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-02YYSTC11Y-2026-001
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CLASS Product Data Sheet | Industrial Bus Cable — Robust
STANDARD IEC 61158 | EN 50170 | IEC 60754

PRODUCT SPECIFICATION — PROFIBUS DP ROBUST CABLE, DUAL-SCREENED, PUR SHEATH, HALOGEN-FREE

02YY(ST)C11Y 1×2×0.64

Profibus DP Robust Shielded Communication Cable | Foam-Skin PE Insulation
1 Twisted Pair (0.64 mm Solid Bare Copper) | Al-Foil + Tinned Cu Braid Dual Screen | PUR Outer Sheath (Halogen-Free)

Contact: Tech@feichuncables.com

PUR PROFIBUS DP ROBUST | 150 Ω | PUR HALOGEN-FREE | OIL & ABRASION RESISTANT

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

FEATURED SPECIFICATION

PRODUCT PARAMETERS	
Type designation	02YY(ST)C11Y 1×2×0.64
Product description	Profibus DP Robust Cable (PUR Sheath)
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)
Cable outer diameter (Ø)	8.0 ± 0.4 mm
Copper weight	24 – 26 kg/km
Approx. total weight	65 – 75 kg/km
Sheath material	11Y – PUR (Polyurethane)

Note: 0.64 mm refers to conductor diameter, not cross-section. Total weight is slightly higher and denser than standard PVC versions due to PUR sheath compound.

TYPE DESIGNATION DECODE

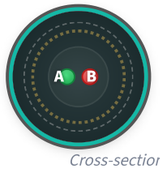
02Y	Foam-skin polyethylene insulation (Foam-Skin PE) — ensures low capacitance and stable 150 Ω impedance
Y	Inner sheath — PVC (polyvinyl chloride)
(ST)	Aluminium foil static shield — 100 % electrostatic coverage
C	Tinned copper wire braid shield — > 85 % coverage, mechanical and EMI protection
11Y	**Polyurethane (PUR) outer sheath** — halogen-free, oil-resistant, abrasion-resistant, superior mechanical toughness

SHIELDING & EMC PERFORMANCE

SCREENING LAYERS	
Layer 1 — (ST) Aluminium foil	100 % coverage, static shield
Layer 2 — (C) Tinned Cu braid	> 85 % coverage

CABLE CONSTRUCTION

- **Conductor:** 0.64 mm (22 AWG) solid bare copper wire — optimised for Profibus RS-485 differential signal integrity
- **Core insulation:** Foam-skin polyethylene (02Y) — physically foamed PE ensures low capacitance (≤ 30 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
- **Screen — (C):** Tinned copper wire braid, coverage > 85 %, low-impedance ground path
- **Outer sheath — (11Y): Polyurethane (PUR)** — halogen-free per IEC 60754, oil- and coolant-resistant, high abrasion resistance. Tear strength 3–4× that of PVC



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

ELECTRICAL CHARACTERISTICS

KEY ELECTRICAL DATA	
Characteristic impedance	150 ± 15 Ω (at 3 – 20 MHz)
Loop resistance (max.)	≤ 115 Ω/km
Mutual capacitance	≤ 30 nF/km
Operating voltage	100 V (peak)
Test voltage	3 600 V DC (3 s)

CRITICAL PARAMETER
The **150 Ω ± 15 Ω** characteristic impedance is the defining parameter for reliable Profibus communication. This cable is designed exclusively for RS-485 differential data signals. Operating voltage (100 V peak) applies to data signalling only — not for power supply connections.

CURRENT CARRYING CAPACITY

WHY PUR (11Y) SHEATH? — SELECTION GUIDE

Use this cable instead of the standard PVC version (02YSY (ST) CY) when the installation environment presents any of the following conditions. PUR is the correct engineering choice for chemically and mechanically demanding industrial zones.

