



PROFINET & Industrial Ethernet cables

SPE

Single Pair Ethernet Cable

IEC 61156-11/12/13 100 Ω 1×2 S/FTP Single Pair Ethernet cable for 10BASE-T1L (1000 m) to

IEC 61156-11/12/13 · IEEE 802.3cg

100 Ω · 1×2 S/FTP Single Pair

10BASE-T1L 1000m · PoDL 50W

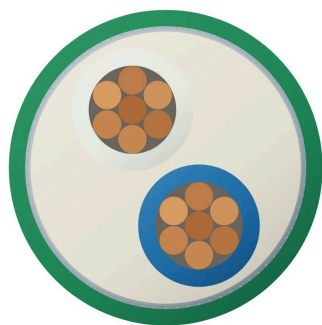
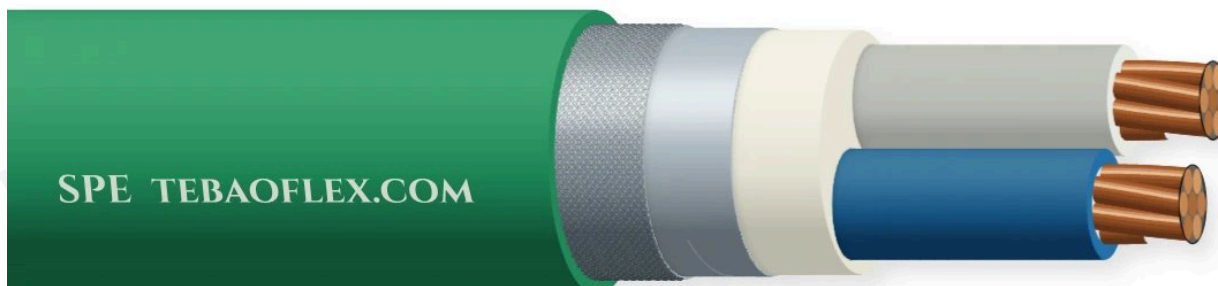


Application

SPE Single Pair Ethernet Cable is a 100 Ω balanced single-twisted-pair (1×2) S/FTP industrial data cable built to IEC 61156-11/12/13 and IEEE 802.3cg (10BASE-T1L up to 1,000 m on AWG 18) and IEEE 802.3bp (1000BASE-T1 up to 600 MHz on AWG 22-26), combining

Typical uses: IIoT sensor-to-cloud field nodes, Process automation (Ethernet-APL / 10BASE-T1L), Compact robotics & cobot end-effectors, Building & factory automation backbones

Construction



Cross-section, not to scale

1	Balanced SPE copper conductors	IEC 61156-11 / 61156-12 / 61156-13
2	Foamed polyethylene (O2YS)	IEC 61156-11
3	Pair foil screen (Al/PET)	IEC 61156-11 S/FTP
4	EMC copper braid	IEC 61156-11 / 61156-13
5	Outer sheath	EN 50363-10-2 / IEC 60332

Technical data

Typical values

Characteristic impedance Z_0	100 $\Omega \pm 10 \Omega$	Max. DC loop resistance @ 20 °C	$\leq 44 \Omega/\text{km}$ (AWG 18) · $\leq 115 \Omega/\text{km}$ (AWG 22) ·
Mutual capacitance @ 1 kHz	$\approx 45 \text{ pF/m}$	Velocity of propagation (VoP)	75–78 % (0.75–0.78 c)
Attenuation (AWG 18 @ 1/10/20 MHz)	1.6 / 4.9 / 7.0 dB/100m (10BASE-T1L)	Attenuation (AWG 22 @ 10/100/600)	5.8 / 18.5 / 47.0 dB/100m (1000BASE-T1)
Operating temp. (fixed / flex)	-40 °C to +85 °C fixed · -30 °C to +80 °C flex)	PoDL current rating	Up to 1.36 A DC loop (IEEE 802.3cg Class)
Min. bending radius (fixed / chain)	4 × D fixed · 7.5 × D drag-chain	Drag-chain endurance (AWG 22/19 &)	$\geq 5,000,000$ cycles (PUR version)
Oil & chemical resistance	EN 60811-404 · UL Oil Res I/II	Flame & halogen-free	IEC 60332-1-2 · IEC 60754-1/2 · UL VW-1
Standards	IEC 61156-11 (600 MHz fixed) · 61156-12		

