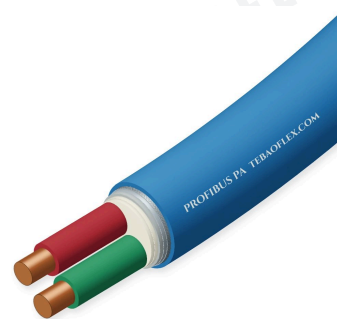




PROFIBUS DP / PA & Process Fieldbus cables

PROFIBUS PA Cable

IEC 61158-2 Type A 100 Ω (31.25 kHz) 1×2×18 AWG (0.8–1.5 mm²) PROFIBUS PA process



IEC 61158-2 Type A · FISCO

100 Ω @ 31.25 kHz · $\leq 44 \Omega/\text{km}$

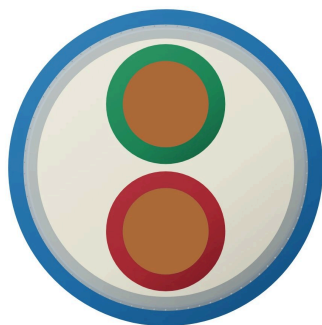
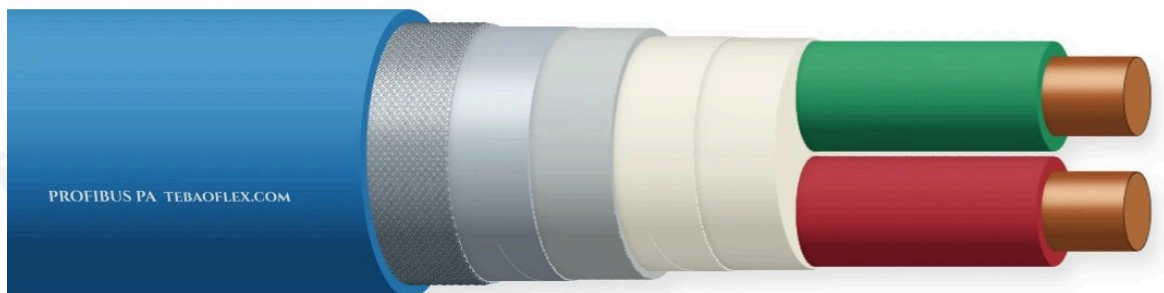
1×2×18 AWG Ex-i Blue / Non-Ex

Application

PROFIBUS PA Cable is the IEC 61158-2 Type A MBP (Manchester Coded, Bus Powered) process-automation fieldbus cable with 100 $\Omega \pm 20 \Omega$ characteristic impedance at 31.25 kHz, $\leq 44 \Omega/\text{km}$ DC loop resistance (18 AWG / 0.8–1.5 mm²), $\leq 3.0 \text{ dB/km}$ attenuation at 39

Typical uses: Chemical & petrochemical refineries, Pharmaceutical batch reactors, Oil & gas tank farms (ATEX/IECEx Zone 1), Water & wastewater treatment plants

Construction



Cross-section, not to scale

1	Stranded copper conductor pair	IEC 61158-2 Type A
2	Polyethylene / foam-skin PE dielectric	IEC 61158-2
3	Static screen (Al/PET + drain)	IEC 61158-2 Type A
4	EMC tinned copper braid	IEC 61158-2
5	Process outer sheath	EN 60079-14 / IEC 60332-3

Technical data

Typical values

Characteristic impedance Z0	100 Ω ± 20 Ω at 31.25 kHz
Mutual capacitance @ 1 kHz	≈ 45–55 pF/m (standard limit ≤ 60 nF/km)
FISCO parameters (R', L', C')	R' = 15–150 Ω/km · L' = 0.4–1.0 mH/km · C'
Operating temp. (fixed)	-40 °C to +80 °C (+105 °C heat-resistant)
Nominal outer diameter	8.0 mm (1×2×18 AWG unarmoured) · 12.4 mm
Hydrocarbon, oil & UV resistance	EN 60811-404 · UL Sunlight Resistant
Standards	IEC 61158-2 Type A (MBP-IS / PROFIBUS PA)

