ANHUI FEICHUN SPECIAL CABLE CO., LTD.
安徽飞纯特种电缆有限公司
INDUSTRIAL COMMUNICATION & CONTROL CABLE SPECIALIST

DOCUMENT FC-PDS-02YSYSTCY-2026-001
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CLASS Product Data Sheet | Industrial Bus Cable
STANDARD IEC 61158 | EN 50170

PRODUCT SPECIFICATION — PROFIBUS DP / FMS BUS CABLE, SCREENED, FOAM-SKIN PE INSULATION

02YSY(ST)CY 1×2×0.64

Profibus DP/FMS Shielded Communication Cable | Foam-Skin PE Insulation
1 Twisted Pair (0.64 mm Solid Bare Copper) | Al-Foil + Tinned Cu Braid Dual Screen | Violet PVC Sheath (RAL 4001)

Contact: Tech@feichuncables.com

DP PROFIBUS DP / FMS | 150 Ω IMPEDANCE | TYPE A CABLE

★ FEATURED SPECIFICATION
1 × 2 × 0.64 mm
150 Ω · Dual Shielded
Profibus Type A | IEC 61158

FEATURED SPECIFICATION

PRODUCT PARAMETERS	
Type designation	02YSY(ST)CY 1×2×0.64
Application	Profibus DP / FMS Bus Cable
Core configuration	1 × 2 × 0.64 mm (1 twisted pair)
Conductor material	Solid bare copper wire
Conductor diameter (Ø)	0.64 mm
Cross-sectional area	≈ 0.32 mm²
AWG equivalent	22 AWG (solid single wire)
Cable outer diameter (Ø)	8.0 ± 0.4 mm
Copper weight	24 – 26 kg/km
Approx. total weight	≈ 78 kg/km
Sheath colour	Violet (RAL 4001)

Total weight typically ranges 67 – 80 kg/km depending on brand variant and FC construction option.

TYPE DESIGNATION DECODE

02Y	Foam-skin polyethylene insulation (Foam-Skin PE) — ensures low capacitance and high-speed signal transmission
S	Signal / data communication cable
Y	Inner sheath — PVC (polyvinyl chloride)
(ST)	Aluminium foil static shield — provides 100 % electrostatic coverage
C	Tinned copper wire braid shield — mechanical protection & low-frequency EMI screening
Y	Outer sheath — PVC, standard colour Violet (RAL 4001)

SHIELDING & EMC PERFORMANCE

Dual-Shield Architecture: This cable combines an aluminium foil wrap providing 100 % electrostatic coverage with a tinned copper wire braid. Braid coverage is typically > 80 % (or > 60 %, brand-dependent), delivering effective rejection of electromagnetic interference from motor drives, contactors, inverters, and switch-mode power supplies in industrial plant environments.

CABLE CONSTRUCTION

- **Conductor:** 0.64 mm (22 AWG) solid bare copper wire, single strand — optimised for Profibus signal integrity
- **Core insulation:** Foam-skin polyethylene (02Y) — physically foamed PE ensures low capacitance (~28.5 nF/km) and stable 150 Ω impedance
- **Pair construction:** Two insulated cores twisted together to form one balanced data pair
- **Inner sheath:** PVC (Y) — protects the twisted pair assembly
- **Screen — (ST):** Aluminium foil static shield, 100 % coverage, bonded to inner sheath
- **Screen — (C):** Tinned copper wire braid, coverage > 80 % (typ.), provides low-impedance ground path and mechanical protection
- **Outer sheath:** PVC (Y), colour Violet (RAL 4001) — universally recognised Profibus identification



Cross-section (illustrative): 1 twisted pair
Green (A) + Red (B) | Al-foil (dashed) + Cu braid (dotted)
Violet PVC outer sheath

ELECTRICAL CHARACTERISTICS

KEY ELECTRICAL DATA	
Characteristic impedance	150 ± 15 Ω (at 3 – 20 MHz)
Loop resistance (max.)	≤ 110 Ω/km
Shield resistance	≤ 9.5 Ω/km
Mutual capacitance	≈ 28.5 nF/km (at 1 kHz)
Operating voltage	100 V (peak)

CRITICAL PARAMETER
The **150 Ω ± 15 Ω** characteristic impedance (measured at 3 MHz – 20 MHz) is the single most critical parameter for reliable Profibus communication. Impedance mismatch causes signal reflections and bit errors. All connectors, terminators, and repeaters must also be rated for 150 Ω.

SIGNAL ATTENUATION

CURRENT CARRYING CAPACITY

⚠ ENGINEERING NOTICE — DATA CABLE, NOT POWER CABLE
This is a **data communication (bus) cable** and is not designed for power transmission. Manufacturer datasheets do not specify an ampacity rating. If used for bus-powered applications (e.g. M12 connector power feed), the maximum current should be limited to **1 A – 2 A** due to the 0.64 mm (22 AWG) conductor. Voltage drop over long runs must be evaluated carefully given the loop resistance of up to 110 Ω/km.

⛔ PROHIBITED USE
Under **no circumstances** shall this cable be connected to **220 V / 380 V** mains power circuits. Doing so constitutes a severe safety hazard and violates the cable's rated operating voltage (100 V peak).

INSTALLATION GUIDELINES

MIN. BEND RADIUS — FIXED	MIN. BEND RADIUS — SINGLE
75 mm	37.5 mm
≈ 10 × outer Ø	One-time bend during install

Fast Connect (FC) Variant: Where the FC version is specified, the inner sheath and shield layers are engineered to a defined thickness and structure. Using the dedicated Profibus stripping tool, the outer sheath and shield can be removed in a single cut, directly exposing the signal cores — significantly improving on-site termination speed and consistency.

MAXIMUM SEGMENT LENGTH

BAUD RATE	MAX. SEGMENT
9.6 / 19.2 / 93.75 kbit/s	1 200 m
187.5 kbit/s	1 000 m
500 kbit/s	400 m
1.5 Mbit/s	200 m
3 / 6 / 12 Mbit/s	100 m

Segment lengths per Profibus International Type A cable specification. Repeaters may be used to extend total network distance.

APPLICABLE STANDARDS

SHIELDING LAYERS	
Layer 1 — (ST) Aluminium foil	`100 % coverage, static shield`
Layer 2 — (C) Tinned Cu braid	`> 80 % coverage (typical)`

WIRING & COLOUR CODE



Core A Green — Core B Red

CORE	COLOUR	SIGNAL
A	Green	`RxD / TxD-N`
B	Red	`RxD / TxD-P`

FREQUENCY	9.6 KHZ	4 MHZ	16 MHZ
MAX. ATTENUATION	`≤ 2.5 dB/km`	`≤ 22 dB/km`	`≤ 42 dB/km`

- `IEC 61158` — Industrial communication networks — Fieldbus specifications
- `EN 50170` — General purpose field communication system (Profibus)
- `Profibus International` — Type A cable specification (150 Ω, violet)
- Baud rates supported: `9.6 kbit/s` to `12 Mbit/s`
- Impedance class: `150 Ω ± 15 Ω`

Profibus DP | Profibus FMS | Type A Cable | Dual Shielded

ORDER REFERENCE & CONTACT

For inquiries and orders, please reference: **`02YSY(ST)CY 1×2×0.64`**
Profibus DP/FMS Type A bus cable, dual-screened, violet.
Contact: **Tech@feichuncables.com** | Custom lengths and FC variants available on request.

All data are nominal and subject to normal manufacturing tolerances.
The company reserves the right to modify specifications without prior notice.
02YSY(ST)CY 1×2×0.64 | IEC 61158 / EN 50170 compliant.