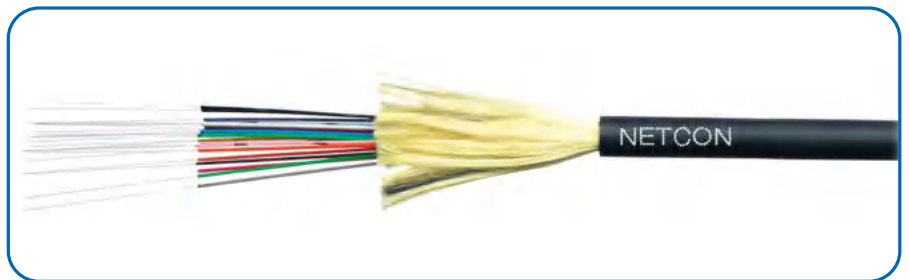
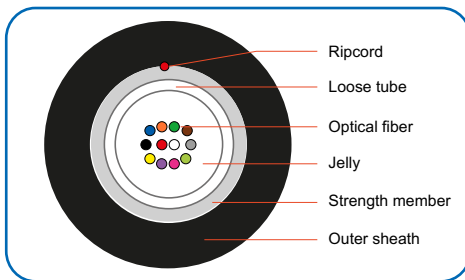


Indoor / Outdoor Unitube Fiber Optic Cable



Netcon Uni-tube Indoor-Outdoor Fibre Optic Cable known for high data transfer when comes to fiber optic data transmission. The Single Loose tube design offer a low cost cable design support, reliable transmission performance over a broad temperature range. The construction is suitable for Indoor and Outdoor laid in Trunk, Raceways, Distribution ducts for commercial Buildings, Hotels, Malls and Broadband Network applications. The rugged single loose tube design features optical fibres placed inside a single, gel-filled tube. The core tube includes up to 12 distinctly colored fibres. The core tube is then helically wrapped with water-blocking strength members, then encased with an HDPE jacket. Indoor-Outdoor FO cables are compliant with IEC 60794, EIA/TIA, ITU-T international standards.

Fibre & Tube Colour

The tube color is Natural, fiber colors are as follows:

No.	1	2	3	4	5	6
Color	Blue	Orange	Green	Brown	Gray	White
No.	7	8	9	10	11	12
Color	Red	Black	Yellow	Violet	Pink	Aqua

Structure Parameter

Item	Contents	Unit	Value
Fiber count	Number	/	4~12
Cable structure	/	/	Central loose tube
Tube diameter	Nominal Diameter	mm	2.8
Strength members	Material	/	Glass yarns & Aramid yarns
Outer Sheath	Material	/	LSZH
	Color	/	Black
	Nominal Thickness	mm	1/2
Cable diameter	±5%	mm	6.2
Cable wight	Approx.	kg/km	46

Mechanical & Environmental Performance

Item	Contents	Value
Max. tensile load	Fiber strain <0.6%	1100N
Max. crush resistance	Short Term	1000N / 10 cm
	Installation	200 mm
Min. bending radius	Operation	100 mm
	Operation	-10°C ~ +60°C
Temperature range	Installation	-5°C ~ +40°C
	Storage/transportation	-30°C ~ +60°C

