Cat6 F/UTP Ethernet Bulk Cable — LSZH

4 Pairs | 24 AWG Solid Bare Copper | 250 MHz | 305 m (1000 ft) Reel





1. GENERAL DESCRIPTION

Cat6 F/UTP (foil-screened) bulk cable is designed for structured cabling and Ethernet networks up to 1000BASE-T (Gigabit Ethernet) and short-reach 10GBASE-T. It features four twisted pairs of solid pure bare copper conductors with a cross-web separator, an overall foil screen with drain wire, and a Low Smoke Zero Halogen (LSZH) jacket, making it suitable for indoor installations in electrically noisy environments such as data centres, industrial areas and buildings with high EMI, where low smoke and halogen-free emission are also required. Supplied on a reel for easy, tangle-free pulling.

2. KEY FEATURES

- Pure bare copper solid conductors for low attenuation and stable long-run performance
- Overall foil screen (F/UTP) with drain wire for improved EMI / RFI immunity and reduced alien crosstalk
- Cross-web separator for improved NEXT and PS NEXT performance
- LSZH jacket: low smoke, zero halogen, reduced toxic and corrosive gas emission in fire
- Supports Gigabit Ethernet, PoE / PoE+ / PoE++ (IEEE 802.3af / at / bt) and 10GBASE-T over short links
- Characterised up to 250 MHz — higher bandwidth and headroom than Cat5e
- Supplied on a 305 m reel for smooth, tangle-free pay-out

3. APPLICATIONS

- Horizontal cabling in structured cabling systems (permanent link / channel)
- 10BASE-T, 100BASE-TX, 1000BASE-T Ethernet; 10GBASE-T over short links
- Voice, CCTV / IP cameras, access control, PoE devices
- Data centres, hospitals and industrial areas with high electromagnetic interference
- Installations near power cables, motors, lifts, lighting ballasts or other EMI sources

4. APPLICABLE STANDARDS

- ANSI/TIA-568.2-D — Category 6 balanced twisted-pair cable
- ISO/IEC 11801 and IEC 61156-5 — Class E generic cabling
- IEC 60332-1 — Flame propagation (single vertical cable)
- IEC 60754-1 / -2 — Halogen content and acidity of gases
- IEC 61034 — Smoke density

5. CABLE CONSTRUCTION

Conductor	Solid pure bare copper, 24 AWG (Ø 0.57 mm nominal)
Insulation	Solid HDPE (high-density polyethylene)
Pairs	4 twisted pairs, different twist lengths to minimise crosstalk
Pair Colour Code	Blue / White-Blue, Orange / White-Orange, Green / White-Green, Brown / White-Brown
Screening	Overall Al/PET foil screen (F/UTP), foil-to-foil overlap, with drain wire — coverage [100 %]
Drain Wire	[24 AWG tinned copper (7/0.20 mm)]
Separator / Ripcord	Cross-web filler (X-spline) / [Yes / No]
Outer Jacket	LSZH (Low Smoke Zero Halogen) — colour: [Grey / Blue / White]
Marking	CAT6 F/UTP 4P 24AWG LSZH [standard] [metre marking]
Packing	305 m (1000 ft) on reel / pull box

Pair colour code

Pair	Conductor 1 (Tip)	Conductor 2 (Ring)
1	White / Blue	Blue
2	White / Orange	Orange
3	White / Green	Green
4	White / Brown	Brown

6. MECHANICAL & ENVIRONMENTAL

Overall Diameter (approx.)	[6.5 ± 0.3 mm]
Min. Bending Radius (installation)	8 × overall diameter
Max. Pulling Tension	110 N (25 lbf)
Operating Temperature	[-20 °C to +60 °C]
Installation Temperature	[0 °C to +50 °C]
Flame Retardancy	IEC 60332-1

7. ELECTRICAL CHARACTERISTICS (AT 20 °C)

Characteristic Impedance (1–250 MHz)	100 Ω ± 15 Ω
Max. DC Resistance (per conductor)	93.8 Ω/km (9.38 Ω/100 m)
Max. DC Resistance Unbalance	5 %
Max. Mutual Capacitance (1 kHz)	5.6 nF/100 m
Max. Capacitance Unbalance (pair to ground)	330 pF/100 m

Max. Propagation Delay (250 MHz)	536 ns/100 m
Max. Delay Skew	45 ns/100 m
Min. ACR-F / PS ACR-F (100 MHz)	27.8 dB / 24.8 dB per 100 m
Nominal Velocity of Propagation (NVP)	[~ 0.67]
Max. Operating Voltage	[72 V]
Screening Effectiveness	[Transfer impedance / coupling attenuation per IEC 61156-5]
Dielectric Strength (DC, 1 min)	[1.0 kV]

8. TRANSMISSION PERFORMANCE (PER 100 M)

Frequency (MHz)	Insertion Loss — max (dB)	NEXT — min (dB)	PS NEXT — min (dB)
1	2.0	74.3	72.3
4	3.8	65.3	63.3
10	6.0	59.3	57.3
16	7.6	56.2	54.2
31.25	10.7	51.9	49.9
62.5	15.4	47.4	45.4
100	19.8	44.3	42.3
200	29.0	39.8	37.8
250	32.8	38.3	36.3

9. INSTALLATION & HANDLING GUIDELINES

- Do not exceed the max. pulling tension (110 N) or the min. bending radius (8 × OD).
- Avoid kinks, sharp bends, crushing and over-tight cable ties — Cat6 performance is sensitive to cable deformation.
- Keep separation from power cables according to local wiring standards (EN 50174-2 / TIA-569).
- Untwist pairs by no more than 13 mm (0.5 in) at termination points.
- Use shielded Cat6-rated connectors, jacks and patch panels throughout the link.
- Terminate the foil and drain wire to the shielded connector and ground the screen at one or both ends per the site earthing design; keep the shield continuous end to end.
- Test every installed link with a certified cable tester (Cat6 permanent link).