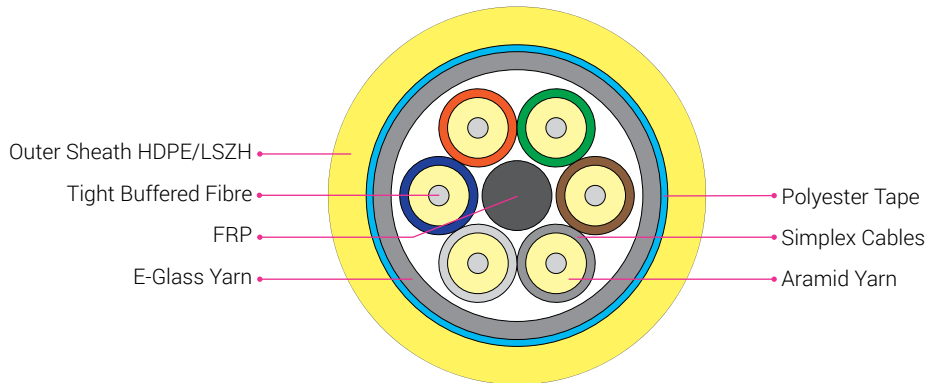


# HUBNETIX

## Indoor Breakout Fibre Optic Cable



### Description

HUBNETIX LANLINE Indoor Breakout Cable is designed considering Central office (CO) connectivity. The cable consists of interconnect cable subunits surrounding a FRP - central strength element. The subunits are surrounded by strength members and a common flame retardant PVC jacket. Each subunit is ideally suited to be attached to small form factor connectors. These breakout cables are ideal for installation in Indoor, Riser, Plenum, Ducts or Conduits applications. All LANLINE Breakout Indoor Cables are factory tested to deliver verified optical performance and reliability for improved network integrity. LANLINE Indoor Breakout FO cable is an important part of HUBNETIX Fibre System. This high tensile strength and light weight riser rated cable is also compliant with LSZH/PVC requirements, and provides easy installation in utility control rooms, factory automation environments and manufacturing floors. These Indoor Breakout cables are available in fibre counts from 1 to 6 fibres of standard designs, however, customised designs can also be offered on specific request.

### Standard Compliance

- Telecordia GR-20, IEC 60794
- EIA/TIA, ITU-T, EN187000, RUS1755.900

### Environmental Specifications (Temperature)

- Operation / Storage : -30°C to +70°C
- Installation : -25°C to +75°C

### Features

- Available Fibre counts from 2F to 24F
- Multiple Fibre types include - Multimode- OM1, OM2, OM3, OM4 and Singlemode - OS1, OS2
- Outer jacket PVC (optional)

### Application

- Duct, Indoor and Outdoor
- Trunk, Distribution and feeder cable
- Local loop, metro, long-haul and broadband network

### Advantages

- Good bending performance
- High tensile strength, tight structure, light weight
- Small Dimension
- Facilitates flexible Installations
- Easy to operate and splice

### Physical Characteristics

Fibre Count	Cable Outer Diameter (mm) Nominal	Weight (kg/km) (Nominal)	Tensile Strength (Nominal)		Crush Resistance (N/10cm)	Bending Radius (mm)	
			Installation	Operation		Temporary	Permanent
1-4	7.5	55	600	300	500	75	150
6	8.5	72	600	300	500	85	160

## Indoor Breakout Fibre Optic Cable



## Fibre Technical Specifications

Optical Characteristics		Multi-Mode - Fibre Type & Grade		
Characteristics	Conditions	62.5/125µm – OM1	50/125µm – OM2/OM3/OM4	Units
		Specified Values		
Attenuation	850nm	≤ 3.5	≤ 3.0	dB/km
	1300 nm	≤ 1.5	≤ 1.0	dB/km
Bandwidth	850 nm	≥ 200	≥ 500 / ≥ 1500 / ≥ 3500	MHz.km
	1300 nm	≥ 600	≥ 500 / ≥ 500 / ≥ 500	MHz.km
Ethernet Performance 10GBE	850nm	33	150 /300/ 550	m
Ethernet Performance 1000GBE	850nm	220	750 /1000/ 1100	m
Numerical Aperture		0.275 ± 0.015	0.200 ± 0.015	

