Dual Jacket Loose Tube Steel Wire Armored Cable

Rugged Direct Burial Fire Retardant Cable

Infinique's Loose Tube Steel Wire Armored Cable offers durability and reliability needed for network backbones in outside plant applications of harsh environmental conditions. The high strength galvanized steel wire armor offers a significant improvement in strength and mechanical performance. With marked improvement in tensile performance, crush resistance, impact energy resistance, this cable provides the strength and durability needed for extreme conditions.

These rugged cables are ideal for use as a direct buried cable in heavy construction zones including telecommunication, pipelines, oil and gas fields, heavy industrial sites and a variety of harsh environments.

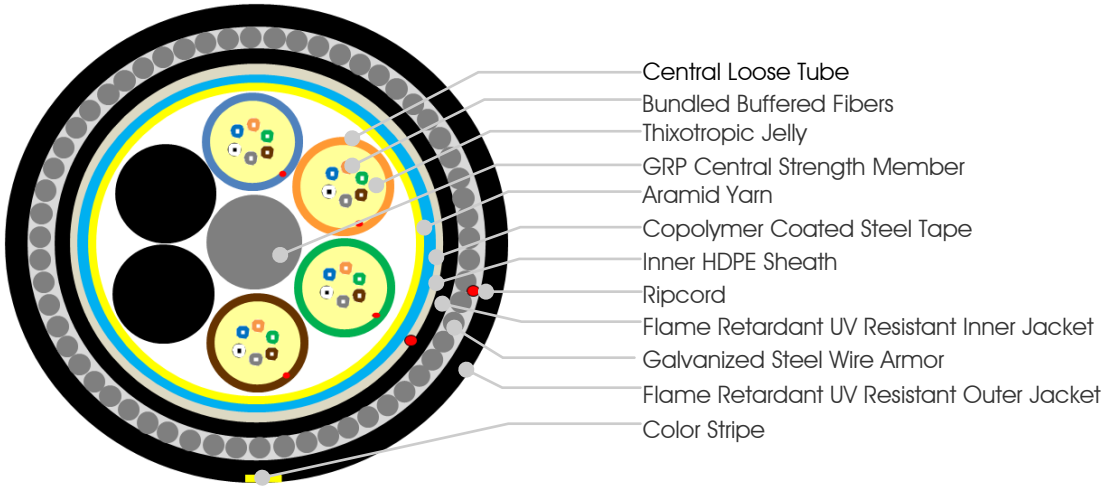
Features and Benefits

- **Reliable Performance**
  Gigabit Ethernet, 10 Gigabit Ethernet Performance, complies with TIA/EIA, RUS PE-90 and GR-20 standards
- **Rugged Construction**
  Steel Wire Armor, Dual Flame Retardant Jacket, Aluminum Tape and hermetically sealed Copolymer Coated Steel Tape, offers durability, flexibility, water ingress protection, greater crush resistance, rodent protection and high tensile strength and is designed to protect the cable from high mechanical and environmental stress
- **Clear Identification**
  Color coded Buffered Fibers, Loose Tubes and Outer Jacket as per Telcordia Standards for quick and clear identification
- **Challenging Applications**
  Suitable for Outside Plant, Direct Burial and challenging harsh environments

The cable construction is composed of a central strength member stranded around by thixotropic gel-filled loose tubes with multi-core buffered fibers to ensure optimum performance and long life. Aramid Yarn is longitudinally applied around the loose tubes which gives both the strength and acts as a moisture barrier. Copolymer Coated Steel Tape, is applied along the cable to give protection against water and other elements. The inner HDPE sheath layer hermetically seals all the layers inside and gives protection against aggressive elements. Rip cords are applied longitudinally to enable easy stripping of the cable during end preparation for testing and installation. The cable has a rugged construction with Flame Retardant Dual Jacket which Galvanized Steel Wire Armor between them, that strengthens the cable to make it suitable for challenging harsh conditions.

For speedy installation and clear identification, the sub-units and buffered fibers are color coded in accordance with Telcordia standards. 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. Cable drums are accompanied with individual cable test report and custom markings.

