



instrumentation cable series

PolyK Cable-F002

PVDF Piezoelectric Coaxial Traffic Axle-Weight

Poled β -phase PVDF piezoelectric coaxial traffic WIM & vibration sensing cable



Radially Poled β -PVDF

Weigh-In-Motion (WIM)

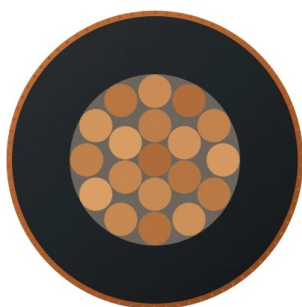
20-25 pC/N Piezo Output

Application

PolyK Cable-F002 PVDF Piezoelectric Coaxial Sensing Cable engineered with a copper inner electrode, radially poled β -phase Polyvinylidene Fluoride (PVDF) ferroelectric copolymer transducer wall ($d_{33} \approx 20-25$ pC/N), silver/copper outer.

Typical uses: Highway Weigh-In-Motion (WIM) & Axle Counting, Toll Plaza Vehicle Classification & Speed Enforcement, Perimeter Fence & Buried Pipeline Intrusion Detection, Bridge Stay-Cable & Wind-Turbine Blade Vibration, Sleep / Vital-Sign Ballistocardiography (BCG) Mats

Construction



Cross-section, not to scale

- 1 Central copper inner sensing electrode
- 2 Radially poled β -phase PVDF piezoelectric transducer wall
- 3 Conductive silver ink + tinned copper braid outer electrode
- 4 Abrasion-resistant HDPE or Polyurethane (PU) outer jacket

Technical data

Typical values

Piezoelectric sensitivity (d_{33} / g_{31})	20 to 25 pC/N (hydrostatic/radial) · $g_{31} \approx 216 \times 10^{-3}$ V·m/N
Dissipation factor ($\tan \delta$)	≤ 0.018 @ 1 kHz
Continuous operating temp.	-40 °C to +85 °C (safe below β -PVDF Curie transition)
Sensitivity temp. coeff.	$\leq \pm 8$ % variation from -20 °C to +60 °C
Min. bend radius	10 × OD (28 mm) without piezoelectric depolarization
Dynamic axle fatigue life	> 50,000,000 heavy-truck axle passes when encapsulated
Sensitivity uniformity	$\leq \pm 7$ % along continuous sensor length (Class I WIM grade)

Linear capacitance @ 1 kHz	650 ± 100 pF/m (@ 20 °C)
Volume insulation resistance	$\geq 10^{10}$ Ω ·m @ 100 V DC (20 °C)
Curie / melting transition	$T_c \approx +115$ – 135 °C · $T_m \approx +170$ °C (do not exceed +95 °C)
Outer diameter	2.80 ± 0.15 mm (HDPE) · 3.00 ± 0.15 mm (PU)
Acoustic impedance	$\approx 2.7 \times 10^6$ kg/(m ² ·s) — close match to water, tissue & polymers
Moisture & salt resistance	Impervious to road salt, bitumen, epoxy & polyurethane grout
Standards	ASTM E1318 & European COST 323 WIM Specification

Sizes

2 standard constructions

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

Order designation	Outer jacket & duty	Outer Ø mm	Weight ≈ kg/km	Capacitance pF/m	Sensitivity pC/N
Radially Poled β -PVDF Piezoelectric Coaxial Sensor Cables 2 sizes					
☐ PolyK Cable-F002 (HDPE)	HDPE jacket · WIM Road-Slot & Axle Sensor	2.80	14.5	650	22
☐ PolyK Cable-F002-PU	Flexible PU jacket · Fence, Vibration & BCG	3.00	16.0	650	22

– Supplied on reels (50 m, 100 m, 500 m) or as pre-terminated WIM/fence sensor elements with non-piezoelectric RG-58 feeder leads.

Standards and approvals

- ✓ ASTM E1318 & COST 323 WIM
- ✓ RoHS 2 Lead-Free Piezo
- ✓ REACH EC 1907/2006

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

+86 185 9591 3361

Email

info@tebaoflex.com

Web

tebaoflex.com/cables/pvdf-piezoelectric-coaxial-traffic-axle-weight-and-vibration-sensing-cable



Typical values for this cable type, based on ASTM E1318 / COST 323 / IEC 61196-1. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.