instrumentation cable series

PVDF Piezoelectric Coaxial

Traffic Weight & Vibration Sensing Cable

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. 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	**Linear capacitance @ 1 kHz**	650 ± 100 pF/m (@ 20 °C)
Dissipation factor (tan δ)	≤ 0.018 @ 1 kHz	**Volume insulation resistance**	≥ 10^{10} Ω·m @ 100 V DC (20 °C)
Continuous operating temp.	-40 °C to +85 °C (safe below β-PVDF Curie transition)	**Curie / melting transition**	Tc ≈ +115–135 °C · Tm ≈ +170 °C (do not exceed +95 °C)
Sensitivity temp. coeff.	≤ ±8 % variation from -20 °C to +60 °C	**Outer diameter**	2.80 ± 0.15 mm (HDPE) · 3.00 ± 0.15 mm (PU)
Min. bend radius	10 × OD (28 mm) without piezoelectric depolarization	**Acoustic impedance**	≈ 2.7 × 10^6 kg/(m^2·s) — close match to water, tissue & polymers
Dynamic axle fatigue life	> 50,000,000 heavy-truck axle passes when encapsulated	**Moisture & salt resistance**	Impervious to road salt, bitumen, epoxy & polyurethane grout
Sensitivity uniformity	≤ ±7 % along continuous sensor length (Class I WIM grade)	**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.