



Breakout Cable

Lightem offers a board variety of fiber optic cable for all indoor access and structure cabling application such as simplex, duplex, tight buffer, distribution, breakout and ribbon cable. With extra jacket protection, breakout cable is ideal for direct premises structure cabling. Full range of fiber type ranging from G652D, G657A1/A2, OM1 62.5/125µm, OM2 50/125µm, OM3, OM4 and OM5 are available. Lightem also provides the customization service on the fiber, colours and construction of the cables for catering different cases.

Features

- Fiber count up to 48 core
- Ideal for indoor structure cabling, especially horizontal installation in premises
- Suitable for pre-terminated with connector or field termination
- Small bending radius, light weight and non-metallic structure
- Comply to TIA/EIA568b-3 and ISO/IEC 11801
- Simplex subunit can be either 2mm or 3mm type
- Easy installation and termination
- Flame retardant or LSZH jacket is available

Fire Performances

General

Flame Retardant	IEC 60332-1, IEC 60332-2, IEC 60332-3, BS EN 50265, BS EN 50266
Fire Retardant	BS EN ISO 4589-3 Annex A (FT >= 280°C)
Low Smoke Capacity	IEC 61034 1/2, BS EN 50268-2 Annex B (>=60% Light Transmittance)
The Values for The Light Transmittance	BS EN 50268-2
Oxygen Index Testing Method	BS EN ISO 4589-2, ASTM-D-2863
Halogen Free	IEC 60754-1/2, BS EN 50267-2-3 Annex A (pH >=4.3)

Specifications

General

Flame Rating	LSZH / FRNC*
Fiber Category	Singlemode / Multimode
Temperature Range	
Installation	-5°C to +50°C
Operation	-20°C to +60°C
Storage	-25°C to +70°C
Cable Design	
Central Element	Dielectric with FRNC/LSZH coating
Central Element Diameter	5.9 mm
Fiber Count	4 - 48
Buffering Diameter	900 µm
Tight Buffer Type	Aramid yarn
Tight Buffer Colour	White
Fibers per Subunit	1
Subunit Diameter	2 mm
Subunit Jacket material	PVC/Flame-retardant, non-corrosive / low-smoke, zero-halogen (FRNC / LSZH)
Subunit Colour **	Yellow / Orange / Aqua
Number of Ripcords	1
Outer Jacket Material	PVC/Flame-retardant, non-corrosive / low-smoke, zero-halogen (FRNC / LSZH)
Outer Jacket Colour **	Yellow / Orange / Aqua

*For LSZH model only

**Customized colour available upon request

Mechanical Characteristics

	4	6	8	12	24	48	Unit
Fiber Count							
Outer Diameter	7.5 ±0.5	9.0 ±0.5	10.5 ±0.5	12.51±0.5	15.5±0.5	20.5±0.5	mm
Nominal Weight	51	68	88	128	198	246	kg/km
Max. Tension (Short-term)	660	700	800	1200	1200	1800	N
Max. Tension (Long-term)	200	200	250	400	400	400	N
Max. Crushing Resistance (Short-term)				1000			N/100mm ²
Max. Crushing Resistance (Long-term)				300			N/100mm ²
Bending Radius (Loading)				20			D
Bending Radius (Without Loading)				10			D

Fiber Specifications (Singlemode)

Characteristics		G652D	G657A1	G657A2
Optical Characteristics *				
Attenuation	1310nm	≤0.40 dB/km	≤0.40 dB/km	≤0.40 dB/km
	1383nm	≤0.34 dB/km	≤0.35 dB/km	≤0.35 dB/km
	1460nm	-	≤0.25 dB/km	≤0.25 dB/km
	1490nm	-	-	≤0.23 dB/km
	1550nm	≤0.30 dB/km	≤0.30 dB/km	≤0.30 dB/km
	1625nm	≤0.23 dB/km	≤0.23 dB/km	≤0.23 dB/km
Attenuation vs. Wavelength	1285-1330nm	≤0.03 dB/km	≤0.03 dB/km	≤0.03 dB/km
Max. α difference	1525-1575nm	≤0.02 dB/km	≤0.02 dB/km	≤0.02 dB/km
Dispersion coefficient	1285-1340nm	≥-3.4≤3.4 ps/(nm·km)	≥-3.4≤3.4 ps/(nm·km)	-
	1550nm	≤18 ps/(nm·km)	≤18 ps/(nm·km)	-
	1625nm	≤22 ps/(nm·km)	≤22 ps/(nm·km)	-
Zero dispersion wavelength		1312±12 nm	1300-1324 nm	1300-1324 nm
Zero dispersion slope		≤0.091 ps/nm ² ·km	≤0.092 ps/nm ² ·km	≤0.092 ps/nm ² ·km
Typical value		0.086 ps/nm ² ·km	0.086 ps/nm ² ·km	0.04 ps/nm ² ·km
PMD				
Maximum Individual Fibre		≤0.1 ps/√km	≤0.1 ps/√km	≤0.1 ps/√km
Link Design Value(M=20,Q=0.01%)		≤0.06 ps/√km	≤0.06 ps/√km	≤0.06 ps/√km
Typical value		0.04 ps/√km	0.04 ps/√km	0.04 ps/√km
Cable cutoff wavelength λ _{cc}		≤1260 nm	≤1260 nm	≤1260 nm
Mode field diameter(MFD)	1310nm	8.7-9.5 μm	8.4-9.2 μm	8.4-9.2 μm
	1550nm	9.9-10.9 μm	9.3-10.3 μm	9.3-10.3 μm
Effective group index of refraction(N _{eff})	1310nm	1.466	1.466	1.466
	1550nm	1.467	1.467	1.467
Point discontinuities	1310nm	≤0.05 dB	≤0.05 dB	≤0.05 dB
	1550nm	≤0.05 dB	≤0.05 dB	≤0.05 dB
Geometrical Characteristics				
Fiber Core Diameter		9 +/-1μm	9 +/-1μm	9 +/-1μm
Cladding diameter		125.0±0.7 μm	125.0±0.7 μm	125.0±0.7 μm
Cladding non-circularity		≤1.0 %	≤0.7 %	≤0.7 %
Coating diameter		245.0±7 μm	245.0±5 μm	245.0±5 μm
Coating-cladding concentricity error		≤12.0 μm	≤12.0 μm	≤12.0 μm
Coating non-circularity		≤6.0 %	≤6.0 %	≤6.0 %
Core-cladding concentricity error		≤0.6 μm	≤0.5 μm	≤0.5 μm
Curl(radius)		≥4 m	≥4 m	≥4 m
Delivery length		2.1 to 50.4 km/reel	2.1 to 50.4 km/reel	2.1 to 50.4 km/reel

