Hz.; 10 cycles per axis; 6 h full duration	5 g (50 m/s <sup>2</sup> ) 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...+80 °C, -22...+176 °F
Protection class	IP 65/67 in screwed condition (according to IEC 60529)	IP 65/67 in screwed condition (according to IEC 60529)
Pollution level	3/2 (according to IEC 60664-1)	3/2 (according to IEC 60664-1)

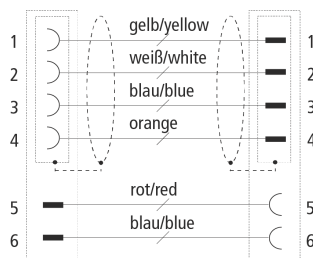
## Cable

<b>Electrical data</b>	
Operating voltage	≤ 1000 V AC
Attenuation of shielding	0,01 - 4 MHz ≤ 20 mΩ/m 10 MHz ≤ 50 mΩ/m 30 MHz ≤ 150 mΩ/m
Insulation resistance	≥ 500 MΩ * km (DIN EN 50395)
Mutual capacitance	AWG 22: 50 ± 15 pF/m at 800 Hz according to EN 50289-1-5
Wire resistance (power)	≤ 26,0 Ω/km (DIN EN 50395)
Wire resistance (Ethernet)	≤ 55.0 Ω/km (DIN EN 50395)
Characteristic impedance (Ethernet)	100 Ω ± 5 Ω (100 MHz) (EN 50289-1-11)
Dielectric strength wire/wire (power)	4 kV 50 Hz 5 min. (DIN VDE 0472 T.509C)
Dielectric strength wire/shield (power)	4 kV 50 Hz 5 min. (DIN VDE 0472 T.509C)
Dielectric strength wire/wire (Ethernet)	2 kV ( 50 Hz, 1 min)
Dielectric strength wire/shield (Ethernet)	2 kV ( 50 Hz, 1 min)
<b>Mechanical data</b>	
Cable structure (Ethernet)	star quad
Conductor construction (Ethernet)	7-strand
Cross section (power)	2 x 0.75 mm <sup>2</sup> (approx. AWG18)
Cross section (Ethernet)	1 x 4 x 0.34 mm <sup>2</sup> (AWG 22)
Min. bending radius, moved	7 x outer cable diameter
Min. bending radius, fixed installation	4 x outer cable diameter
Weight	110 kg/km (73.9 lb/1000 ft)
Outer cable diameter	9.0 mm ± 0.2 mm (0.3543" ± 0.0079")
Conductor material (power)	copper bare, Class 6 according to DIN EN 60228
Conductor material (Ethernet)	bare copper
Shielding	braiding of tinned copper wires, metallised plastic fleece, aluminium-clad foil
Optical covering factor of shielding (Ethernet)	≥ 85 %
Optical covering factor of shielding (total)	no
Use	drag-chain suitable
UL-Style Conductor	UL758 (AWM) Style 21223 (jacket) and Style 10492 (core)
Max. acceleration	30 m/s <sup>2</sup> by 5 m travel distance 15 m/s <sup>2</sup> by 10 m travel distance 5 m/s <sup>2</sup> by 20 m travel distance
Max. speed	4 m/s
Max. travel distance	20 m (horizontal) 5 m (vertical)
Max. number of cycles	3 million
Wall thickness of wire insulation (power)	0.4 mm
Wall thickness of wire insulation (Ethernet)	0.38 mm
Jacket colour	black (similar to RAL 9005) with yellow stripe (similar to RAL 1003)
Material jacket	PUR (polyurethane)

