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安徽飞纯特种电缆有限公司
NETWORK & FIBER OPTIC CABLE SOLUTIONS · WWW.FEICHUNCABLES.COM

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CLASS Product Data Sheet | Network & Fiber Cables
STANDARD ISO/IEC 11801 | TIA/EIA-568 | EN 50173

PRODUCT SPECIFICATION SERIES – FIRE-RESISTANT NETWORK, OUTDOOR NETWORK, AND FIBER OPTIC CABLES FOR INDUSTRIAL AND TELECOM APPLICATIONS

F/UTP CAT5E • F/UTP CAT6 • FO Fiber

CAT5E ZH нг(A)-FRHF Fire-Resistant (4×2×0.52mm) | CAT6 PE Outdoor (4×2×0.57mm) | 4-Core Single-Mode Fiber Optic Shielded Network Cables for Mission-Critical Applications | Outdoor Fiber for Long-Distance Transmission

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NETWORK INFRASTRUCTURE | FIRE-RESISTANT CAT5E | OUTDOOR CAT6 | SINGLE-MODE FIBER | PoE++ READY

PRODUCT 1	PRODUCT 2	PRODUCT 3
F/UTP CAT5E ZH нг(A)-FRHF 4×2×0.52	**F/UTP CAT6 PE 4×2×0.57**	**FO-ST-OUT-9S-4 PE-BK**
Fire-Resistant Network	Outdoor Network Cable	Outdoor Fiber Optic

PRODUCT 1: FIRE-RESISTANT CAT5E NETWORK CABLE

The **F/UTP CAT5E ZH нг(A)-FRHF** series represents a specialized fire-resistant shielded network cable designed for mission-critical applications where circuit integrity must be maintained during fire events. The designation нг(A) indicates Russian and international Class A flame-retardant performance with no flame propagation during bundle testing. The FRHF classification denotes Fire-Resistant Halogen-Free construction, ensuring the cable maintains circuit functionality at temperatures up to seven hundred fifty degrees Celsius for a minimum of one hundred eighty minutes per FE180 standards.

CAT5E FIRE-RESISTANT SPECIFICATIONS

F/UTP CAT5E ZH НГ(A)-FRHF 4×2×0.52	
Type designation	F/UTP CAT5E ZH нг(A)-FRHF
Core configuration	4 pairs × 0.52 mm (8 cores)
AWG equivalent	24 AWG
Conductor cross-section	≈ 0.21 mm² per core
Category performance	CAT5E (100 MHz)
Fire resistance rating	FE180 (180 min @ 750°C)
Flame retardance	нг(A) Class A (bundle test)
Cable outer diameter	7.9 – 8.2 mm
Copper weight (with shield)	18 – 20 kg/km
Approx. total weight	75 – 77 kg/km
Jacket material	LSZH / FRHF compound
Current capacity per core	0.5 – 0.8 A (PoE only)
Temperature range	−40°C to +70°C
Installation temperature	≥ −10°C minimum

CONSTRUCTION DETAILS

PRODUCT 2: OUTDOOR CAT6 NETWORK CABLE

The **F/UTP CAT6 PE** series delivers high-performance outdoor network connectivity with enhanced conductor diameter for superior Power over Ethernet performance. The zero point five seven millimeter conductor diameter (twenty-three AWG) provides lower DC resistance compared to standard CAT6 cables, making this cable ideal for PoE Plus Plus applications per IEEE eight zero two point three bt standard. The polyethylene jacket offers exceptional resistance to ultraviolet radiation, moisture ingress, and mechanical abrasion in outdoor installations.

CAT6 OUTDOOR SPECIFICATIONS

F/UTP CAT6 PE 4×2×0.57	
Type designation	F/UTP CAT6 PE
Core configuration	4 pairs × 0.57 mm (8 cores)
AWG equivalent	23 AWG
Conductor cross-section	≈ 0.25 mm² per core
Category performance	CAT6 (250 MHz)
PoE capability	PoE++ Type 3/4 (IEEE 802.3bt)
Cable outer diameter	7.2 – 7.6 mm
Copper weight (with shield)	24 – 26 kg/km
Approx. total weight	50 – 55 kg/km
Jacket material	PE (Polyethylene), Black
Current capacity per core	0.6 – 1.0 A
Temperature range	−40°C to +70°C
UV resistance	Outdoor-rated PE jacket

CONSTRUCTION DETAILS

- Enhanced conductors: Larger diameter zero point five seven millimeter solid bare copper conductors reduce DC resistance, enabling higher power delivery for PoE Plus Plus applications

PRODUCT 3: OUTDOOR SINGLE-MODE FIBER OPTIC CABLE

The **FO-ST-OUT-9S-4-PE-BK** designation indicates a four-core outdoor single-mode fiber optic cable with steel reinforcement and polyethylene jacket. The nine slash one two five micrometer specification denotes ITU-T G.652.D compliant single-mode fiber optimized for long-distance transmission from visible through L-band wavelengths. Steel tape armoring or central strength member provides mechanical protection during aerial installation and prevents excessive elongation under tension. This cable represents a non-metallic dielectric construction offering complete immunity to electromagnetic interference and lightning-induced surges.

