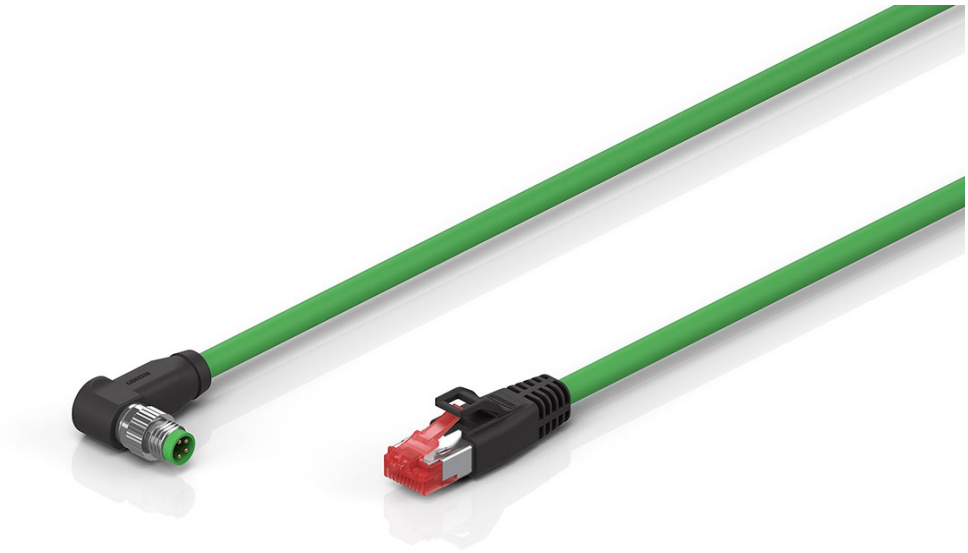
ZK1090-3391-1xxx | EtherCAT cable, PUR, AWG22, drag-chain suitable

M8, plug, angled, male, 4-pin, A-coded – RJ45, plug, straight, male, 4-pin



Plugs

Electrical data	Head A	Head B
Rated voltage	50 V AC/60 V DC (according to IEC 61076-2-104)	150 V
Rated current	4 A at 40°C (according to IEC 61076-2-104)	1.5 A
Shielding	yes	yes
Insulation resistance	≥ 100 GΩ (according to IEC 60512)	≥ 10 GΩ (according to IEC 60512-2)
Mechanical data		
Installation size	M8	RJ45
Connector type	plug	plug
Configuration	angled	straight
Contact type	male	male
Number of positions (face)	4-pin	4-pin
Coding	A-coded	-
Recommended torque, nut	0.4 Nm	-
Mating cycles	≥ 100	≥ 750

Way of locking	screw	-
Weight	0.028 kg (0.0617 lb)	-
Body color	black	black
Body material	TPU, UL94	TPU, UL 94 HB
Coupling nut material	GD-Zn, Ni	-
Seal	FPM	-
Contact carrier color	green	-
Contact carrier material	PA, UL 94	PC UL 94 V-0
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	-
RoHS compliant	yes	yes
Ambient temperature (operation)	-30...+70°C, -22...+158°F	-40...+70°C, -40...+158°F
Protection rating	IP65/67 in screwed condition (according to IEC 60529)	IP20
Pollution level	3/2 (according to IEC 60664-1)	-

Cable

Electrical data	
Rated voltage	600 V
Operating voltage	≤ 125 V (peak value, not for high voltage purposes)
Attenuation of shielding	≥ 40 dB
Insulation resistance	≥ 500 MΩ/km
Unbalanced capacitance to ground	1600 pF/km
Mutual capacitance	52 nF/km (1 kHz)
Characteristic impedance (Ethernet)	100 Ω ±15 Ω (100 MHz)
Loop resistance (Ethernet)	≤ 115 Ω/km
Differential impedance (Ethernet)	250 Ω/km
Unbalanced resistance (Ethernet)	2 %
Dielectric strength wire/wire (Ethernet)	1000 V DC/700 V AC
Dielectric strength wire/shield (Ethernet)	1000 V DC/700 V AC
Signal running time (Ethernet)	5.3 ns/m
Electrical parameters (Ethernet)	based on Cat.5
Test voltage	≥ 2000 V

