



## ZB7004 | EtherCAT P cable, shielded, PUR, capable of torsion, 1 x 4 x AWG22/7, black with red stripe, OD = 6.3 mm ( $\pm 0.2$ mm)

Electrical data	
Rated voltage	30 V
Insulation resistance	$\geq 5\text{G}\Omega \cdot \text{km}$
Unbalanced capacitance to ground	48 nF/km
Mutual capacitance	48 nF/km
Characteristic impedance (Ethernet)	$100\ \Omega \pm 15\ \Omega$
Loop resistance	$\leq 115\ \Omega/\text{km}$
Dielectric strength wire/wire (Ethernet)	1.5 kV (50 Hz, 1 min)
Dielectric strength wire/shield (Ethernet)	1.5 kV (50 Hz, 1 min)
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)	$1 \times 4 \times 0.34\ \text{mm}^2$ (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	$6.3\ \text{mm} \pm 0.2\ \text{mm}$ ( $0.248'' \pm 0.0079''$ )
Conductor material (Ethernet)	copper, tinned
Shielding	aluminium-clad foil, braiding of tinned copper wires, coupling
Optical covering factor of shielding (Ethernet)	$\geq 85\ \%$
Use	suitable for torsion/robotic application
Jacket colour	black (similar to RAL 9005) with red stripe (similar to RAL 3020)
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 – ZB7004 EtherCAT Cat5e Torsion AWG22/19 E170315 AWM 20963 AWM I/II A/B 80°C 30V
Printing colour	white
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
<b>Environmental data</b>	
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

## Notes

- The following length tolerances apply: 2-3 %
- Illustrations similar

Ordering information	Length
ZB7004	sold by the metre

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