ZK7314-3031-0xxx | B23, ECP cable, PUR, 5 G 4.0 mm² + (1 x 4 x AWG22), drag-chain suitable, key 1 (2 x 24 V DC + PE)

B23, plug, straight, male+male, pins 4+PE+4, EtherCAT P-coded – B23, plug, straight, female+ female, pins 4+PE+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)	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 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	EtherCAT P-coded	EtherCAT P-coded
Mechanical coding	key 1 (2 x 24 V DC + PE)	key 1 (2 x 24 V DC + PE)
Wire termination	crimp connection	crimp connection
Mating cycles	≥ 100	≥ 100
Way of locking	bayonet	bayonet
Weight	0.100 kg (0.2205 lb)	0.100 kg (0.2205 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	NBR
Contact carrier material	PA, UL 94	PA, UL 94
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)
Approvals	UL 2237: File E484763	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)
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)
Mechanical data	
Cable structure (Ethernet)	star quad
Conductor construction (Ethernet)	7-strand
Cross-section (power)	5 x 4.0 mm² (approx. AWG12)
Cross-section (Ethernet)	1 x 4 x 0.34 mm² (AWG22)
Outer cable diameter	15.0 mm ± 0.2 mm (0.5906" ± 0.0118")
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)
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)	0.6 mm
Jacket color	black (similar to RAL 9005) with red stripe (similar to RAL 3020)
Material jacket	PUR (polyurethane)
Wire color code	Ethernet: white, yellow, blue, orange Power: red, blue, gray, 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 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
LABS-free	yes
Flame-retardant	yes
CFC-free	yes
Halogen-free	yes
Silicone-free	yes
Approvals	cRUus

Attenuation

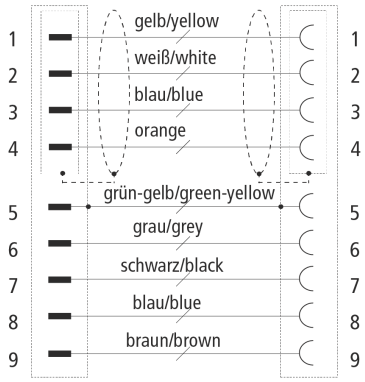
Max. insertion loss

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

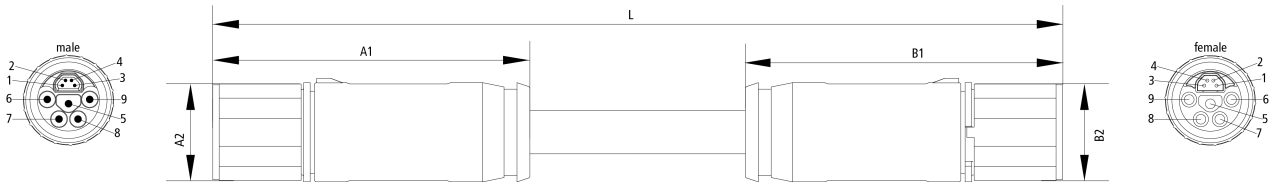
Min. near-end crosstalk attenuation

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

Pin assignment



Dimensions



A1	93.60 mm
A2	28.50 mm
B1	93.60 mm
B2	28.50 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
ZK7314-3031-0005	0.50 m
ZK7314-3031-0010	1.00 m
ZK7314-3031-0020	2.00 m
ZK7314-3031-0025	2.50 m
ZK7314-3031-0030	3.00 m
ZK7314-3031-0050	5.00 m
ZK7314-3031-0100	10.00 m

Further length on request

Accessories

ZS7300-B003	B23 protection cap, plug, plastic, IP67, packaging unit = 10 pieces, including loss protection
ZS7300-B004	B23 protection cap, plug, metal, IP67, packaging unit = 5 pieces, including loss protection
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
ZB8805-0002	Flange/Panel feed-through for B23 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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