Indoor / Outdoor Unitube Fiber Optic Cable

Main Mechanical & Environmental Performance Test

Item	Test Method	Acceptance Condition
Tensile Strength IEC 60794-1-2-E1	Load: Max. tensile load Length of cable: about 50m Load time: 1min	Loss change $\leq 0.4\text{dB}@1300\text{nm}$ after test for MM. Loss change $\leq 0.1\text{dB}@1550\text{nm}$ after test for SM. No fiber break and no sheath damage.
Crush Test IEC 60794-1-2-E3	Load: Short term crush Load time: 1min	Loss change $\leq 0.4\text{dB}@1300\text{nm}$ after test for MM Loss change $\leq 0.1\text{dB}@1550\text{nm}$ after test for SM. No fiber break and no sheath damage.
Impact Test IEC 60794-1-2-E4	Points of impact: 3 Times of per point: 1 Impact energy: 5J	Loss change $\leq 0.4\text{dB}@1300\text{nm}$ after test for MM. Loss change $\leq 0.1\text{dB}@1550\text{nm}$ after test for SM. No fiber break and no sheath damage.
Cable bend IEC 60794-1-2-E11	Diameter of mandrel: 20 x OD Number of turns:4 Number of cycles:3	Loss change $\leq 0.4\text{dB}@1300\text{nm}$ after test for MM. Loss change $\leq 0.1\text{dB}@1550\text{nm}$ after test for SM. No fiber break and no sheath damage.
Compound flow IEC 60794-1-2-E14	Length: 30cm Temperature: $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Period: 24h	No outflow or dripping
Water Penetration IEC 60794-1-2-F5B	Height of water: 1m Sample length: 3m Time: 24h	No water leak from the cable core
Temperature Cycling IEC 60794-1-2-F1	Temperature: $-30^{\circ}\text{C} \sim \pm 70^{\circ}\text{C}$ Time of each step: 12h Number of cycle: 2	Loss change $\leq 0.6\text{dB}/\text{km}@1300\text{nm}$ for MM. Loss change $\leq 0.15\text{dB}/\text{km}@1550\text{nm}$ for SM. No fiber break and no sheath damage.
Fire non-propagation	IEC 60332-1-2	Single cable test.

Remark: "No attenuation changes" is considered as the attenuation changes ≤ 0.05 dB.

Optical Fiber

G.657A2 Characteristic of Optical Fiber

Item	Unit	Specification
		G.657A2
Mode field diameter	1310 nm	8.6 ± 0.4
	1550 nm	9.6 ± 0.5
Cladding diameter	μm	125.0 ± 0.7
Cladding non - circularity	%	≤ 1.0
Core concentricity error	μm	≤ 0.5
Coating diameter	μm	245 ± 5
Coating/cladding concentricity error	μm	≤ 12
Cable cut -off wavelength	nm	≤ 1260
Attenuation Coefficient	1310 nm	≤ 0.36
	1550 nm	0.22
Macro -bend loss (1 turn, 7.5 mm radius)	1550 nm	≤ 0.5
	1625 nm	≤ 1.0
Proof stress level	kpsi	≥ 100

Other parameters meet standard ITU-G.657

Indoor / Outdoor Unitube Fiber Optic Cable

G652D Characteristics of Optical Fiber:

Item	Unit	Specification
		G652D
Mode field diameter (1310nm)	μm	9.2±0.4μm
Mode field diameter (1550nm)	μm	10.4±0.8μm
Cut off wavelength of cabled fiber (Acc)	nm	≤ 1260
Attenuation at 1310nm	dB/km	≤ 0.36
Attenuation at 1550nm	dB/km	≤ 0.22
Bending loss at 1550nm (100 turns, 30mm radius)	dB	≤ 0.05
Dispersion in the range 1288 to 1339nm	nm/km	≤ 3.5ps
Dispersion at 1550nm	nm/km	≤ 18ps
Dispersion slope at zero dispersion wavelength	nm ² km	≤ 0.092ps

OM1 Characteristics of Optical Fiber

Item	Unit	Specification	
		OM1	
Core diameter	μm	62.5 ±2.5	
Cladding diameter	μm	125.0 ± 1.0	
Cladding non - circularity	%	≤ 1.0	
Core / Clad concentricity error	μm	≤ 1.5	
Coating diameter	μm	245 ± 10	
Coating/cladding concentricity error	μm	≤ 12	
Bandwidth	850 nm	MHz.km	≥ 160
	1300 nm	MHz.km	≥ 500
Attenuation Coefficient	850 nm	dB/km	≤ 3.5
	1300 nm	dB/km	≤ 1.5
Proof stress level	kpsi	≤ 100	

OM2 Characteristics of Optical Fiber

Item	Unit	Specification	
		OM2	
Core diameter	μm	50 ±2.5	
Cladding diameter	μm	125.0 ± 1.0	
Cladding non - circularity	%	≤ 1.0	
Core / Clad concentricity error	μm	≤ 1.5	
Coating diameter	μm	245 ± 10	
Coating/cladding concentricity error	μm	≤ 12	
OFL Bandwidth	850 nm	MHz.km	≥ 500
	1300 nm	MHz.km	≥ 500
Attenuation Coefficient	850 nm	dB/km	≤ 3.5
	1300 nm	dB/km	≤ 1.5
Proof stress level	kpsi	≥ 100	

