



IEC 60751 Pt100 / Pt1000 RTD cable

RTD Extension Cable

Resistance-matched 3-wire (triad) & 4-wire (quad) Pt100 / Pt1000 RTD extension cable



IEC 60751 Pt100 / Pt1000

3-Wire Triad & 4-Wire Quad

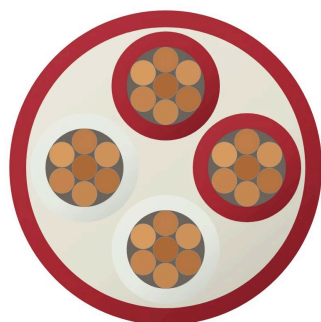
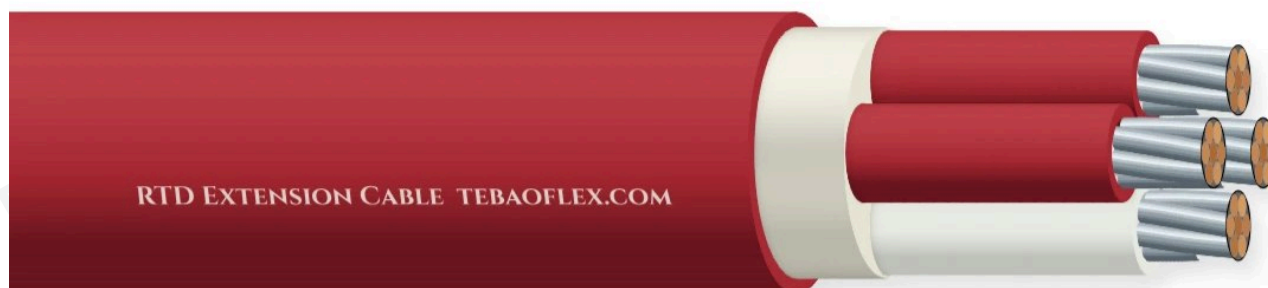
 $\Delta R \leq 0.01 \Omega/m$ Core Balance

Application

Precision 3-wire (Rd/Wh/Wh) and 4-wire (Rd/Rd/Wh/Wh) RTD extension and sensor cable built to IEC 60751 and BS EN 50288-7 with resistance-matched tinned, silver-plated (SPC) or nickel-plated (NPC) copper cores for Class AA, A and B Pt100/Pt1000 loops.

Typical uses: Pharmaceutical Autoclaves, Cleanrooms & Bioreactors, Oil, Gas, LNG & Custody-Transfer Metering, Chemical, Food & Beverage Process Control, Turbine Bearing, Stator & Transformer Winding RTDs, HVAC, Cold Storage & Laboratory Metrology

Construction



Cross-section, not to scale

- 1 Resistance-matched copper conductors
- 2 Precision concentric core insulation
- 3 Al/PET foil and/or SPC wire braid screen
- 4 Optional SWA armour
- 5 Outer jacket (Grey, Black, White or Ex-i Blue)

IEC 60332-1-2 / IEC 60332-3-24 flame retardant

Technical data

Typical values

Supported RTD standards	IEC 60751 / ASTM E1137 (Pt100, Pt500, Pt1000, $\alpha = 0.00385 \text{ }^{\circ}\text{C}^{-1}$)	Core-to-core DC resistance balance	$\Delta R \leq 0.01 \text{ } \Omega/\text{m}$ within any triad/quad ($\leq 1 \text{ } \%$ of conductor R_{20})
Max. conductor DC resistance @ 20 °C	36.7 (0.5) · 25.0 (0.75) · 18.5 (1.0) · 12.3 Ω/km (1.5 mm ²)	Insulation resistance @ 20 °C	$\geq 100 \text{ M}\Omega\cdot\text{km}$ (PVC) · $\geq 5000 \text{ M}\Omega\cdot\text{km}$ (XLPE / FEP / PTFE)
Operating voltage rating	300/500 V (process PVC/XLPE) · 300 V (FEP/PTFE sensor leads)	Operating temperature (PVC / XLPE-LSZH)	-30 °C to +105 °C (HR-PVC) · -40 °C to +90 °C (XLPE/LSZH)
Operating temp. (SPC-FEP / NPC-PTFE)	-190 °C to +200 °C (SPC/FEP) · -190 °C to +260 °C (NPC/PTFE)	Conductor stranding	Class 5 flexible (19-wire SPC/NPC or 24/32-wire TC) or Class 2 (7-wire)
Min. bending radius	7.5 × OD (unarmoured) · 10 × OD (SWA armoured)	Flame retardance	IEC 60332-1-2 & IEC 60332-3-24 Cat C (UL 94 V-0 on FEP/PTFE)
Chemical & steam resistance	FEP/PTFE grades impervious to CIP/SIP steam, oils and solvents	Standards	IEC 60751, ASTM E1137 & BS EN 50288-7

