



ZK1090-3133-6xxx | EtherCAT cable, PUR, 1x4xAWG22, capable of torsion

M8, plug, straight, male, 4-pin, A-coded – M8, plug, angled, male, 4-pin, A-coded

Plugs

Electrical data	Head A	Head B
Rated voltage	30 V (according to IEC 61076-2-104)	30 V (according to IEC 61076-2-104)
Rated current	4 A at 40 °C (according to IEC 61076-2-104)	4 A at 40 °C (according to IEC 61076-2-104)
Shielding	yes	yes
Insulation resistance	≥ 100 GΩ (according to IEC 60512)	≥ 100 GΩ (according to IEC 60512)
Mechanical data		
Installation size	M8	M8
Connector type	plug	plug
Configuration	straight	angled
Contact type	male	male
Number of positions (face)	4-pin	4-pin
Coding	A-coded	A-coded
Recommended torque, nut	0.4 Nm	0.4 Nm
Mating cycles	≥ 100	≥ 100
Way of locking	screw	screw
Weight per piece	0.028 kg (0.0617 lb)	0.028 kg (0.0617 lb)
Body colour	black	black
Body material	TPU, UL94	TPU, UL94
Coupling nut material	GD-Zn, Ni	GD-Zn, Ni
Seal	FPM	FPM
Contact carrier colour	green	green
Contact carrier material	PA 6, UL 94 V0	PA, 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)	-30...+70 °C, -22...+158 °F	-30...+70 °C, -22...+158 °F

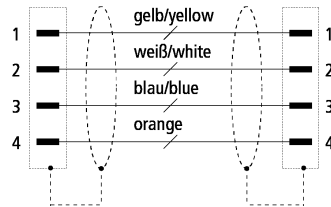
Protection class	IP 65/67 in screwed condition (according to IEC 60529)	IP 65/67 in screwed condition (according to IEC 60529)
Pollution level	3/2 (according to IEC 60664-1)	3/2 (according to IEC 60664-1)

Cable

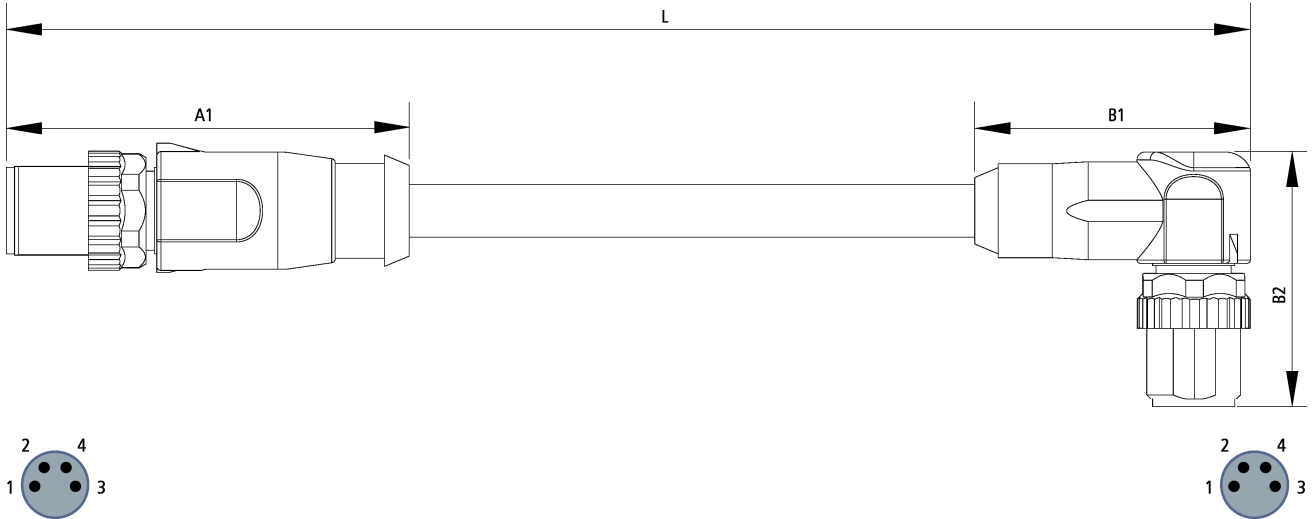
Electrical data	
Rated voltage	30 V
Insulation resistance	≥ 5GΩ * km
Mutual capacitance	48 nF/km
Characteristic impedance (Ethernet)	100 Ω ±15 Ω
Loop resistance (Ethernet)	≤ 115 Ω/km
Signal running time (Ethernet)	5.3 ns/m
Electrical parameters (Ethernet)	based on CAT 5
Test voltage	1500 V, 50 Hz, 1 min.
Mechanical data	
Cable structure (Ethernet)	star quad
Conductor construction (Ethernet)	19-strand
Cross section (Ethernet)	1 x 4 x 0.34 mm ² (AWG 22)
Min. bending radius, moved	8 x outer cable diameter
Min. bending radius, moved in drag chain	8 x outer cable diameter
Outer cable diameter	6.3 mm ± 0.2 mm (0.248" ± 0.0079")
Conductor material (Ethernet)	copper, tinned
Shielding	Two layers of conductive wrapping and braiding of special wires
Optical covering factor of shielding (Ethernet)	≥ 85 %
Use	suitable for torsion/robotic application
Jacket colour	green
Material jacket	PUR (polyurethane)
Material jacket, further characteristics of	halogen-free, flame-retardant, matt and low adhesion
Wire colour code	yellow, orange, white, blue
Wire insulation material	PO (Polyolefine)
Printing on the jacket	XXXX Beckhoff Automation GmbH & Co. KG-Germany-ZB9021 EtherCAT Cat5e Torsion AWG22/19 E170315 AWM20963 AWM I/II A/B 80°C 30V
Printing colour	black
Torsion angle in °/m	max. ± 180°/m
Torsion speed	36 cycle/min.
Number of torsion cycles	5 million
Load weight	20 N
Claimed torsion length	1 m
Environmental data	
Operation temperature range, moved	-30...+70 °C, -22...+158 °F
Oil resistance	according to DIN EN 60811-404 (7x24 h/90 °C)
Flame-retardant	VW-1 Flame Test UL 1581 section 1080 and IEC 60332-1-2
Halogen-free	according to IEC 60754 respectively DIN VDE 0472 part 815
Approvals	c(UL)us AWM Style 20963

Attenuation								
Max. insertion loss								
Frequency [MHz]	1	4	10	16	20	31.25	62.5	100
[db/100 m]	-	4.9	7.8	9.9	11.1	14.1	62.5	26.4
[db/100 ft]	-	1.5	2.4	3	3.4	4.3	19.1	8
Min. near-end crosstalk attenuation								
Frequency [MHz]	1	4	10	16	20	31.25	62.5	100
[db/100 m]	-	56.3	50.3	47.2	45.8	42.9	38.4	35.3
[db/100 ft]	-	17.2	15.3	14.4	14	13.1	11.7	10.8

Contact assembly



Dimensions



A1	41.00 mm
A2	Ø 10.1 mm
B1	29.80 mm
B2	26.30 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. 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
ZK1090-3133-6040	4.00 m

Accessories	
ZB8801-0000	torque wrench for hexagonal plugs, adjustable
ZB8801-0001	torque cable key, M8/wrench size 9, for ZB8801-0000

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 02/2021

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.