ZK1093-6161-2xxx | EtherCAT cable, PUR, AWG26, fixed installation, comfortable installation at short distances

M12, plug, straight, male, 4-pin, D-coded – M12, plug, straight, male, 4-pin, D-coded



Plugs

Electrical data	Head A	Head B
Rated voltage	250 V (according to IEC 61076-2-101)	250 V (according to IEC 61076-2-101)
Rated current	4 A at 40°C (according to IEC 61076-2-101)	4 A at 40°C (according to IEC 61076-2-101)
Shielding	yes	yes
Insulation resistance	≥ 10 GΩ (according to IEC 60512-2)	≥ 10 GΩ (according to IEC 60512-2)
Mechanical data		
Installation size	M12	M12
Connector type	plug	plug
Configuration	straight	straight
Contact type	male	male
Number of positions (face)	4-pin	4-pin
Coding	D-coded	D-coded
Recommended torque, nut	0.6 Nm	0.6 Nm

Mating cycles	≥ 100 (according to IEC 60512-9a)	≥ 100 (according to IEC 60512-9a)
Way of locking	screw	screw
Body color	black	black
Body material	TPU, self-extinguishing	TPU, self-extinguishing
Coupling nut material	CuZn, Ni	CuZn, Ni
Seal	FPM	FPM
Contact carrier color	red	red
Contact carrier material	TPU GF, UL 94	TPU GF, UL 94
Contact plating	Ni, Au gal.	Ni, Au gal.
Contact material	CuZn	CuZn
Environmental data		
Special features	halogen-free, flame-resistant as per IEC 60332-1-2, oil-resistant as per DIN EN 60811-2-1	halogen-free, flame-resistant as per IEC 60332-1-2, oil-resistant as per DIN EN 60811-2-1
RoHS compliant	yes	yes
Ambient temperature (operation)	-25...+80°C, -13...+176°F	-25...+80°C, -13...+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

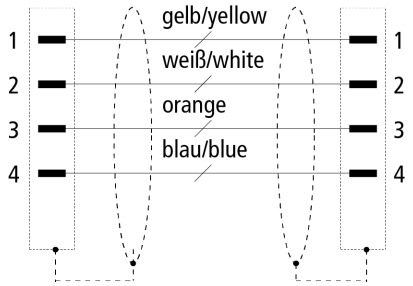
Electrical data	
Rated voltage	30 V (according to IEC 61076-2-101)
Attenuation of shielding	≥ 50 dB (30...100 MHz)
Insulation resistance	≥ 500 MΩ/km
Unbalanced capacitance to ground	≤ 2000 pF/km
Mutual capacitance	nom. 50 nF/km
Characteristic impedance (Ethernet)	100 Ω ±15 Ω
Loop resistance (Ethernet)	≤ 260 Ω/km
Unbalanced resistance (Ethernet)	2 %
Dielectric strength wire/wire (Ethernet)	1 kV AC (50 Hz, 1 min)/1 kV DC (50 Hz)
Dielectric strength wire/shield (Ethernet)	1 kV AC (50 Hz, 1 min.)/1 kV DC (50 Hz)
Signal running time (Ethernet)	4.8 ns/m
Electrical parameters (Ethernet)	based on Cat.5
Test voltage	1000 V, 50 Hz, 1 min.
Mechanical data	
Cable structure (Ethernet)	star quad

Conductor construction (Ethernet)	7-strand
Cross-section (Ethernet)	1 x 4 x 0.14 mm² (AWG26)
Outer cable diameter	3.65 mm ± 0.15 mm (0.1496" ± 0.0059")
Min. bending radius, moved	15 x outer cable diameter
Min. bending radius, fixed installation	8 x outer cable diameter, 2.5 x outher cable diameter (fixed with single bend)
Weight	30 kg/km (20.16 lb/1000 ft)
Conductor material	copper bare
Shielding	braiding of tinned copper wires
Optical covering factor of shielding (Ethernet)	≥ 85 %
Use	fixed installation
Jacket color	yellow
Material jacket	PUR (polyurethane)
Wire color code	yellow, orange, white, blue
Wire insulation material	PO (Polyolefine)
Printing on the jacket	00000m Beckhoff Automation GmbH & Co. KG - Germany – Industrial Ethernet / EtherCAT ZB9037 Cat5e AWG26/7 E170315 AWM 20963 AWM I A/B 80°C 30V Fa.No.xxxxx
Printing color	black
Environmental data	
Operation temperature range, moved	-30...+70°C, -22...+158°F
Operation temperature range, fixed installation	-40...+80°C, -40...+176°F
UV resistance	good
Oil resistance	according to DIN EN 60811-404 (7x24 h/90 °C)
Acid, lye and solvent resistance	depends on medium, concentration, temperature and duration
Flame-retardant	Horizontal flame test according to UL 1581 part 1090
CFC-free	yes
Halogen-free	according to IEC 60754 or DIN VDE 0472 part 815
Silicone-free	yes
UL	yes, UL E-file number: E170315

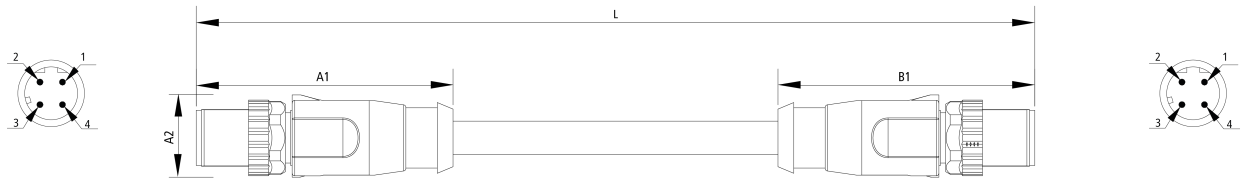
Attenuation								
Max. insertion loss								
Frequency [MHz]	**1**	**4**	**10**	**16**	**20**	**31.25**	**62.5**	**100**
[db/100 m]	3.2	6.2	10.5	13.4	14.7	18.8	27.2	35.0
[db/100 ft]	1	1.9	3.2	4.1	4.5	5.7	8.3	10.7
Min. near-end crosstalk attenuation								
Frequency [MHz]	**1**	**4**	**10**	**16**	**20**	**31.25**	**62.5**	**100**

[db/100 m]	65	56.3	50.3	47.2	45.8	42.9	38.4	35.3
[db/100 ft]	19.8	17.2	15.3	14.4	14	13.1	11.7	10.8

Pin assignment



Dimensions



A1	50.00 mm
A2	19.30 mm
B1	50.00 mm
B2	19.30 mm

Notes

- Depending on the cable length (L), the following length tolerances apply:
  0 m...<0.2 m: ± 10 mm | 0.2...4.0 m: + 40 mm | ≥ 4.0 m: + 1%
- Illustrations similar
- Further cable length on request.

CE, UL	
CE	yes
UL	yes, UL E-file number: E499669

Ordering information	Length
ZK1093-6161-2002	0.20 m

ZK1093-6161-2005	0.50 m
ZK1093-6161-2010	1.00 m
ZK1093-6161-2015	1.50 m
ZK1093-6161-2025	2.50 m
ZK1093-6161-2030	3.00 m
ZK1093-6161-2035	3.50 m
ZK1093-6161-2040	4.00 m

Further length on request

Accessories	
ZB8801-0000	torque wrench for hexagonal plugs, adjustable
ZB8801-0002	torque cable key, M12/wrench size 13, for ZB8801-0000
ZB8803-0003	Flange/Panel feed-through for M12 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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