

ZK7A21-3700-Axxx | B23, ENP cable, PUR, 4 G 4.0 mm² + 2 x 2.5 mm² + (1 x 4 x AWG22), drag chain suitable, key 3 (user-defined voltage)

B23, plug, straight, female+male, pins 3+PE+2+4, EtherCAT-coded – open end

Plugs

Electrical data	Head A	Head B
Rated voltage (Ethernet)	60 V DC	-
Rated current (Ethernet)	4 A at 40 °C	-
Rated voltage (power)	630 V AC / 850 V DC, 600V AC / DC (UL)	-
Rated current (power)	22 A + 25 A at 40 °C	-
Rated current (power)	22 A + 25 A	-
Rated impulse voltage (power)	6.0 kV	-
Rated impulse voltage (Ethernet)	1.0 kV	-
Voltage proof (contact/contact)	1.5 kV (power - Ethernet), 3.31 kV AC (power), 1.0 kV AC (Ethernet)	-
Shielding (Ethernet)	yes	-
Contact resistance	< 10 mΩ (signal), < 5 mΩ (power)	-
Insulation resistance	≥ 100 MΩ (according to IEC 60512)	-
Mechanical data		
Installation size	B23	open end
Connector type	plug	-
Configuration	straight	-
Contact type	female+male	-
Number of positions (face)	pins 3+PE+2+4	-
Coding	EtherCAT-coded	-
Mechanical coding	key 3 (user-defined voltage)	-
Wire termination	crimp connection	-
Mating cycles	≥ 100	-
Way of locking	bayonet	-
Weight per piece	0.100 kg (0.220 lb)	-
Body colour	black	-
Body material	TPU, UL 94 HB	-

Coupling nut material	GD-Zn, Ni	-
Seal	NBR	-
Contact carrier material	PA, UL 94	-
Contact carrier colour (Ethernet)	yellow	-
Contact carrier colour (power)	red	-
Contact plating	Au over Ni	-
Contact material	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	-
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	-
RoHS compliant	yes	-
Ambient temperature (operation)	-30...+80 °C, -22...+176 °F	-
Protection class	IP 65/67 in screwed condition (according to IEC 60529)	-
Pollution level	3/2 (according to IEC 60664-1)	-
Approvals	UL 2237: File E484763	-

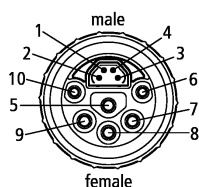
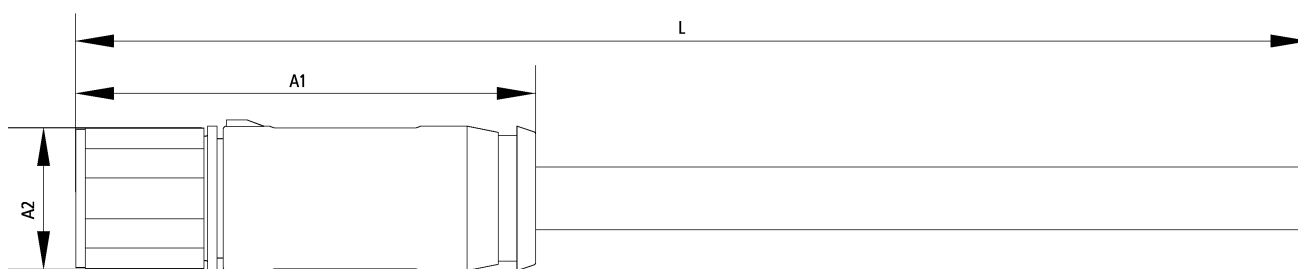
Cable

Electrical data		
Operating voltage	≤ 1000 V AC	
Mutual capacitance wire/wire (Ethernet)	50 ±15 pF/m at 800 Hz (EN 50289-1-5)	
Attenuation of shielding	≥ 65 dB (30...100 MHz)	
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)	≤ 4.95 Ω/km (DIN EN 50395)	
Wire resistance (signal/24V)	≤ 7.98 Ω/km according to DIN EN 50395	
Wire resistance (Ethernet)	≤ 58.0 Ω/km according to 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)	4 x 4.0 mm ² (approx. AWG12)	
Cross section (signal)	2 x 2.5 mm ² (approx. AWG 14)	
Cross section (Ethernet)	1 x 4 x 0.34 mm ² (AWG 22)	
Min. bending radius, moved	7 x outer cable diameter	
Min. bending radius, fixed installation	4 x outer cable diameter	
Weight	350 kg/km (235.19 lb/1000 ft)	
Outer cable diameter	15.6 mm ± 0.4 mm (0.6142" ± 0.0157")	
Conductor material (power)	copper bare, Class 6 according to DIN EN 60228	
Conductor material (signal/24V)	copper bare, Class 6 according to DIN EN 60228	
Conductor material (Ethernet)	copper, tinned	
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 ² by 5 m travel distance 15 m/s ² by 10 m travel distance 5 m/s ² 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)	0.4 mm
Jacket colour	black (similar to RAL 9005) with yellow stripe (similar to RAL 1003)
Material jacket	PUR (polyurethane)
Wire colour code	Ethernet: white, yellow, blue, orange Power: brown, blue, white, green/yellow Signal: red, black
Wire insulation material	PP (polypropylene)
Printing on the jacket	XXXX Beckhoff Automation GmbH & Co. KG-Germany- 4G4+2x2,5 + (4xAWG22)/C E170315 AWM 20233 AWM I/II A/B 80°C 300V FT1 RoHS MM/JJ CE
Printing colour	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
LABS-free	yes
Flame-retardant	yes
CFC-free	yes
Halogen-free	yes
Silicone-free	yes
Approvals	cRUus

Attenuation								
Max. insertion loss								
Frequency [MHz]	1	4	10	16	20	31.25	62.5	100
[db/100 m]	≤ 2.3	≤ 4.2	≤ 6.8	≤ 8.6	≤ 9.7	≤ 12.3	≤ 18.0	≤ 23.6
[db/100 ft]	≤ 0.7	≤ 1.3	≤ 2.1	≤ 2.6	≤ 3	≤ 3.7	≤ 5.5	≤ 7.2
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

Dimensions



A1	94.00 mm
A2	29.00 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: ± 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

Ordering information	Length
ZK7A21-3700-Axxx	–

Accessories	
ZS7300-B001	B23 protection cap, socket/flange, plastic, IP 67, packaging unit = 10 pieces
ZS7300-B002	B23 protection cap, socket/flange, metal, IP 67, packaging unit = 5 pieces
ZS7300-B005	B23 color coding connector/square flange, red, packaging unit = 10 pieces
ZS7300-B006	B23 color coding connector/square flange, yellow, packaging unit = 10 pieces
ZS7300-B007	B23 color coding connector/square flange, blue, packaging unit = 10 pieces
ZS7300-B008	B23 color coding connector/square flange, green, packaging unit = 10 pieces
ZS7300-B015	B23 color coding connector/square flange, orange, packaging unit = 10 pieces
ZS7300-B016	B23 color coding connector/square flange, gray, packaging unit = 10 pieces

Beckhoff®, TwinCAT®, EtherCAT®, EtherCAT G®, EtherCAT G10®, EtherCAT P®, Safety over EtherCAT®, TwinSAFE®, XFC®, XTS® and XPlanar® are registered trademarks of and licensed by Beckhoff Automation GmbH. Other designations used in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owners.

© Beckhoff Automation GmbH & Co. KG 03/2021

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual application do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.