



industrial data rf cable series

EtherCAT P ZB7000 / ZB7001

Screened Industrial Ethernet Cable

100 Ω 1×4×AWG22/7 or AWG24/7 Star-Quad EtherCAT P cable (100 Mbps + dual 24 V DC / 3 A)



IEC 61158 / ETG.1030 EtherCAT P

100 Ω · 100 Mbps + 2×24V DC/3A

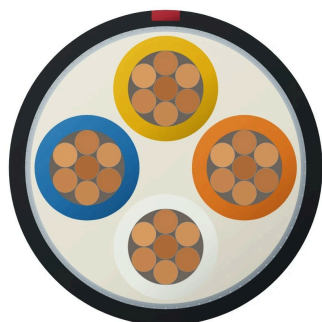
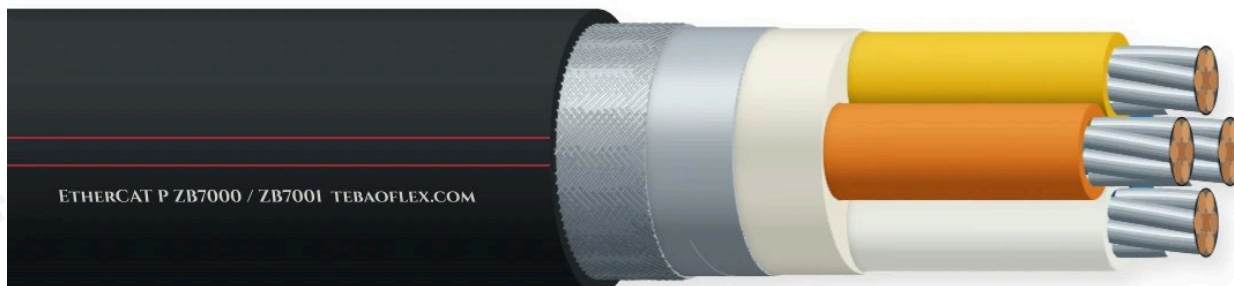
ZB7000 (AWG22) · ZB7001 (AWG24)

Application

4-wire screened industrial hybrid Ethernet cable (ZB7000 / ZB7001) combining 100BASE-TX EtherCAT data and dual isolated 24 V DC Us/Up power (up to 3 A per rail) on one 100 Ω star-quad core with Al/PET foil, ≥ 85 % tinned copper braid, and PUR or PVC jacket.

Typical uses: Machine Tools & Packaging Robotics, Semiconductor & Cleanroom Handling, Automated Assembly & Vision Cells, Intralogistics & Conveying Modules, Modular Decentralised I/O Islands

Construction



Cross-section, not to scale

- 1 7-wire or 19-wire stranded copper conductors
- 2 Polyolefin / foam-skin PE Star-Quad cores
- 3 Inner bedding + 100 % Al/PET foil screen
- 4 Tinned copper wire braid screen
- 5 Black PVC or PUR sheath with red longitudinal stripes

Technical data

Typical values

Characteristic impedance	100 Ω $\pm$ 15 Ω (1 to 100 MHz, Cat.5e)	Combined DC power rating	2 $\times$ 24 V DC (Us & Up) at up to 3.0 A per rail
Conductor DC resistance @ 20 $^{\circ}$ C	$\leq$ 58.0 Ω /km (AWG 22/7) $\cdot$ $\leq$ 87.0 Ω /km (AWG 24/7)	Velocity of propagation	65 % – 68 % nominal ($\approx$ 50 pF/m)
UL voltage rating	300 V / 600 V RMS (UL AWM Style 20963 / 21198)	Operating temp. (fixed)	-40 $^{\circ}$ C to +80 $^{\circ}$ C
Operating temp. (drag-chain)	-30 $^{\circ}$ C to +70 $^{\circ}$ C (+80 $^{\circ}$ C PUR)	Test voltage (core/core & screen)	1,500 V AC rms
Construction	1 $\times$ 4 $\times$ AWG22/7 (0.34 mm ²) or 1 $\times$ 4 $\times$ AWG24/7 (0.22 mm ²)	Overall cable diameter	6.5 mm (ZB7000 AWG 22) $\cdot$ 5.1 mm (ZB7001 AWG 24)
Min. bending radius	4 $\times$ OD (fixed) $\cdot$ 7.5 $\times$ OD (drag-chain flexing)	Drag-chain endurance	$\geq$ 5,000,000 cycles at 5 m/s ² , 5 m travel
Oil & coolant resistance	EN 60811-404 / UL Oil Res I & II (PUR)	Flame & halogen-free	IEC 60332-1-2, UL VW-1/FT1 & IEC 60754 (PUR)
Torsion capability (robotic)	$\pm$ 180 $^{\circ}$ /m (PUR robotic variants)	Standards	IEC 61158 Type 12 / ETG.1030 EtherCAT P