*Attenuation loss of barefiber

Fiber Specifications (Multimode)

Characteristics		62.5/125 (OM1)	50/125 (OM2)	OM3/OM4	OM5
Geometry Characteristics					
Core Diameter		62.5±2.5 μm	50±2.5 μm	50±2.5 μm	50±2.5 μm
Core Non-circularity		≤5.0 %	≤5.0 %	≤5.0 %	≤5.0 %
Cladding Diameter		125.0±1.0 μm	125.0±1.0 μm	125.0±1.0 μm	125.0±1.0 μm
Cladding Non-circularity		≤1.0 %	≤1.0 %	≤0.6 %	≤0.6 %
Coating Diameter		245±7 μm	245±7 μm	245±7 μm	245±7 μm
Coating/Cladding Concentricity Error		≤10.0 μm	≤10.0 μm	≤10.0 μm	≤10.0 μm
Coating Non-circularity		≤6.0 %	≤6.0 %	≤6.0 %	≤6.0 %
Core/Cladding Concentricity Error		≤1.5 μm	≤1.5 μm	≤1.0 μm	≤1.0 μm
Delivery Length		up to 17.6 km/reel	up to 17.6 km/reel	up to 8.8 km/reel	up to 8.8 km/ reel
Optical Characteristics *					
Attenuation	850nm	≤3.5 dB/km	≤3.5 dB/km	≤3.5 dB/km	≤3.5 dB/km
	953nm	-	-	-	≤1.7 dB/km
	1300nm	≤1.5 dB/km	≤1.5 dB/km	≤1.5 dB/km	≤1.5 dB/km
Overfilled Modal Bandwidth	850nm	≥200 MHz·km	≥500 MHz·km	≥1500/≥3500 MHz·km	≥3500 MHz·km
	953nm	-	-	-	≥1850 MHz·km
	1300nm	≥500 MHz·km	≥500 MHz·km	≥500/≥500 MHz·km	≥500 MHz·km
Effective Modal Bandwidth	850nm	-	-	≥2000/≥4700 MHz·km	≥4700 MHz·km
	953nm	-	-	-	≥2470 MHz·km
10Gb/sWDM		-	-	-100/150 m	150 m
40Gb/sWDM		-	-	300/500 m	440 m
40GBASE-SR4 / 100GBASE SR10	850nm	-	-	1000/1100 m	200 m
10GBASE-SR	850nm	-	150 m	300/550 m	-
1000BASE-SR	850nm	-	750 m	1000/1100 m	-
DMD Specification					
Numerical Aperture		0.275±0.015	0.200±0.015	0.200±0.015	0.200±0.015
Group Refractive index		1.496	1.482	1.482	1.482
		1.491	1.477	1.477	1.477
Zero Dispersion Wavelength, λ ₀		1320-1365 nm	1295-1340 nm	1295-1340 nm	1297-1328 nm
Zero Dispersion Slope,S ₀		-	-	-	≤4(-103)/(840λ/840) ⁴)
		-	-	-	ps/nm ² ·km
Zero Dispersion Slope,S ₀ 1295nm≤λ ₀ ≤1310nm		-	≤0.105 ps/nm ² ·km	≤0.105 ps/nm ² ·km	-
1310nm≤λ ₀ ≤1340nm		-	≤0.000375(1590-λ ₀) ps/nm ² ·km	-	-
1320nm≤λ ₀ ≤1348nm		≤0.11 ps/nm ² ·km	-	≤0.000375(1590-λ ₀)ps/nm ² ·km	-
1348nm≤λ ₀ ≤1365nm		≤0.001(1458-λ ₀) ps/nm ² ·km	-	-	-

*Attenuation loss of barefiber

Ordering Information

* Ordering Code Example

