CLT Armored Fiber Optic Cable

Stranded Loose Tube Armored Construction 36 -144 Cores

Infinique's Stranded Loose Tube Armored Cables are suitable for direct burial installations. They have a steel armored construction which provides protection against extreme weather conditions, rodents, water and humidity. Encased with flame retardant jacket and armor, these cables are ideal for heavy traffic areas and industrial installations where extra rugged fiber optic cables are required. The armored rugged construction gives it greater crush resistance.

The construction of the cable is Stranded Loose Tubes, to ensure water ingress, the loose tubes are filled with non-melting jelly. The non-hazardous jelly and the water blocking tape is longitudinally applied around the loose tube and acts as water barriers. The steel armor is made of ECCS Coated Corrugated Steel Tape and the outer jacket is made of Fire-rated UV Resistant HDPE material making the cable suitable for harsh environments. Rip Cords are applied longitudinally to enable easy stripping of the cable during end preparation for testing and installation.

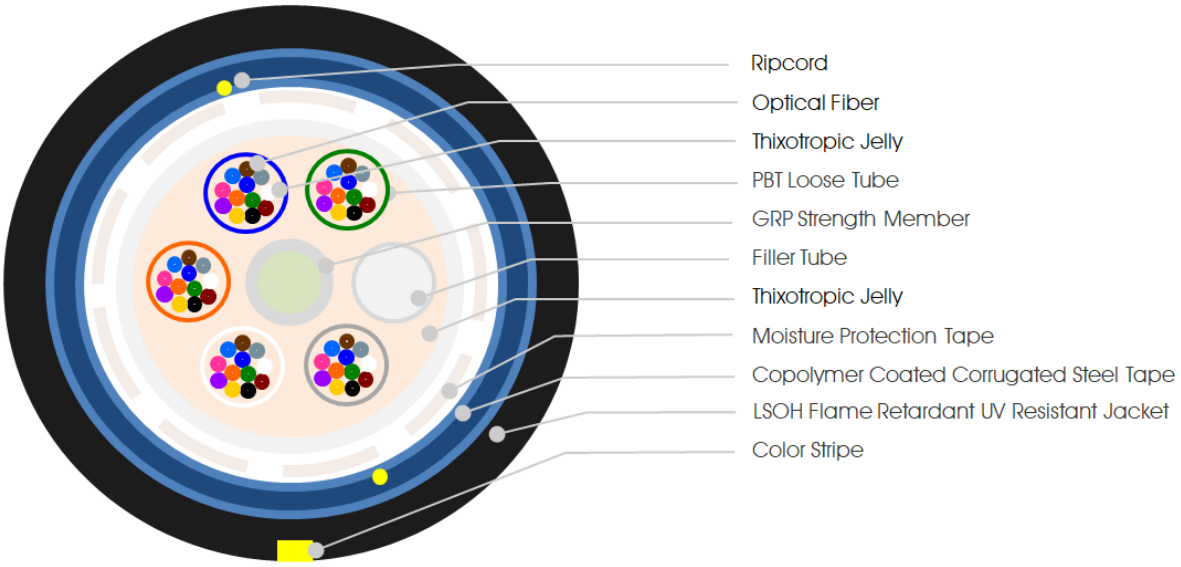
Features and Benefits

- **Reliable Performance**
  Gigabit Ethernet, 10 Gigabit Ethernet Performance, complies with TIA/EIA, RUS PE-90 and GR-20 standards
- **Rugged Construction**
  ECCS Coated Corrugated Steel Tape Armor, FR UV Jacket, Water Swellable Tapes
  gives rugged construction
- **Clear Identification**
  Color coded Buffered Fibers, Loose Tubes and Outer Jacket as per Telcordia Standards for quick and clear identification
- **Speedy Installation**
  Easy Armor and Jacket removal for increased safety and quick installation
- **Challenging Applications**
  OSP, Direct Burial, Duct, Riser, Heavy Traffic, Industrial and other challenging conditions

The Central Loose Tube Armored cable can have 36 to 144 fiber cores and is suitable for 10 Gigabit Ethernet applications. Being extremely flexible, these cables are ideal for low fiber count applications such as direct burial, duct, and riser indoor spaces.

For speedy installation and clear identification, both fibers and the loose tubes are color coded in accordance with Telecordia standards. For singlemode cable one yellow color stripe runs along the outer jacket, OM1 and OM2 has orange strip, and aqua for OM3, Violet for OM4 and Lime Green for OM5. The cable is clearly meter marked with the markings being embossed and printed in white color. Both ends of the cable are capped to avoid water ingress and are accessible for testing. Cable is packed in fumigated wooden drums with angle rod support to take the cable load. All cable drums are accompanied with individual cable test report.