Sizes

8 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	Impedance / size	Conductor & dielectric	Wall $\approx$ mm	Outer $\varnothing \approx$ mm	Metal kg/km	Weight $\approx$ kg/km	Min. bend R fixed mm
Standard EtherCAT P ZB7000 / ZB7001 configurations 8 sizes							
☐ ZB7000 Drag-Chain PUR	1 $\times$ 4 $\times$ AWG22/7 $\cdot$ 100 Ω	0.34 mm ² Star-Quad PUR	0.90	6.50	32.0	58.0	26
☐ ZB7001 Compact PUR	1 $\times$ 4 $\times$ AWG24/7 $\cdot$ 100 Ω	0.22 mm ² Star-Quad PUR	0.75	5.10	22.0	38.0	21
☐ ZB7000-PVC Fixed	1 $\times$ 4 $\times$ AWG22/7 $\cdot$ 100 Ω	0.34 mm ² Star-Quad PVC	0.90	6.50	32.0	61.0	26
☐ ZB7001-PVC Fixed	1 $\times$ 4 $\times$ AWG24/7 $\cdot$ 100 Ω	0.22 mm ² Star-Quad PVC	0.75	5.10	22.0	40.0	21
☐ ZB7000-R Torsion PUR	1 $\times$ 4 $\times$ AWG22/19 $\cdot$ 100 Ω	19-Wire Robotic Star-Quad	0.92	6.60	33.0	59.0	27
☐ EtherCAT P + 2 $\times$ 1.5 mm ²	1 $\times$ 4 $\times$ AWG22 + 2 $\times$ 1.5	Star-Quad + Servo Power	1.15	9.80	64.0	128.0	40
☐ EtherCAT P + 4G2.5 mm ²	1 $\times$ 4 $\times$ AWG22 + 4G2.5	Star-Quad + 400V Servo	1.30	12.40	132.0	225.0	50
☐ ZB7001 Ultra-Flex	1 $\times$ 4 $\times$ AWG26/19 $\cdot$ 100 Ω	0.14 mm ² Sensor Patch	0.65	4.60	17.5	31.0	19

– Outer diameters and weights are nominal engineering values for EtherCAT P ZB7000 / ZB7001 subject to standard manufacturing tolerances per IEC 61158 Type 12 / ETG.1030 EtherCAT P (Power + 100BASE-TX on 4 Wires).

RF & electrical data

8 sizes

Configuration	Max. DC R @ 20 $^{\circ}$ C Ω /km	Char. Z0 Ω	Velocity VoP / L (% or nH/m)	Dielectric test V AC rms
ZB7000 Drag-Chain PUR (1 $\times$ 4 $\times$ AWG22/7 $\cdot$ 100 Ω)	57.50	100.0	67.0	1,500
ZB7001 Compact PUR (1 $\times$ 4 $\times$ AWG24/7 $\cdot$ 100 Ω)	86.00	100.0	67.0	1,500
ZB7000-PVC Fixed (1 $\times$ 4 $\times$ AWG22/7 $\cdot$ 100 Ω)	57.50	100.0	67.0	1,500
ZB7001-PVC Fixed (1 $\times$ 4 $\times$ AWG24/7 $\cdot$ 100 Ω)	86.00	100.0	67.0	1,500
ZB7000-R Torsion PUR (1 $\times$ 4 $\times$ AWG22/19 $\cdot$ 100 Ω)	59.00	100.0	66.0	1,500
EtherCAT P + 2 $\times$ 1.5 mm ² (1 $\times$ 4 $\times$ AWG22 + 2 $\times$ 1.5)	57.50	100.0	67.0	1,500
EtherCAT P + 4G2.5 mm ² (1 $\times$ 4 $\times$ AWG22 + 4G2.5)	57.50	100.0	67.0	2,000
ZB7001 Ultra-Flex (1 $\times$ 4 $\times$ AWG26/19 $\cdot$ 100 Ω)	138.00	100.0	66.0	1,200

– Characteristic impedance, propagation velocity, DC resistance at +20 $^{\circ}$ C, and dielectric withstand voltages verified per IEC 61158 Type 12 / ETG.1030 EtherCAT P (Power + 100BASE-TX on 4 Wires).

Standards and approvals

- ✓ IEC 61158 Type 12 / ETG.1030 EtherCAT P (Power + 100BASE-TX on 4 Wires)
- ✓ CE (2014/35/EU) & RoHS 3 (2015/863/EU) Compliant
- ✓ REACH SVHC Compliance Verified

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

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Email

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Typical values for this cable type, based on IEC 61158 Type 12 / ETG.1030 EtherCAT P (Power + 100BASE-TX on 4 Wires). Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.