ZK7102-0607-0xxx | B12, ECP cable, PUR, 2 x 0.75 mm² + (1 x 4 x AWG22), drag-chain suitable, key 1 (24 V DC)

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



Plugs

Electrical data	Head A	Head B
Rated voltage (Ethernet)	24 V DC	24 V DC
Rated current (Ethernet)	3 A at 40°C	3 A at 40°C
Rated voltage (power)	60 V DC	60 V DC
Rated current (power)	10 A at 55°C	10 A at 55°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	plug	plug
Configuration	straight	straight
Contact type	male+male	female+ female
Number of positions (face)	pins 2+4	pins 2+4
Coding	EtherCAT P-coded	EtherCAT P-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	0.050 kg (0.110 lb)	0.050 kg (0.110 lb)
Body color	black	black
Body material	TPU, UL 94 HB	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 color (Ethernet)	red	red
Contact carrier color (power)	red	red
Contact plating	Au over Ni	Au over Ni
Contact material	copper alloy	copper alloy
Environmental data		
Shock resistance	50 g (490 m/s^2) conforms to IEC 60512-6c, 11 ms; 18 shocks per direction, 3 axes	50 g (490 m/s^2) conforms to IEC 60512-6c, 11 ms; 18 shocks per direction, 3 axes
Vibration resistance	5 g (50 m /s^2) conforms to IEC 60512-6d, 10 Hz. ... 500 Hz.; 10 cycles per axis; 6 h full duration	5 g (50 m /s^2) 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 rating	IP65/67 in screwed condition (according to IEC 60529)	IP65/67 in screwed condition (according to IEC 60529)
Pollution level	3/2 (according to IEC 60664-1)	3/2 (according to IEC 60664-1)

Cable

Electrical data	
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)
Mechanical data	
Cable structure (Ethernet)	star quad
Conductor construction (Ethernet)	7-strand
Cross-section (power)	2 x 0.75 mm² (approx. AWG18)
Cross-section (Ethernet)	1 x 4 x 0.34 mm² (AWG22)
Outer cable diameter	9.0 mm ± 0.2 mm (0.3543" ± 0.0079")
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)
Conductor material (power)	copper bare, Class 6 according to DIN EN 60228
Conductor material (Ethernet)	tinned copper
Shielding	braiding of tinned copper wires, metallized plastic fleece, aluminum-clad foil
Optical covering factor of shielding (Ethernet)	≥ 85 %
Optical covering factor of shielding (total)	no
Use	drag-chain suitable
UL-Style	UL758 (AWM) Style 21223 (jacket) and Style 10492 (core)
Max. acceleration	30 m/s² by 5 m travel distance 15 m/s² by 10 m travel distance 5 m/s² 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 color	black (similar to RAL 9005) with red stripe (similar to RAL 3020)
Material jacket	PUR (polyurethane)

Wire color 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 color	white
Torsion angle in °/m	max. ± 30 °/m

Environmental data	
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	according to DIN VDE 0472 part 815
Silicone-free	yes
Approvals	cRUus

Attenuation

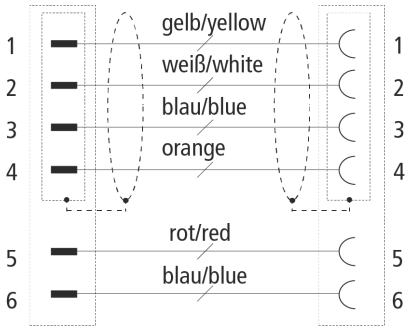
Max. insertion loss

Frequency [MHz]	**1**	**4**	**10**	**16**	**20**	**31.25**	**62.5**	**100**
[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

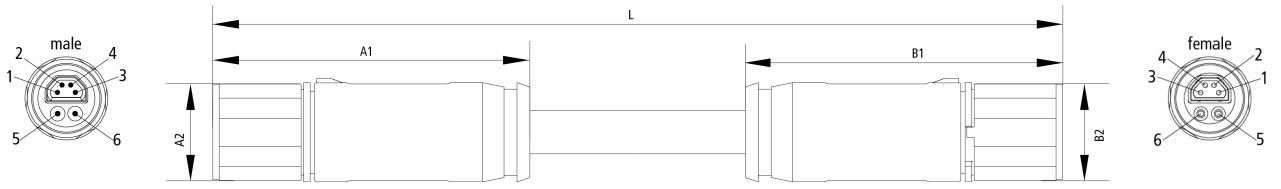
Min. near-end crosstalk attenuation

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	64.60 mm
A2	18.00 mm
B1	64.60 mm
B2	18.00 mm

Mechanical coding

Mechanical keying uses defined keyways that only allow insertion and subsequent locking rotation when correctly aligned. For more information, please refer to the keying guide for correct use.

Notes

- Depending on the cable length (L), the following length tolerances apply:
0 m...3.0 m: + 100 mm | 3.0...10.0 m: ± 100 mm | ≥ 10.0 m: ± 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
- The design of the pre-assambled cable shown here may differ from the products supplied, despite technically identical specifications.

CE, UL	
CE	yes

Ordering information	Length
ZK7102-0607-0010	1.00 m
ZK7102-0607-0020	2.00 m
ZK7102-0607-0050	5.00 m
ZK7102-0607-0070	7.00 m
ZK7102-0607-0075	7.50 m
ZK7102-0607-0100	10.00 m
ZK7102-0607-0120	12.00 m
ZK7102-0607-0130	13.00 m
ZK7102-0607-0150	15.00 m
ZK7102-0607-0250	25.00 m

Further length on request

Accessories	
ZS7100-B005	B12 color coding connector/square flange, red, packaging unit = 10 pieces
ZS7100-B006	B12 color coding connector/square flange, yellow, packaging unit = 10 pieces
ZS7100-B007	B12 color coding connector/square flange, blue, packaging unit = 10 pieces
ZS7100-B008	B12 color coding connector/square flange, green, packaging unit = 10 pieces
ZS7100-B015	B12 color coding connector/square flange, orange, packaging unit = 10 pieces
ZS7100-B016	B12 color coding connector/square flange, gray, packaging unit = 10 pieces
ZS7100-B003	B12 protection cap, plug, plastic, IP67, packaging unit = 10 pieces, including loss protection
ZS7100-B004	B12 protection cap, plug, metal, IP67, packaging unit = 5 pieces, including loss protection
ZB8802-0001	assembly tool for B12 connector, AF17
ZB8804-0005	Flange/Panel feed-through for B12 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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