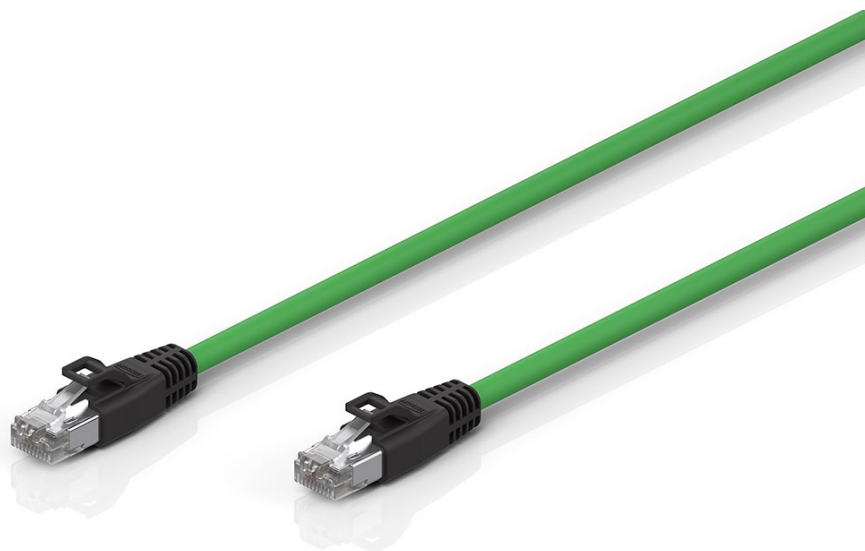


ZK1090-9191-1xxx | Industrial Ethernet/EtherCAT patch cable, CAT5, PUR, 1 x 4 x AWG22, drag-chain suitable



RJ45, plug, straight, male, 4-pin – RJ45, plug, straight, male, 4-pin



Plugs

Electrical data	Head A	Head B
Rated voltage	150 V	150 V
Rated current	1.5 A	1.5 A
Shielding	yes	yes
Insulation resistance	≥ 10 GΩ (according to IEC 60512-2)	≥ 10 GΩ (according to IEC 60512-2)
Mechanical data		
Installation size	RJ45	RJ45
Connector type	plug	plug
Configuration	straight	straight
Contact type	male	male
Number of positions (face)	4-pin	4-pin
Mating cycles	≥ 750	≥ 750
Body color	black	black
Body material	TPU, UL 94 HB	TPU, UL 94 HB

Contact carrier material	PC UL 94 V-0	PC UL 94 V-0
Contact plating	Ni, Au gal.	Ni, Au gal.
Contact material	CuZn	CuZn
Environmental data		
RoHS compliant	yes	yes
Ambient temperature (operation)	-40...+70°C, -40...+158°F	-40...+70°C, -40...+158°F
Protection rating	IP20	IP20

Cable

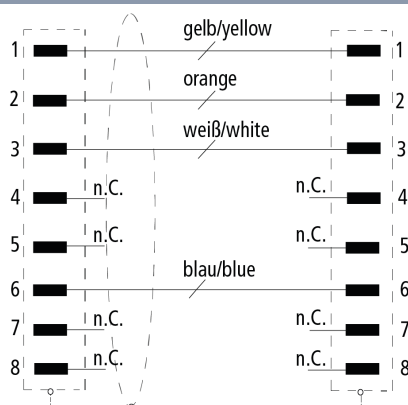
Electrical data		
Rated voltage	600 V	
Operating voltage	≤ 125 V (peak value, not for high voltage purposes)	
Attenuation of shielding	≥ 40 dB	
Insulation resistance	≥ 500 MΩ/km	
Unbalanced capacitance to ground	1600 pF/km	
Mutual capacitance	52 nF/km (1 kHz)	
Characteristic impedance (Ethernet)	100 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 mm ² (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 kg/km (41.0 lb/1000 ft)	
Conductor material (Ethernet)	copper, tinned	

Shielding	aluminum-clad foil, braiding of tinned copper wires							
Optical covering factor of shielding (Ethernet)	≥ 85 %							
Use	drag-chain suitable							
Max. acceleration	4 m/s ²							
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							

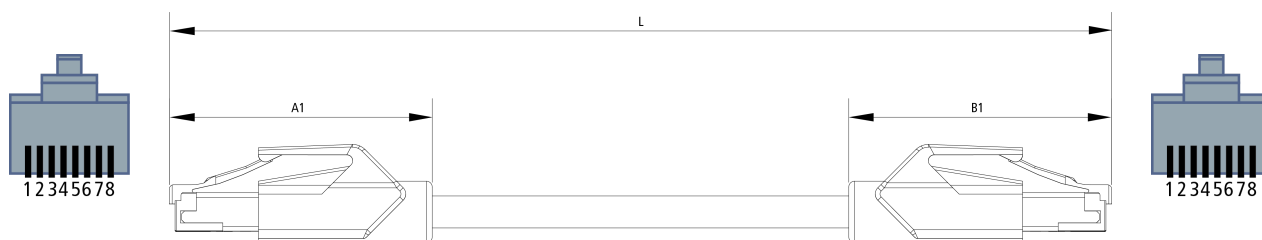
Attenuation								
Max. insertion loss								
Frequency [MHz]	1	4	10	16	20	31.25	62.5	100
[db/100 m]	2.1	4.0	6.3	8.0	9.0	11.4	16.5	21.3

[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

Contact assembly



Dimensions



A1	43.80 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.

Ordering information	Length
ZK1090-9191-1002	0.26 m
ZK1090-9191-1003	0.30 m
ZK1090-9191-1005	0.50 m
ZK1090-9191-1007	0.70 m

ZK1090-9191-1008	0.80 m
ZK1090-9191-1010	1.00 m
ZK1090-9191-1012	1.20 m
ZK1090-9191-1013	1.30 m
ZK1090-9191-1015	1.50 m
ZK1090-9191-1020	2.00 m
ZK1090-9191-1030	3.00 m
ZK1090-9191-1050	5.00 m
ZK1090-9191-1070	7.00 m
ZK1090-9191-1075	7.50 m
ZK1090-9191-1080	8.00 m
ZK1090-9191-1100	10.00 m
ZK1090-9191-1120	12.00 m
ZK1090-9191-1200	20.00 m
ZK1090-9191-1250	25.00 m
ZK1090-9191-1400	40.00 m
ZK1090-9191-1450	45.00 m
ZK1090-9191-1500	50.00 m
ZK1090-9191-1550	55.00 m
ZK1090-9191-1600	60.00 m
ZK1090-9191-1700	70.00 m
ZK1090-9191-1800	80.00 m
ZK1090-9191-1850	85.00 m
ZK1090-9191-1900	90.00 m
ZK1090-9191-1999	100 m

Further length on request

Accessories

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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