Sizes

6 standard constructions

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

Order designation	Configuration	Conductor size	Outer $\varnothing \approx$ mm	Copper kg/km	Weight $\approx$ kg/km	Min. bend R fixed mm
Standard SPE configurations 6 sizes						
☐ SPE 10BASE-T1L Trunk 1×2×AWG18/7 PVC	1×2×AWG18/7 (1000m T1L PVC)	AWG 18/7 (0.80 mm ²)	6.5	28	56	26
☐ SPE 10BASE-T1L Trunk 1×2×AWG18/7 PUR	1×2×AWG18/7 (1000m T1L PUR)	AWG 18/7 (0.80 mm ²)	6.5	28	54	26
☐ SPE 1000BASE-T1 Fixed 1×2×AWG22/1 LSZH	1×2×AWG22/1 (600 MHz Fixed)	AWG 22/1 (0.34 mm ²)	4.9	19	34	20
☐ SPE 1000BASE-T1 Chain 1×2×AWG22/7 PUR	1×2×AWG22/7 (Flex PUR)	AWG 22/7 (0.34 mm ²)	5.1	20	36	20
☐ SPE 1000BASE-T1 Drag-Chain 1×2×AWG22/19 PUR	1×2×AWG22/19 (Drag-Chain PUR)	AWG 22/19 (0.35 mm ²)	5.2	20	37	21
☐ SPE Compact Chain 1×2×AWG26/7 PUR	1×2×AWG26/7 (Compact Chain PUR)	AWG 26/7 (0.14 mm ²)	4.0	12	22	16

– Outer diameters and weights are nominal factory values subject to ± 5 % manufacturing tolerance per IEC 61156-11 / IEC 61156-12 / IEC 61156-13 (IEEE 802.3cg / 802.3bp).

Impedance, capacitance & attenuation

6 sizes

Configuration	Impedance Z_0	Max. DC R @ 20 °C Ω/km	Mutual C pF/m $\approx$	VoP %	Attenuation @ 20 °C dB/100m	Dielectric test V
1×2×AWG18/7 (1000m T1L PVC)	100 Ω	44.0	45.0	75	1.6 @ 1 · 4.9 @ 10 · 7.0 @ 20 MHz	1,500
1×2×AWG18/7 (1000m T1L PUR)	100 Ω	44.0	45.0	75	1.6 @ 1 · 4.9 @ 10 · 7.0 @ 20 MHz	1,500
1×2×AWG22/1 (600 MHz Fixed)	100 Ω	115.0	44.0	78	5.8 @ 10 · 18.5 @ 100 · 47.0 @ 600 MHz	1,500
1×2×AWG22/7 (Flex PUR)	100 Ω	118.0	45.0	76	6.3 @ 10 · 20.2 @ 100 · 51.5 @ 600 MHz	1,500
1×2×AWG22/19 (Drag-Chain PUR)	100 Ω	120.0	45.0	76	6.5 @ 10 · 21.0 @ 100 · 53.0 @ 600 MHz	1,500
1×2×AWG26/7 (Compact Chain PUR)	100 Ω	280.0	46.0	76	9.8 @ 10 · 31.5 @ 100 · 79.0 @ 600 MHz	1,000

– Transmission values (characteristic impedance Z_0 , mutual capacitance, VoP, and attenuation) are measured at +20 °C per IEC 61156-11 / IEC 61156-12 / IEC 61156-13 (IEEE 802.3cg / 802.3bp).

Standards and approvals

- ✓ IEC 61156-11 / 12 / 13
- ✓ IEEE 802.3cg / 802.3bp
- ✓ UL AWM 21198 / CMG

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

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tebaoflex.com/cables/single-pair-ethernet-cable



Typical values for this cable type, based on IEC 61156-11 / IEC 61156-12 / IEC 61156-13 (IEEE 802.3cg / 802.3bp). Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.