Other parameters meet standard IEC 60793-2-10

Indoor / Outdoor Unitube Fiber Optic Cable

OM3 Characteristics of Optical Fiber

Item	Unit	Specification	
		OM2	
Core diameter	μm	50 ±2.5	
Cladding diameter	μm	125.0 ± 1.0	
Cladding non - circularity	%	≤ 1.0	
Core / Clad concentricity error	μm	≤ 1.5	
Coating diameter	μm	245 ± 10	
Coating/cladding concentricity error	μm	≤ 12	
OFL Bandwidth	850 nm	MHz.km	≥ 1500
	1300 nm	MHz.km	≥ 500
EMB Bandwidth	850 nm	MHz.km	≥ 2000
Attenuation Coefficient	850 nm	dB/km	≤ 3.5
	1300 nm	dB/km	≤ 1.5
Proof stress level	kpsi	≥ 100	

Other parameters meet standard IEC 60793-2-10

OM4 Characteristics of Optical Fiber

Item	Unit	Specification	
		OM4	
Core diameter	μm	50 ±2.5	
Cladding diameter	μm	125.0 ± 1.0	
Cladding non - circularity	%	≤ 1.0	
Core / Clad concentricity error	μm	≤ 1.5	
Coating diameter	μm	245 ± 10	
Coating/cladding concentricity error	μm	≤ 12	
OFL Bandwidth	850 nm	MHz.km	≥ 1500
	1300 nm	MHz.km	≥ 500
EMB Bandwidth	850 nm	MHz.km	≥ 2000
Attenuation Coefficient	850 nm	dB/km	≤ 3.5
	1300 nm	dB/km	≤ 1.5
Proof stress level	kpsi	≥ 100	

Other parameters meet standard IEC 60793-2-10

Indoor / Outdoor Unitube Fiber Optic Cable

Part No	Product Description
Single Mode Indoor / Outdoor - G.652.D	
NT4FSMGDUPE	Netcon 4C Single Mode G.625D Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT6FSMGDUPE	Netcon 6C Single Mode G.625D Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT8FSMGDUPE	Netcon 8C Single Mode G.625D Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT12FSMGDUPE	Netcon 12C Single Mode G.625D Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
Single Mode Indoor / Outdoor - G.657A2	
NT4FSMA2UPE	Netcon 4C Single Mode G.657A2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT6FSMA2UPE	Netcon 6C Single Mode G.657A2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT8FSMA2UPE	Netcon 8C Single Mode G.657A2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT12FSMA2UPE	Netcon 12C Single Mode G.657A2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
Multi Mode Indoor / Outdoor - OM2	
NT4FMM2UPE	Netcon 4C MultiMode 50µm OM2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT6FMM2UPE	Netcon 6C MultiMode 50µm OM2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT8FMM2UPE	Netcon 8C MultiMode 50µm OM2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
NT12FMM2UPE	Netcon 12C MultiMode 50µm OM2 Indoor / Outdoor Unitube Jelly filled cable with Yarn as strength Member, HDPE jacket Black
Multi Mode Indoor / Outdoor - OM3	
NT4FMM3UPE	Netcon 4C MultiMode 50µm OM3 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black
NT6FMM3UPE	Netcon 6C MultiMode 50µm OM3 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black
NT8FMM3UPE	Netcon 8C MultiMode 50µm OM3 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black
NT12FMM3UPE	Netcon 12C MultiMode 50µm OM3 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black
Multi Mode Indoor / Outdoor - OM4	
NT4FMM4UPE	Netcon 4C MultiMode 50µm OM4 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black
NT6FMM4UPE	Netcon 6C MultiMode 50µm OM4 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black
NT8FMM4UPE	Netcon 8C MultiMode 50µm OM4 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black
NT12FMM4UPE	Netcon 12C MultiMode 50µm OM4 Indoor / Outdoor Unitube Jelly filled cable 50µm with Yarn as strength Member, HDPE jacket Black

Note : Last 2 digit of part no XX denotes cable type , PE = High density poly ethylene, LZ= Low smoke zero hallogen