Mechanical data	
Cable structure (Ethernet)	star quad
Conductor construction (Ethernet)	7 x 0.25 mm
Cross-section (Ethernet)	1 x 4 x 0.34 mm² (AWG22)
Outer cable diameter	6.5 mm ± 0.2 mm (0.2559" ± 0.0079")
Min. bending radius, moved	8 x outer cable diameter
Min. bending radius, moved in drag-chain	15 x outer cable diameter
Min. bending radius, fixed installation	5 x outer cable diameter
Weight	61.0 kg/km (41.0 lb/1000 ft)
Conductor material (Ethernet)	tinned copper
Shielding	aluminum-clad foil, braiding of tinned copper wires
Optical covering factor of shielding (Ethernet)	≥ 85 %
Use	drag-chain suitable
Max. acceleration	4 m/s²
Max. speed	4 m/s
Max. travel distance	4.5 m
Max. number of cycles	3 million
Wall thickness of wire insulation (Ethernet)	0.375 mm
Jacket color	green
Material jacket	PUR (polyurethane)
Wire color code	yellow, orange, white, blue
Wire insulation material	PP (polypropylene)
Printing on the jacket	BECKHOFF ZB9020 Industrial Ethernet / EtherCAT Trailing Cable * CAT5PLUS * 22AWG (SHIELDED) (UL) E119100 CMX 75°C VERIFIED (UL) CAT 5E PATCH CABLE FRNC *"length in meters"
Printing color	black
Torsion angle in °/m	max. ± 30 °/m
Environmental data	
Operation temperature range, moved	-30...+80°C, -22...+176°F
Operation temperature range, fixed installation	-40...+80°C, -40...+176°F
UV resistance	yes
Oil resistance	according to DIN EN 60811-404 (7x24 h/90 °C)
Acid, lye and solvent resistance	depends on medium, concentration, temperature and duration
LABS-free	yes
Flame-retardant	VW-1 Flame Test UL 1581 section 1080 and IEC 60332-1-2

CFC-free	yes
Halogen-free	yes
Silicone-free	yes
RoHS compliant	yes
UL	yes, UL E-file number: E119100
Approvals	UL, CMX according to UL 444

Attenuation

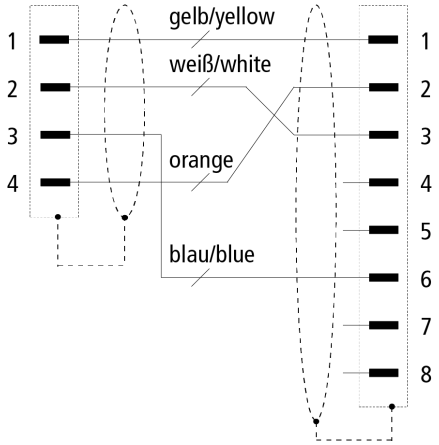
Max. insertion loss

Frequency [MHz]	**1**	**4**	**10**	**16**	**20**	**31.25**	**62.5**	**100**
[db/100 m]	2.1	4.0	6.3	8.0	9.0	11.4	16.5	21.3
[db/100 ft]	0.6	1.2	1.9	2.4	2.7	3.5	5	6.5

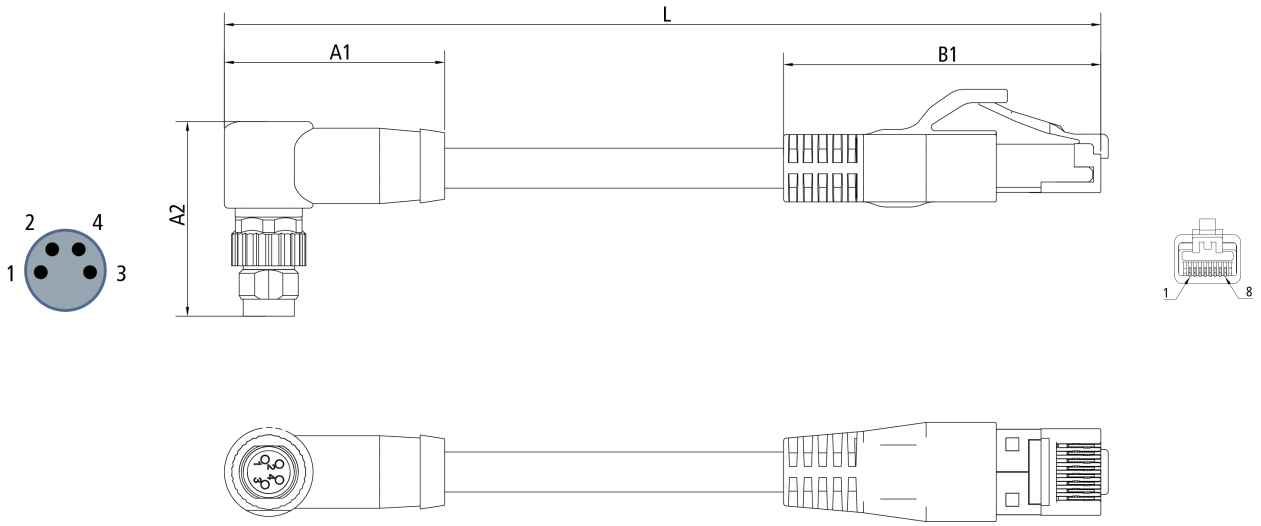
Min. near-end crosstalk attenuation

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	29.80 mm
A2	26.30 mm
B1	43.80 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
ZK1090-3391-1020	2.00 m
ZK1090-3391-1050	5.00 m
ZK1090-3391-1200	20.00 m
ZK1090-3391-1700	70.00 m

Further length on request

Accessories	
ZB8801-0000	torque wrench for hexagonal plugs, adjustable
ZB8801-0001	torque cable key, M8/wrench size 9, for ZB8801-0000
ZK1096-9696-0000	RJ45, socket, straight, female, 8-pin – RJ45, socket, straight, female, 8-pin



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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