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 Retardant	IEC 60332-1
Fire Retardant	IEC 60332-3
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

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 Duration: 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: 5000N/100mm^2 Duration of loading: 5 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	Height of impact: 0.5m Drop hammer mass: 0.5kg No. of impacts: 1	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: 15 x Cable OD Applied Load : 0.5kg No. of Cycles: 5 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: 2 meters Load: 5 Kg No. of Cycles: 5 Twist Angle: ±180° , Applied Load: 0.5kg	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 at each temperature: 8hours	PASS Attenuation change <= 0.05 dB /km

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GENERAL SPECIFICATIONS

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

CABLE CONSTRUCTION

Optical Fibers	UV Colored High Grade Silica Glass Surrounded by Acrylate Coating
Fiber Count	2 - 144 (Custom Cable with additional cores available)
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: 1.7 ±0.1mm
Loose Tube Color	As per Telcordia Standards. 1-Blue, 2-Orange, 3-Green, 4-Brown, 5-Grey, 6-White, 7-Red, 8-Black
Loose Tube Filling Compound	Moisture Resistant Thixotropic Jelly
Filler Tubes	Polyethylene (PE), Color: Black
Central Strength Member	Glass Fiber Reinforced Plastic (GRP)
Strength Member	Aramid Yarn
Moisture Barrier	Copolymer Coated Steel Tape 6 mil
Inner Sheath	High Density Polyethylene (HDPE)
Steel Wire Armor	Galvanised Steel Wires, Thickness: 0.9 ±0.1mm
Number of Ripcords	Sub-Unit: 1, Inner Cable: 1, Outer Cable: 1
Cable Inner Jacket Specifications	Flame Retardant Polyvinyl Chloride (PVC) with minimum Oxygen index of 30%, Flame Retardant Standards: IEC 60332-1 Color: Black, Thickness: 0.9 ±0.1mm
Cable Outer Jacket Specifications	Flame Retardant Polyvinyl Chloride (PVC) with minimum Oxygen index of 30%, Flame Retardant Standards: IEC 60332-1 Color: Black, Thickness: 1.8 ±0.1mm
Cable Outer Jacket Color	Black with Optional Stripes (Singlemode: Yellow; Multimode OM1: Orange; Multimode OM2: Orange; Multimode OM3, Aqua, Multimode OM4: Purple or Custom Stripes Color)
Cable Marking	Infinique Canada Loose Tube Steel Wire Armored Cable Model Number UL Listed 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 70°C (-22°F to 158°F)

MECHANICAL SPECIFICATIONS

Fiber Count	Sub Units	Filled Units	Unit Fiber Count	Central Strength Member OD (mm)	Outer Cable OD (mm)	Nominal Wt. (kg/km)	Min Bend Radius	Max Tensile (N)	Crush Resistance N/100mm^2	Drum Length (M)
2	5	1	2	1.4	13.5 ±0.5	268	25D	10000	5000	Custom
4	5	1	4	1.4	13.5 ±0.5	269	25D	10000	5000	Custom
8	5	2	4	1.4	13.5 ±0.5	270	25D	10000	5000	Custom
12	5	2	6	1.4	13.5 ±0.5	270	25D	10000	5000	Custom
24	6	4	6	1.4	13.9 ±0.5	271	25D	10000	5000	Custom
36	6	6	6	1.4	13.9 ±0.5	292	25D	10000	5000	Custom
48	6	6	8	1.4	13.9 ±0.5	295	25D	10000	5000	Custom
72	6	6	12	1.8	14.4 ±0.5	335	25D	10000	5000	Custom
96	8	8	12	1.8	16.0 ±0.5	389	25D	10000	5000	Custom
144	12	12	12	1.8	19.4 ±0.5	601	25D	10000	5000	Custom

ORDERING INFORMATION

Part Number	Description
IFOCSMLTNAS	Infinique Steel Wire Armored Singlemode G.652.D NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCS1LTNAS	Infinique Steel Wire Armored Singlemode OS2 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCS2LTNAS	Infinique Steel Wire Armored Singlemode G.657.A1 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCS3LTNAS	Infinique Steel Wire Armored Singlemode G.657.A2 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCS4LTNAS	Infinique Steel Wire Armored Singlemode G.657.B2 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCS5LTNAS	Infinique Steel Wire Armored Singlemode G.657.B3 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCM1LTNAS	Infinique Steel Wire Armored Multimode OM1 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCM2LTNAS	Infinique Steel Wire Armored Multimode OM2 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCM3LTNAS	Infinique Steel Wire Armored Multimode OM3 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCM4LTNAS	Infinique Steel Wire Armored Multimode OM4 NC Fire Retardant, UV Resistant Dual Jacket Cable
IFOCM5LTNAS	Infinique Steel Wire Armored Multimode OM5 NC Fire Retardant, UV Resistant Dual Jacket Cable
Number of Cores: Replace 'N' in Part Number for the number of Fiber Cores (2 to 144 Cores).	