CONDITION	PUR ADVANTAGE
Cutting fluids / coolant exposure	Excellent chemical inertness to mineral oils and coolants — ideal for CNC machining centres
Mechanical abrasion / swarf	Tear strength 3–4× PVC; resists ground dragging and metal chip contact
Halogen-free requirement	PUR does not release toxic or corrosive fumes when burned — IEC 60754 compliant

ARMOUR MISCONCEPTION — IMPORTANT CLARIFICATION
PUR sheath provides outstanding mechanical toughness sufficient for most in-plant crush protection scenarios. However, if the cable must be **direct-buried underground** or is subject to **rodent damage risk**, a PUR sheath alone is insufficient. For these applications, specify a **Profibus DP Armoured** variant with steel tape or wire armour (typically black sheath).

INSTALLATION & TERMINATION

MIN. BEND RADIUS — FIXED
80 mm
≈ 10 × outer Ø

TEST VOLTAGE
3 600 V
DC, 3 seconds

Fast Connect (FC): This cable is typically available in FC construction. Using a dedicated Profibus stripping tool (e.g. Siemens or Weidmüller violet stripper), the outer sheath and screen can be removed in a single cut, directly exposing the signal cores for rapid on-site termination.

DRAG CHAIN USE — PROHIBITED FOR SOLID CONDUCTOR
Although the PUR sheath is highly flexible, the conductor is **solid copper (single wire)**, which will fatigue-fracture under repeated flexing. This cable must **not** be used in cable drag chains or continuously moving applications. For drag chain use, specify the **Profibus Drag Chain** version with stranded (7-wire) conductors.

QUICK COMPARISON — PVC VS PUR

Dual-Shield Architecture: The aluminium foil provides complete electrostatic coverage while the tinned copper braid delivers low-impedance grounding and mechanical robustness. Combined braid coverage exceeds 85 %, ensuring superior noise rejection in electrically harsh environments with VFDs, servo drives, and high-power switching equipment.

WIRING & COLOUR CODE



CORE	COLOUR	SIGNAL
A	Green	`RxD / TxD-N (negative)`
B	Red	`RxD / TxD-P (positive)`

⚠ ENGINEERING NOTICE — DATA CABLE, NOT POWER CABLE

This is a **data communication (bus) cable** designed for RS-485 differential signals. Manufacturer specifications do not provide an ampacity rating. If used for bus-powered applications (e.g. terminal resistor or small gateway supply via M12), maximum current should be limited to **`1 A – 1.5 A`**. Voltage drop must be strictly calculated given the loop resistance of up to 115 Ω/km.

⛔ PROHIBITED USE

Under **no circumstances** shall this cable be connected to **`220 V / 380 V`** mains power circuits. The cable is rated for 100 V peak (data signal level) only.

PARAMETER	02YSY(ST)CY STANDARD PVC	02YY(ST)C11Y ROBUST PUR ★
Outer sheath	PVC	**PUR (11Y)**
Halogen-free	No	**Yes (IEC 60754)**
Oil / coolant resistance	Limited	**Excellent**
Abrasion resistance	Standard	**3–4× PVC**
Impedance	150 Ω	**150 Ω**
Sheath colour	Violet	**Violet / Teal***

* Sheath colour may vary by brand; commonly violet or teal/green for PUR robust variants. Please confirm at order.

APPLICABLE STANDARDS

- `IEC 61158` — Industrial communication networks — Fieldbus specifications
- `EN 50170` — Profibus general purpose field communication system
- `IEC 60754` — Halogen-free compliance (PUR sheath)
- `Profibus International` — Type A cable, 150 Ω impedance

Profibus DP | PUR Robust | Halogen-Free
Oil Resistant | Abrasion Resistant | 150 Ω Type A

ORDER REFERENCE & CONTACT

For inquiries and orders, please reference: **`02YY(ST)C11Y 1×2×0.64`**
Profibus DP Robust, PUR sheath, dual-screened, halogen-free.
Contact: **Tech@feichuncables.com** | Custom lengths and FC variants available on request.
Recommended for: CNC machining, automotive assembly lines, food & beverage packaging.

All data are nominal and subject to normal manufacturing tolerances.
The company reserves the right to modify specifications without prior notice.
02YY(ST)C11Y 1×2×0.64 | IEC 61158 / EN 50170 / IEC 60754 compliant.