



## ZK7A14-3031-0xxx | B23, ECP cable, PUR, 5 G 4.0 mm<sup>2</sup> + (1 x 4 x AWG22), drag chain suitable, key 3 (user-defined voltage)

B23, plug, straight, male+male, pins 4+PE+4, P-coded – B23, plug, straight, female+ female, pins 4+PE+4, 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)	630 V AC / 850 V DC, 600V AC / DC (UL)	630 V AC / 850 V DC, 600V AC / DC (UL)
Rated current (power)	28 A at 40 °C	28 A at 40 °C
Rated current (power)	28 A	28 A
Rated impulse voltage (power)	6.0 kV	6.0 kV
Rated impulse voltage (Ethernet)	1.0 kV	1.0 kV
Voltage proof (contact/contact)	1.5 kV (power - Ethernet), 3.31 kV AC (power), 1.0 kV AC (Ethernet)	1.5 kV (power - Ethernet), 3.31 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	B23	B23
Connector type	plug	plug
Configuration	straight	straight
Contact type	male+male	female+ female
Number of positions (face)	pins 4+PE+4	pins 4+PE+4
Coding	P-coded	P-coded
Mechanical coding	key 3 (user-defined voltage)	key 3 (user-defined voltage)
Wire termination	crimp connection	crimp connection
Mating cycles	≥ 100	≥ 100
Way of locking	bayonet	bayonet
Weight per piece	0.100 kg (0.220 lb)	0.100 kg (0.220 lb)
Body colour	black	black
Body material	TPU, UL 94 HB	TPU, UL 94 HB

Coupling nut material	GD-Zn, Ni	GD-Zn, Ni
Seal	NBR	NBR
Contact carrier material	PA, UL 94	PA, UL 94
Contact carrier colour (Ethernet)	red	red
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)
Approvals	UL 2237: File E484763	UL 2237: File E484763

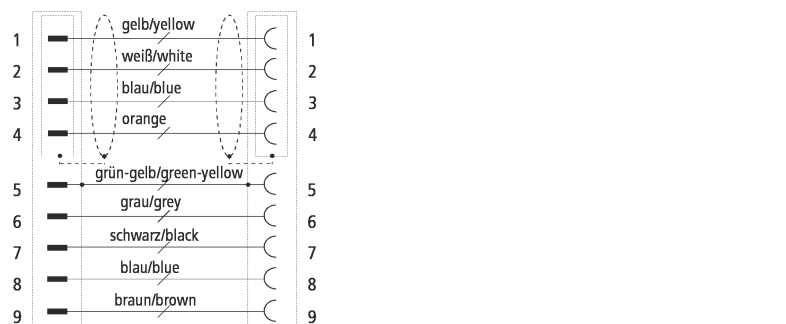
## Cable

<b>Electrical data</b>	
Operating voltage	≤ 1000 V AC
Mutual capacitance wire/wire (Ethernet)	50 ±15 pF/m at 800 Hz (EN 50289-1-5)
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 (Ethernet)	≤ 58.0 Ω/km according to DIN EN 50395
Characteristic impedance (Ethernet)	100 Ω ±15 Ω (100 MHz)
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)	5 x 4.0 mm <sup>2</sup> (approx. AWG12)
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	370 kg/km (248.60 lb/1000 ft)
Outer cable diameter	15.0 mm ± 0.2 mm (0.5906" ± 0.0118")
Conductor material (power)	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 <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)	0.6 mm
Jacket colour	black (similar to RAL 9005) with red stripe (similar to RAL 3020)

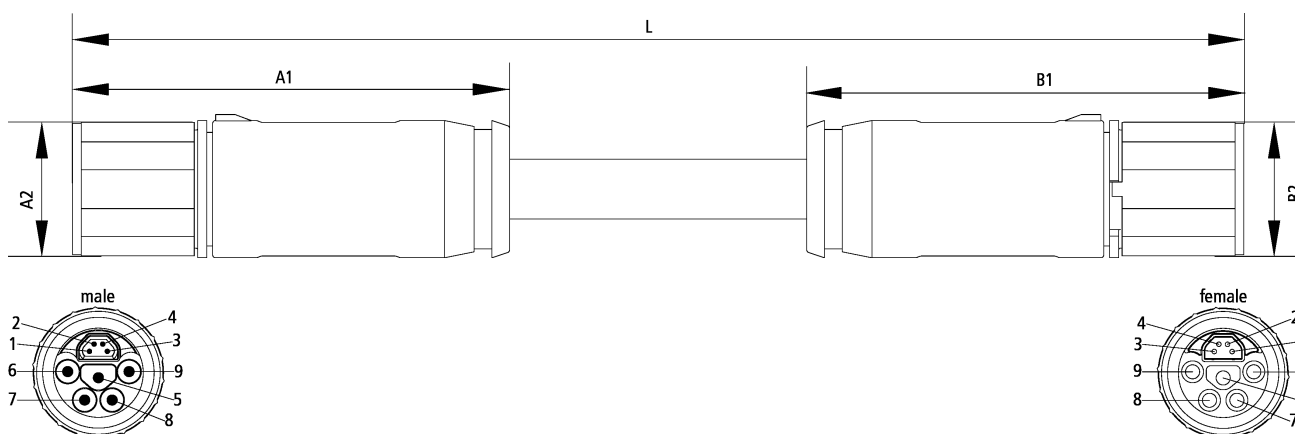
Material jacket	PUR (polyurethane)
Wire colour code	Ethernet: white, yellow, blue, orange Power: red, blue, grey, black, green/yellow
Wire insulation material	PO (Polyolefine)
Printing on the jacket	XXXXM Beckhoff Automation GmbH & Co. KG-Germany-EtherCAT P- 5G4 + (4xAWG22)/C E170315 AWM 20233 AWM I/II A/B 80°C 300V FT1 RoHS MM/JJ CE
Printing colour	white
Torsion angle in °/m	max. ± 30 °/m
<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
LABS-free	yes
Flame-retardant	yes
CFC-free	yes
Halogen-free	yes
Silicone-free	yes
Approvals	cRUus

<b>Attenuation</b>	
Max. insertion loss	
Frequency [MHz]	<b>1      4      10      16      20      31.25      62.5      100</b>
[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]	<b>1      4      10      16      20      31.25      62.5      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	93.60 mm
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A2	28.50 mm
B1	93.60 mm
B2	28.50 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
ZK7A14-3031-0xxx	–

Accessories	
ZS7300-B003	B23 protection cap, plug, plastic, IP 67, packaging unit = 10 pieces
ZS7300-B004	B23 protection cap, plug, 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
ZB8802-0003	assembly tool for B23 connector, AF27

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