CABLE CONSTRUCTION



LINK PERFORMANCE WARRANTY 25 Years

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OPTICAL SPECIFICATIONS

Fiber Type		Singlemode	Singlemode Bend Insensitive	Multimode 62.5/125	Multimode 50/125	Multimode 50/125 LOF	Multimode 50/125 LOF	Multimode 50/125 LOF
IEC 11801 classification		OS1/OS2	OS1/OS2	OM1	OM2	OM3	OM4	OM5
ITU-T type		G.652D	G.657A	G.651	G.651	G.651	G.651	G.651
Attenuation (dB/km max)	850 nm			≤ 3.5	≤ 2.8	≤ 2.8	≤ 2.8	≤ 2.8
	1310 nm	≤ 0.35	≤ 0.35	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
	1550 nm	≤ 0.21	≤ 0.20					
	1625 nm	≤ 0.23	≤ 0.21					
Bending Loss 1 turn Radius 20× Cable OD	850 nm-1310			≤ 0.05	≤ 0.05	≤ 0.05	≤ 0.05	≤ 0.1
	1550 nm	≤ 0.25	≤ 0.025					
	1625 nm	≤ 1.0	≤ 0.1					
Bandwidth MHz x km	850 nm			≥ 160	≥ 500	≥ 2000	≥ 3500	≥ 3500
	1310 nm			≥ 500	≥ 500	≥ 1200	≥ 1200	≥ 1200
Chromatic Dispersion (ps/(nm*km))	1285-1330 nm	≤ 3.5	≤ 3.0					
	1550 nm	≤ 18	≤ 18					
	1625 nm	≤ 22	≤ 22					
Zero Dispersion Wavelength (nm)		1300-1324						
Zero Dispersion Slope (ps/(nm^{2}km))		≤ 0.093						

GEOMETRICAL SPECIFICATIONS

Core Diameter (µm)		9±2.5	9±2.5	62.5±2.5	50±2.5	50±2.5	50±2.5	50±2.5
Cladding Diameter (µm)		125 ±1.0	125 ±1.0	125 ±1.0	125 ±1.0	125 ±1.0	125 ±1.0	125 ±1.0
Coating Diameter (µm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10	245 ±10	245 ±10

APPLICABLE DISTANCES

Gigabit Ethernet Distance (m)	Sx (850 nm)	5,000	5,000	300	750	1000	1100	1100
	Lx (1310 nm)	-	-	550	600	600	600	600
10 Gigabit Ethernet Distance (m)	Sx (850 nm)	10,000	10,000	33	150	300	550	500
	Lx (1310 nm)	40,000	40,000	-	-	-	-	

These are the applicable distances at given frequencies, distances increase for lower frequencies.

STANDARDS

Performance	TIA 568, ISO/IEC11801, EN 50173-X, ICEA-696 Compliant, RUS PE-90 Compliant, GR-20 Compliant Meet or exceeds IEE 802.3 Ethernet (including 10 Gigabit Ethernet), ATM, Fibre Channel, FDDI
Flame Propagation	IEC 60332-1
Flame Retardant	IEC 60332-3
Water Blocking	IEC 60794-1-2 F5 Standards
Fiber Geometry	IEC 60793-I-20: 2014 Optical Fibers Part 1-20
Attenuation	IEC 60793-I-40: 2001 Optical Fibers Part 1-40
Chromatic Dispersion	IEC 60793-I-42: 2013 Optical Fibers Part 1-42
Cut-off Wavelength	IEC 60793-I-44: 2011 Optical Fibers Part 1-44
Mode Field Diameter	IEC 60793-1-45: 2001 Optical Fibers Part 1-45
Mechanical Tests	IEC 60794-I-21:2015 Optical Fibers Part 1-21
Environmental Tests	IEC 60794-7-22: 2017 Optical Fibers Part 1-22
Color Coding	IEC 60304 Telcordia-Bellcore, TIA-598C Standards
RoHS	Free of hazardous substances complies with RoHS regulation

TEST DATA

Test	Standard	Specified Value	Acceptance Criteria
Tension	IEC 60794-1-2-E1	Mandrel Diameter: 30 x Cable OD Length under tension: ≥ 50 m Applied tensile load: 1500 N, 5 minutes	PASS. Attenuation change <= 0.05 dB The optical fiber shall have no distinct additional attenuation and strain.
Crush Performance	IEC 60794-1-2-E4	Applied load: 2000N/100mm^2 Duration of loading: 15 minutes	PASS. Attenuation change <= 0.05 dB The optical fiber shall have no distinct additional attenuation and strain.
Impact Resistance	IEC 60794-1-2-E4	10 Nm, 3 impacts, R= 300 mm	PASS. Attenuation change <= 0.05 dB The optical fiber shall have no distinct additional attenuation and strain.
Bending Radius	IEC 60794-1-2-E11	Length: ≥ 10m Mandrel : 15 × Cable OD	PASS. Attenuation change <= 0.05 dB The optical fiber shall have no distinct additional attenuation and strain.
Repeated Bending	IEC 60794-1-2-E11	Sheave Diameter: 20 x Cable OD 100 N, No. of Cycles: 35 Flexing Speed: 2 Seconds/Cycle	PASS. Attenuation change <= 0.05 dB The optical fiber shall have no distinct additional attenuation and strain.
Torsion Test	IEC 60794-1-2-E7	Length: 1m. 100N No. of Cycles: 10 Twist Angle: ±180°	PASS. Attenuation change <= 0.05 dB /km The jacket has no cracking and no breakage of optical fiber
Temperature Performance	IEC 60794-1-22	Temperature cycling schedule -30°C →+70°C → -30°C → +70°C No. of Cycles: 2, Soak time: 8hours	PASS Attenuation change <= 0.05 dB /km
Smoke Density	IEC 61034-2		Transparency > 60%
Corrosive Gas	IEC 60754-2		pH > 4.3, Conductivity < 10 µS/mm
Halogen Free	IEC 60754-1		< 0.5%
Flame Retardancy	IEC 60332-1-2		< 540 mm
Flame Propagation	IEC 60332-3-24		< 540 mm
Circuit Integrity	IEC 60331-25	FE180	
Circuit Integrity with Shock	EN 50200	PH120	