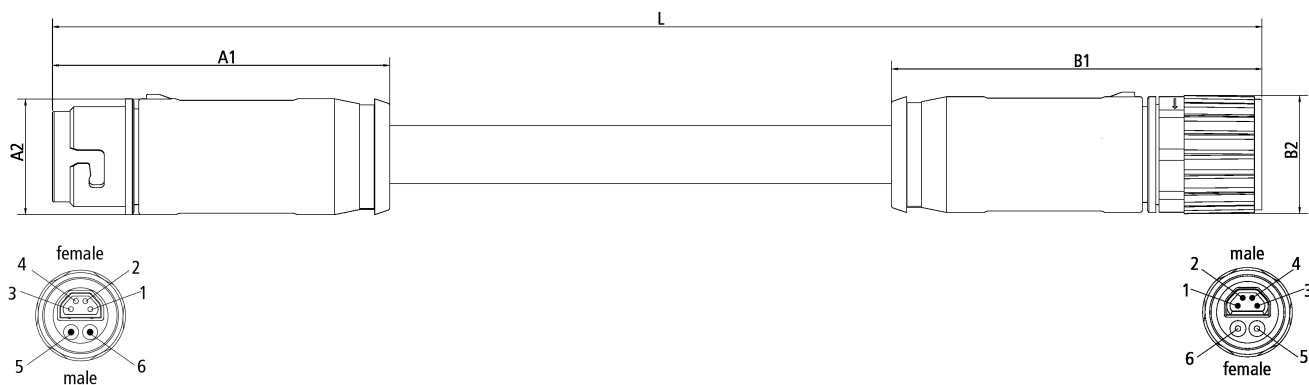
Wire colour code	white, yellow, blue, orange power: red, blue
Wire insulation material	PP (polypropylene)
Printing on the jacket	"length in meters" Beckhoff Automation GmbH & Co. KG - Germany - EtherCATp 2 x x0,75 + (4xAWG22)/C E-number cRUus AWM21223 AWM     A/B 80 °C 1000V FT1 XX/YY RoHS production month/production year
Printing colour	white
Torsion angle in °/m	max. ± 30 °/m
<b>Environmental data</b>	
Operation temperature range, moved	-30...+80 °C, -22...+176 °F, in drag-chain applications: -20...+60 °C, -4...+140 °F
Operation temperature range, fixed installation	-40...+80 °C, -40...+176 °F
UV resistance	yes
Oil resistance	according to DIN EN 60811-404
Flame-retardant	according to IEC 60332-1-2
CFC-free	yes
Halogen-free	DIN VDE 0472 part 815
Silicone-free	yes
Approvals	cRUus

<b>Attenuation</b>								
<b>Max. insertion loss</b>								
Frequency [MHz]	<b>1</b>	<b>4</b>	<b>10</b>	<b>16</b>	<b>20</b>	<b>31.25</b>	<b>62.5</b>	<b>100</b>
[db/100 m]	≤ 2.5	≤ 5.0	≤ 8.0	≤ 10.0	≤ 11.5	≤ 14.5	≤ 20.0	≤ 27.0
[db/100 ft]	≤ 0.8	≤ 1.5	≤ 2.4	≤ 3	≤ 3.5	≤ 4.4	≤ 6.1	≤ 8.2
<b>Min. near-end crosstalk attenuation</b>								
Frequency [MHz]	<b>1</b>	<b>4</b>	<b>10</b>	<b>16</b>	<b>20</b>	<b>31.25</b>	<b>62.5</b>	<b>100</b>
[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

**Contact assembly**



**Dimensions**



A1	58.00 mm
A2	18.00 mm
B1	64.60 mm
B2	18.00 mm

# Notes

- Depending on the cable length (L), the following length tolerances apply:

0 m...3.0 m: + 100 mm | 3.0...10.0 m:  $\pm 100$  mm |  $\geq 10.0$  m:  $\pm 2$  %

- Illustrations similar

- Further cable length on request. The last three digits of the ordering information is the cable length in decimeters, e.g. ZKxxxx-xxxx-x020 = cable length 2.00 m

## Installation dimensions

Ordering information	Length
ZK7102-1007-A010	1.00 m
ZK7102-1007-A030	3.00 m
ZK7102-1007-A050	5.00 m
ZK7102-1007-A100	10.00 m
ZK7102-1007-A150	15.00 m
ZK7102-1007-A200	20.00 m

## Accessories

ZB8802-0001	assembly tool for B12 connector, AF17
ZS7100-B003	B12 protection cap, plug, plastic, IP 67, packaging unit = 10 pieces
ZS7100-B004	B12 protection cap, plug, metal, IP 67, packaging unit = 5 pieces
ZS7100-B005	B12 colour coding connector/square flange, red, packaging unit = 10 pieces
ZS7100-B006	B12 colour coding connector/square flange, yellow, packaging unit = 10 pieces
ZS7100-B007	B12 colour coding connector/square flange, blue, packaging unit = 10 pieces
ZS7100-B008	B12 colour coding connector/square flange, green, packaging unit = 10 pieces
ZS7100-B015	B12 colour coding connector/square flange, orange, packaging unit = 10 pieces
ZS7100-B016	B12 colour coding connector/square flange, grey, packaging unit = 10 pieces

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