industrial data rf cable series

Balanced Twin-Coaxial Cable

Balanced Twin-Coaxial Low-Magnetic Precision Measurement Cable



100 Ω balanced (2 × 50 Ω) twin-coaxial low-magnetic-signature precision measurement cable

100 Ω Balanced (2 × 50 Ω Coax) **< 1 nT Stray Magnetic Signature**

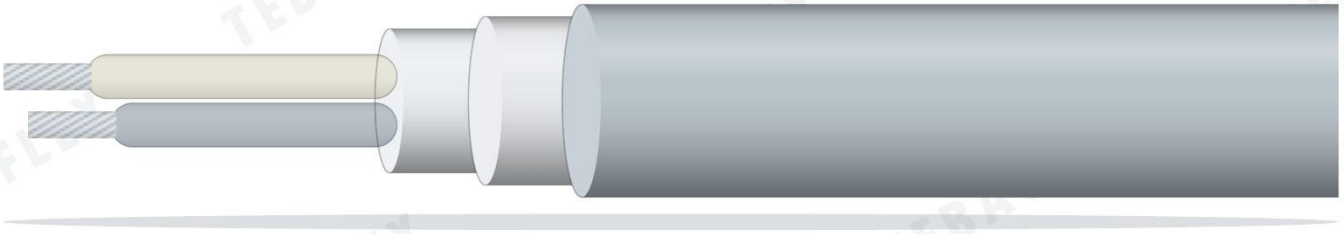
> 100 dB CMRR & Shielding

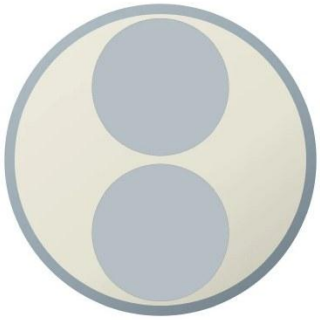
Application

Balanced twin-coaxial low-magnetic-signature precision measurement cable (Balanced Twin-Coaxial Cable) combining two matched 50 Ω coaxial lines (100 Ω differential) twisted inside an overall non-magnetic silver-plated OFHC copper braid (μr < 1.0005) for

Typical uses: Tokamak & Stellarator Fusion Diagnostics, Particle Accelerator Beam Monitors (BPM), SQUID, Fluxgate & MRI Magnetometry, Naval Minehunting & Acoustic Arrays, High-Speed Differential ADC / DAC Test

Construction





Cross-section, not to scale

1. 2 × non-magnetic silver-plated OFHC copper conductors
2. Phase-matched PTFE or ePTFE coaxial dielectrics
3. FEP fluoropolymer, PEEK or LSZH outer jacket

Technical data

Typical values

Characteristic impedance	100 Ω ± 2 Ω differential (2 × 50 Ω ± 1 Ω single-ended)
Velocity of propagation	70 % (solid PTFE, 95 pF/m) · 80 % (ePTFE, 82 pF/m)
Shielding & CMRR	> 105 dB RF shielding · > 100 dB common-mode rejection
Cryogenic / UHV version	4 K (-269 °C) to +260 °C (PTFE/Polyimide)
Sub-coax conductor gauges	2 × 28 AWG, 2 × 26 AWG, 2 × 24 AWG, or 2 × 22 AWG
Min. bending radius	6 × OD (static) · 10 × OD (dynamic)
Vacuum & radiation rating	UHV compatible · up to 10 MGy (PEEK/PI version)
Standards	IEC 61196-1, IEC 62153-4-9, MIL-STD-461 RE101/RS101
Intra-pair propagation skew	< 5.0 ps/m (< 0.15° phase skew at 100 MHz)
Operating bandwidth	DC to 6 GHz (24/22 AWG) · DC to 12 GHz (26 AWG ePTFE)
Operating temperature (FEP)	-65 °C to +200 °C continuous
Dielectric withstand voltage	1,500 V RMS (core/inner shield) · 1,000 V (shield/shield)
Overall cable diameter	4.2 mm (2×28 AWG) to 6.8 mm (2×22 AWG)
Magnetic permeability	μr < 1.0005 (strictly non-magnetic OFHC/SPC)
Flammability & fluids	FAR 25.869 / UL VW-1 & solvent/acid immune