Sizes

17 standard constructions

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

Order designation	Configuration	Insulation / Screen / Sheath	Temp. range	Outer Ø ≈ mm	Copper kg/km	Weight ≈ kg/km	Min. bend R fixed mm
Tinned Copper / PVC Screened 3-Wire & 4-Wire Process Cables (-30...+105 °C) 10 sizes							
☐ RTD-PVC-OS 1×3×0.5	1 Triad (3-wire) × 0.5 mm ²	PVC / PVC (OS)	-30...+105 °C	5.9	17	50	44
☐ RTD-PVC-OS 1×4×0.5	1 Quad (4-wire) × 0.5 mm ²	PVC / PVC (OS)	-30...+105 °C	6.4	22	58	48
☐ RTD-PVC-OS 1×3×0.75	1 Triad (3-wire) × 0.75 mm ²	PVC / PVC (OS)	-30...+105 °C	6.4	24	62	48
☐ RTD-PVC-OS 1×4×0.75	1 Quad (4-wire) × 0.75 mm ²	PVC / PVC (OS)	-30...+105 °C	7.0	31	74	52
☐ RTD-PVC-TiMF 4×3×0.75	4 Triads (3-wire) × 0.75 mm ²	PVC / PVC (TiMF+OS)	-30...+105 °C	13.4	98	224	100
☐ RTD-PVC-TiMF 8×3×0.75	8 Triads (3-wire) × 0.75 mm ²	PVC / PVC (TiMF+OS)	-30...+105 °C	17.8	192	396	134
☐ RTD-PVC-TiMF 12×3×0.75	12 Triads (3-wire) × 0.75 mm ²	PVC / PVC (TiMF+OS)	-30...+105 °C	21.4	286	568	160
☐ RTD-PVC-OS 1×3×1.0	1 Triad (3-wire) × 1.0 mm ²	PVC / PVC (OS)	-30...+105 °C	6.8	31	74	51
☐ RTD-PVC-TiMF 4×3×1.0	4 Triads (3-wire) × 1.0 mm ²	PVC / PVC (TiMF+OS)	-30...+105 °C	14.2	128	268	106
☐ RTD-PVC-OS 1×3×1.5	1 Triad (3-wire) × 1.5 mm ²	PVC / PVC (OS)	-30...+105 °C	7.6	46	98	57
Silver/Nickel-Plated Copper / FEP & PTFE Probe & Autoclave Leads (-190...+260 °C) 5 sizes							
☐ RTD-SPC-FEP 1×3×0.22	1 Triad (3-wire) × 0.22 mm ² SPC	FEP / SPC Braid / FEP	-190...+200 °C	3.4	11	24	26
☐ RTD-SPC-FEP 1×4×0.22	1 Quad (4-wire) × 0.22 mm ² SPC	FEP / SPC Braid / FEP	-190...+200 °C	3.7	14	29	28
☐ RTD-SPC-FEP 1×3×0.5	1 Triad (3-wire) × 0.5 mm ² SPC	FEP / SPC Braid / FEP	-190...+200 °C	4.5	20	44	34
☐ RTD-SPC-FEP 1×4×0.5	1 Quad (4-wire) × 0.5 mm ² SPC	FEP / SPC Braid / FEP	-190...+200 °C	4.9	25	52	37
☐ RTD-NPC-PTFE 1×3×0.5	1 Triad (3-wire) × 0.5 mm ² NPC	PTFE / NPC Braid / PTFE	-190...+260 °C	4.6	20	46	34
XLPE / LSZH / SWA Armoured Multi-Triad Refinery Trunks (-40...+90 °C) 2 sizes							
☐ RTD-XLPE-SWA 1×3×1.5	1 Triad (3-wire) × 1.5 mm ²	XLPE / SWA / LSZH	-40...+90 °C	12.2	46	305	122
☐ RTD-XLPE-SWA 4×3×1.5	4 Triads (3-wire) × 1.5 mm ²	XLPE / SWA / LSZH	-40...+90 °C	20.6	182	815	206

- Specify IEC 60751 (Red/White/White) or EN 50288-7 (Black/White/Red) core colours when ordering.

Leadwire resistance & Pt100 error analysis by cross-section

5 sizes

Conductor size	Max. R_{20} / core Ω/km	2-Wire Pt100 error per 10 m run	3-Wire Pt100 error per 100 m (matched)	4-Wire Kelvin error per 100 m
0.22 mm ² (AWG 24)	84.8	+4.41 °C	$\leq 0.08 \text{ }^{\circ}\text{C}$	0.00 °C (negligible)
0.50 mm ² (AWG 20)	36.7	+1.91 °C	$\leq 0.05 \text{ }^{\circ}\text{C}$	0.00 °C (negligible)
0.75 mm ² (AWG 18)	25.0	+1.30 °C	$\leq 0.04 \text{ }^{\circ}\text{C}$	0.00 °C (negligible)
1.00 mm ² (AWG 17)	18.5	+0.96 °C	$\leq 0.03 \text{ }^{\circ}\text{C}$	0.00 °C (negligible)

Conductor size	Max. R ₂₀ / core Ω/km	2-Wire Pt100 error per 10 m run	3-Wire Pt100 error per 100 m (matched)	4-Wire Kelvin error per 100 m
1.50 mm ² (AWG 16)	12.3	+0.64 °C	≤ 0.02 °C	0.00 °C (negligible)

– A 2-wire Pt100 adds $2 \times R_{\text{lead}}$ directly to the 100 Ω element (+0.385 Ω/°C). A 3-wire bridge cancels R_{lead} provided all 3 cores have identical resistance.

Standards and approvals

- ✓ IEC 60751 & ASTM E1137 RTD Compatible
- ✓ BS EN 50288-7 & IEC 60332-3-24 Cat C
- ✓ CE, RoHS 2 (2011/65/EU) & REACH

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/rtd-extension-cable



Typical values for this cable type, based on IEC 60751 / BS EN 50288-7 / ASTM E1137. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.