Max. DC loop resistance @ 20 °C	≤ 44 Ω/km (18 AWG / 0.8 mm²) · ≤ 24.4 Ω/km
Attenuation @ 39 kHz	≤ 3.0 dB/km (≤ 0.30 dB/100m)
Velocity of propagation & test V	≈ 68 % (0.68 c) · 300 V rating / 1.5 kV AC
Installation temperature	-20 °C to +60 °C
Min. bending radius	8 × D unarmoured · 12 × D SWA armoured
Flame retardancy	IEC 60332-1-2 & IEC 60332-3-24 Cat C

Sizes

5 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 Ø ≈ mm	Copper kg/km	Weight ≈ kg/km	Min. bend R fixed mm
Standard PROFIBUS PA configurations 5 sizes						
☐ PROFIBUS PA Ex-i Blue PVC 1×2×18 AWG (0.8 mm²)	1×2×18 AWG (Ex-i Blue PVC)	0.80 mm² (18 AWG)	8.0	38	76	64
☐ PROFIBUS PA Non-Ex Black PVC 1×2×18 AWG (0.8 mm²)	1×2×18 AWG (Non-Ex Black PVC)	0.80 mm² (18 AWG)	8.0	38	76	64
☐ PROFIBUS PA Ex-i Blue LSZH 1×2×1.0 mm²	1×2×1.0 mm² (Ex-i Blue LSZH)	1.0 mm² (17 AWG)	8.3	43	84	66
☐ PROFIBUS PA Long-Trunk 1×2×1.5 mm² Ex-i Blue	1×2×1.5 mm² (Long-Trunk Ex-i)	1.5 mm² (16 AWG)	9.2	54	102	74
☐ PROFIBUS PA SWA Armoured 1×2×18 AWG (0.8 mm²)	1×2×18 AWG (SWA Armoured)	0.80 mm² (18 AWG)	12.4	38	245	99

– Outer diameters and weights are nominal factory values subject to ±5 % manufacturing tolerance per IEC 61158-2 Type A (PROFIBUS PA / MBP / FISCO).

Impedance, capacitance & attenuation

5 sizes

Configuration	Impedance Z0	Max. DC R @ 20 °C Ω/km	Mutual C pF/m ≈	VoP %	Attenuation @ 20 °C dB/100m	Dielectric test V
1×2×18 AWG (Ex-i Blue PVC)	100 Ω	44.0	48.0	68	0.28 dB/100m @ 39 kHz	1,500
1×2×18 AWG (Non-Ex Black PVC)	100 Ω	44.0	48.0	68	0.28 dB/100m @ 39 kHz	1,500
1×2×1.0 mm² (Ex-i Blue LSZH)	100 Ω	36.0	50.0	68	0.25 dB/100m @ 39 kHz	1,500
1×2×1.5 mm² (Long-Trunk Ex-i)	100 Ω	24.4	52.0	68	0.21 dB/100m @ 39 kHz	1,500
1×2×18 AWG (SWA Armoured)	100 Ω	44.0	48.0	68	0.28 dB/100m @ 39 kHz	1,500

– Transmission values (characteristic impedance Z0, mutual capacitance, VoP, and attenuation) are measured at +20 °C per IEC 61158-2 Type A (PROFIBUS PA / MBP / FISCO).

Standards and approvals

- ✓ IEC 61158-2 Type A
- ✓ IEC 60079-11 / 60079-27 FISCO
- ✓ UL PLTC / ITC / 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

+86 185 9591 3361

Email

info@tebaoflex.com

Web

tebaoflex.com/cables/profibus-pa-cable



Typical values for this cable type, based on IEC 61158-2 Type A (PROFIBUS PA / MBP / FISCO). Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.