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 ≈ mm	Outer Ø ≈ mm	Metal kg/km	Weight ≈ kg/km	Min. bend R fixed mm
Standard Balanced Twin-Coaxial Cable configurations 8 sizes							
☐ Balanced Twin-Coaxial Cable-28 Sub-Mini	100 Ω (2×50 Ω · 28 AWG)	2×(19×40 SPC + PTFE) + Braid	0.40	4.20	22.0	36.0	25
☐ Balanced Twin-Coaxial Cable-26 Standard	100 Ω (2×50 Ω · 26 AWG)	2×(19×38 SPC + PTFE) + Braid	0.45	4.85	31.0	51.0	29
☐ Balanced Twin-Coaxial Cable-26L Low-Loss	100 Ω (2×50 Ω · 26 AWG ePTFE)	2×(19×38 SPC + ePTFE) + Braid	0.45	5.10	32.0	52.0	31
☐ Balanced Twin-Coaxial Cable-24 Precision	100 Ω (2×50 Ω · 24 AWG)	2×(19×36 SPC + ePTFE) + Braid	0.50	5.80	44.0	72.0	35
☐ Balanced Twin-Coaxial Cable-22 Long-Run	100 Ω (2×50 Ω · 22 AWG)	2×(19×34 SPC + ePTFE) + Braid	0.55	6.80	62.0	98.0	41
☐ Balanced Twin-Coaxial Cable-150 (2×75 Ω)	150 Ω (2×75 Ω · 26 AWG)	2×75 Ω Twisted Coax + Braid	0.50	5.90	38.0	64.0	36
☐ Balanced Twin-Coaxial Cable-UHV Tokamak	100 Ω (2×50 Ω · Polyimide)	Non-Magnetic OFHC + PI/PEEK	0.35	4.60	30.0	47.0	28
☐ Balanced Twin-Coaxial Cable-LSZH Naval	100 Ω (2×50 Ω · 24 AWG LSZH)	Non-Magnetic + Low-Smoke Jacket	0.70	6.40	46.0	82.0	39

– Outer diameters and weights are nominal engineering values for Balanced Twin-Coaxial Cable subject to standard manufacturing tolerances per IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec.

RF & electrical data

8 sizes

Configuration	Max. DC R @ 20 °C Ω/km	Char. Z0 Ω	Velocity VoP / L (% or nH/m)	Dielectric test VAC rms
Balanced Twin-Coaxial Cable-28 Sub-Mini (100 Ω (2×50 Ω · 28 AWG))	215.00	100.0	70.0	1,200
Balanced Twin-Coaxial Cable-26 Standard (100 Ω (2×50 Ω · 26 AWG))	135.00	100.0	70.0	1,500
Balanced Twin-Coaxial Cable-26L Low-Loss (100 Ω (2×50 Ω · 26 AWG ePTFE))	135.00	100.0	80.0	1,500
Balanced Twin-Coaxial Cable-24 Precision (100 Ω (2×50 Ω · 24 AWG))	84.00	100.0	80.0	1,500
Balanced Twin-Coaxial Cable-22 Long-Run (100 Ω (2×50 Ω · 22 AWG))	52.00	100.0	80.0	2,000
Balanced Twin-Coaxial Cable-150 (2×75 Ω) (150 Ω (2×75 Ω · 26 AWG))	135.00	150.0	78.0	1,500
Balanced Twin-Coaxial Cable-UHV Tokamak (100 Ω (2×50 Ω · Polyimide))	135.00	100.0	74.0	1,500
Balanced Twin-Coaxial Cable-LSZH Naval (100 Ω (2×50 Ω · 24 AWG LSZH))	84.00	100.0	76.0	1,500

– Characteristic impedance, propagation velocity, DC resistance at +20 °C, and dielectric withstand voltages verified per IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec.

Standards and approvals

- IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec
- 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
info@tebaoflex.com

Web
tebaoflex.com/cables/twistcoax-balanced-twin-coaxial-low-magnetic-signature-precision-measurement-cable

Typical values for this cable type, based on IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.