FIBER OPTIC CABLE SPECIFICATIONS

FO-ST-OUT-9S-4-PE-BK	
Type designation	FO-ST-OUT-9S-4-PE-BK
Fiber type	Single-Mode 9/125 µm
Fiber count	4 cores
ITU-T specification	G.652.D compliant
Optical performance	Long-distance transmission
Wavelength range	1310 / 1550 nm optimized
Reinforcement	Steel tape / Central strength
Cable outer diameter	≈ 7.3 mm (typical)
Copper weight	0 kg/km (all-dielectric)
Approx. total weight	≈ 50 kg/km
Jacket material	PE (Polyethylene), Black
Current capacity	0 A (non-conductive)
Temperature range	−40°C to +70°C
Installation method	Aerial, duct, direct burial

CONSTRUCTION DETAILS

- **Fire protection layer:** Each conductor is wrapped with mica tape or specialized ceramic-forming silicone rubber insulation. This construction maintains circuit integrity during fire exposure, preventing signal loss in emergency systems.
- **Conductor material:** Solid bare copper conductors with diameter of zero point five two millimeters, meeting ISO/IEC eleven eight zero one requirements for permanent link installations.
- **Shielding:** Aluminum-polyester foil shield with drain wire provides comprehensive electromagnetic interference protection in electrically noisy fire alarm and emergency communication systems.
- **Jacket compound:** Low Smoke Zero Halogen FRHF formulation produces minimal smoke and no halogen gases during combustion, critical for evacuation safety in confined spaces.
- **Physical characteristics:** The fire-resistant construction results in significantly larger outer diameter (approximately eight millimeters) compared to standard CAT5E cables (typically five to six millimeters), requiring larger conduit sizing and specialized termination hardware.

TYPICAL APPLICATIONS

Fire alarm systems	Emergency lighting
Nuclear facilities	Public address systems

⚠ INSTALLATION REQUIREMENTS

Due to the mica tape fire protection layer, this cable exhibits reduced flexibility and requires specialized installation practices. Conduit fill calculations must account for the larger outer diameter. Termination requires shielded connectors designed for large-diameter cables. The minimum installation temperature of negative ten degrees Celsius must be observed to prevent insulation damage. Cable management systems must provide adequate support to prevent excessive stress on termination points.

up to ninety watts at the powered device.

- **Outdoor jacket:** Black polyethylene compound provides exceptional weathering resistance with integrated UV stabilizers for direct sunlight exposure. The jacket maintains flexibility across the full operating temperature range.
- **Shielding:** Aluminum-polyester foil shield with drain wire ensures electromagnetic compatibility in outdoor environments with variable frequency drives, high-voltage lines, and other interference sources.
- **Pair geometry:** Precision pair twisting with physical separator maintains two hundred fifty megahertz bandwidth performance and ensures consistent impedance characteristics for Gigabit Ethernet and ten-Gigabit short-reach applications.
- **Moisture protection:** The PE jacket provides effective moisture barrier without requiring gel-filled construction, simplifying termination procedures while maintaining long-term reliability in humid environments.

TYPICAL APPLICATIONS

Outdoor surveillance	Wireless access points
Building-to-building	Campus networks

⚠ INDOOR TRANSITION REQUIREMENTS

Polyethylene jacket materials are not flame-retardant and must not exceed five meters of penetration into building interiors per electrical codes. When transitioning from outdoor to indoor environments, this cable must be terminated at the building entrance and transitioned to LSZH or PVC-jacketed indoor-rated cable. Direct burial installations require additional conduit protection or armored variants. The cable must be properly grounded at building entry points to provide lightning surge protection.

- **Fiber specification:** ITU-T G.652.D single-mode fiber with nine micrometer core and one hundred twenty-five micrometer cladding diameter. Optimized for operation at both one thousand three hundred ten nanometers and one thousand five hundred fifty nanometers wavelengths with low attenuation and zero water peak.
- **Buffer system:** Tight-buffer or loose-tube construction protects individual fibers from environmental stress and mechanical shock. Color-coded buffer tubes enable rapid fiber identification during splicing and termination operations.
- **Central strength member:** Fiber-reinforced plastic or steel wire provides tensile strength during installation, preventing fiber strain that could increase attenuation or cause breakage. Typical breaking strength exceeds one thousand newtons.
- **Outdoor jacket:** Black polyethylene compound with UV stabilizers provides long-term protection against sunlight degradation. The jacket maintains integrity across temperature extremes and resists moisture ingress in direct burial applications.
- **Lightning immunity:** All-dielectric construction eliminates conductive paths, providing inherent protection against lightning-induced surges and ground potential differences between buildings. No electrical bonding or grounding required at termination points.

TYPICAL APPLICATIONS

Campus backbone	Metro networks
Long-haul links	Industrial parks

✓ PERFORMANCE ADVANTAGES

Single-mode fiber enables transmission distances exceeding forty kilometers at Gigabit speeds and up to eighty kilometers with ten-Gigabit wavelength-division multiplexing. The fiber provides bandwidth capacity measured in terahertz, supporting future network upgrades without cable replacement. Complete electromagnetic immunity eliminates concerns about proximity to high-voltage lines, radio transmitters, or industrial equipment. The all-dielectric construction prevents ground loop formation and eliminates lightning damage risk in aerial installations.

PRODUCT COMPARISON MATRIX

PARAMETER	CAT5E FIRE	CAT6 OUTDOOR	FIBER OPTIC
Primary Application	Fire systems	Outdoor PoE	Long distance
Bandwidth	100 MHz	250 MHz	Terahertz
Max Distance (Ethernet)	100 m	100 m	40+ km
PoE Capability	PoE (15W)	PoE++ (90W)	None
Fire Resistance	FE180	None	N/A
EMI Immunity	Shielded	Shielded	Complete

ORDER REFERENCE & CONTACT

For inquiries and orders, please reference product codes:

`F/UTP CAT5E ZH Hr(A)-FRHF 4×2×0.52`

`F/UTP CAT6 PE 4×2×0.57`

`FO-ST-OUT-9S-4-PE-BK`

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Custom fiber counts and cable lengths available - Consult factory for armored variants and special