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GENERAL SPECIFICATIONS

Environment	Outside Plant (OSP), Long Haul Networking, Campus LAN, Trunking Lines, Intra-building Backbones, Distribution
Applications	OSP, Flame Retardant, Direct Burial, Aerial, Outdoor, Duct, Riser, UV Resistant, Anti-Vermin, Harsh Environment
Cable Type	FRUV Resistant Jacket Central Loose Tube with Armor

CABLE CONSTRUCTION

Optical Fibers	UV Colored High Grade Silica Glass Surrounded by Acrylate Coating
Fiber Count	36 - 144
Buffered Fibers Color	As per Telcordia Standards. 1-Blue, 2-Orange, 3-Green, 4-Brown, 5-Grey, 6-White, 7-Red, 8-Black, 9-Yellow, 10-Violet, 11-Pink, 12-Aqua, 13–Blue with Black Tracker, 14-Orange with Black Tracker, 15-Green with Black Tracker, 16-Brown with Black Tracker, 17-Grey with Black Tracker, 18-White with Black Tracker, 19-Red with Black Tracker, 20-Black with Yellow Tracker, 21-Yellow with Black Tracker, 22-Violet with Black Tracker, 23-Pink with Black Tracker, 24-Aqua with Black Tracker
Loose Tube Specifications	Polybutylene Terephthalate (PBT), Diameter: 2.8 mm
Loose Tube Color	Natural
Loose Tube Filling Compound	Moisture Resistant Thixotropic Jelly
Dielectric Tensile Strength Member	Water Swellable Yarn
Central Strength Member	Glass Fiber Reinforced Plastic (GRP)
Moisture Barrier	Moisture Tape applied helically
Armor	Copolymer Coated Corrugated Steel Tape, Thickness: 255 µm
Ripcords	2 Aramid Ripcords
Cable Jacket Material	Flame Retardant UV Resistant, Fire Retardant Standards: IEC 60332-1-2 Color: Black
Cable Marking	Infinique Canada CLT Armored Singlemode Cable NN Cores Model Number SN:NNNNYYMM XXXXXM
Drum Marking	Custom as per customer requirement

TEMPERATURE RANGE

Operation and Storage	-40°C to 70°C (-40°F to 158°F)
Installation	-30°C to 60°C (-22°F to 140°F)

MECHANICAL SPECIFICATIONS

Fiber Count	Sub-Units	Filled Units	Unit Fiber Count	Nominal OD (mm)	Nominal Wt. (kg/km)	Bend Radius Oper.| Inst.	Max Tensile (N)	Crush Resistance N/100mm^2	Drum Length (M)
24	5	2	12	18.5 ±0.5	210	10D | 20D	1500	2000	2000
36	5	3	12	18.5 ±0.5	210	10D | 20D	1500	2000	2000
48	5	4	12	18.5 ±0.5	210	10D | 20D	1500	2000	2000
72	6	6	12	18.5 ±0.5	250	10D | 20D	1500	2000	2000
96	6	6	16	18.5 ±0.5	300	10D | 20D	1500	2000	2000
144	6	6	24	18.5 ±0.5	460	10D | 20D	1500	2000	2000

ORDERING INFORMATION

Part Number	Description
IFOCSMLTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Singlemode G.652D, NC
IFOCS1LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Singlemode OS2, NC
IFOCS2LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Singlemode G.657.A1, NC
IFOCS3LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Singlemode G.657.A2, NC
IFOCS4LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Singlemode G.657.B2, NC
IFOCS5LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Singlemode G.657.B3, NC
IFOCM1LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Multimode OM1, NC
IFOCM2LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Multimode OM2, NC
IFOCM3LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Multimode OM3, NC
IFOCM4LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Multimode OM4, NC
IFOCM5LTNNA	Infinique Fiber Optic Cable, CLT Armored, Flame Retardant, UV Resistant, Multimode OM5, NC

Number of Cores: Replace 'N' in Part Number for the number of Fiber Cores. Packing: Packed in Drums of 2000 meters or Custom Length