## Geometrical Characteristics

Core Diameter		62.5 ± 2.5	50.0 ± 2.5	µm
Core Non – Circularity		≤ 5.0	≤ 5.0	%
Core/Cladding Concentricity Error		≤ 1.5	≤ 1.5	µm
Cladding Diameter		125.0 ± 1.0	125.0 ± 1.0	µm
Cladding Non – Circularity		≤ 1.0	≤ 1.0	%
Primary Coating Diameter		245 ± 10	245 ± 10	µm
Coating/Cladding Concentricity Error		≤ 12	≤ 12	µm
Primary Coating Material (Colored)		UV Cured Acrylate	UV Cured Acrylate	

## Mechanical Characteristics

Bending Induced Attenuation				
10 Turns @60mm Radius	850nm	≤ 0.5		dB
	1300 nm	≤ 0.5		dB
100 Turns @ 37.5mm Radius	850nm		≤ 0.50	dB
	1300 nm		≤ 0.50	dB
2 Turns @ 15mm Radius	850nm		≤ 1.0	dB
	1300 nm		≤ 1.0	dB
Proof Stress Level		≤ 1.0	≤ 1.0	%
		≤ 100	≤ 100	kpsi

## Optical Characteristics

## Single-Mode - Fibre Type &amp; Grade

Characteristics	Conditions	ITU-T G.652.D	ITU-T G.657.A1	ITU-T G.657.A2	Units
		Specified Values			
Attenuation	1310 nm	≤ 0.36	≤ 0.36	≤ 0.38	dB/km
	1550 nm	≤ 0.23	≤ 0.23	≤ 0.23	dB/km
Chromatic Dispersion	1285 - 1330 nm		≤ 3.5		ps/(nm.km)
	1550 nm		≤ 18.0		ps/(nm.km)
Cable cutoff wavelength λ <sub>cc</sub>			≤ 1260		nm
Zero Dispersion wavelength			1300 - 1324		nm
Zero Dispersion slope			≤ 0.092		ps/nm <sup>2</sup> .km
Polarization mode Dispersion (PMD)	Fibre		≤ 0.2		ps/km
	Link Design Value		≤ 0.08		ps/km

## Geometrical Characteristics

Mode Field Diameter (MFD)	1310 nm	9.2 ± 0.4	8.6 ± 0.4	6.3 ± 9.5	µm
	1550 nm	10.4 ± 0.5	9.8 ± 0.5		µm
Cladding Diameter			125.0 ± 1.0		µm
Cladding Non – Circularity			≤ 1.0		%
Core/Cladding Concentricity Error			≤ 0.5		µm
Coating/Cladding Concentricity Error			≤ 12.0		µm
Primary Coating Diameter			245 ± 10		µm
Primary Coating Material (Colored)			UV Curved Acrylate		
Fibre Curl (Radius)			≥ 4		m

Note- The optical attenuation/PMD given values may change due to fibre cabling.

## Mechanical Characteristics - SM

## Single-Mode - Fibre Type &amp; Grade

	Conditions	ITU-T G.652.D	ITU-T G.657.A1	ITU-T G.657.A2	Units
		Specified Values			
Bending Induced Attenuation					
1 Turn @32mm Diameter	1550 nm		≤ 0.05		dB
100 Turns @ 50mm Diameter	1310 nm		≤ 0.05		dB
	1550 nm		≤ 0.05		dB
100 Turns @ 60mm Diameter	1625 nm		≤ 0.05		dB
Proof Stress Level			≥ 1.00		%
			≥ 100		kpsi

## Environmental Characteristics

Environmental Tests					
Temperature Dependence	-60 to +85°C		≤ 0.05		dB/km
Temperature-Humidity Cycling	-10 to +85°C		≤ 0.05		dB/km
Water Immersion	23		≤ 0.05		dB/km
Dry Heat Aging	85		≤ 0.05		dB/km
Damp Heat	85°C @ 85% RH		≤ 0.05		dB/km

# Indoor Breakout Fibre Optic Cable



## Ordering Info & Part Numbers

Part Number Example	Description
<b>HLH-FABM1L04-XX</b>	LANLINE 4-Fibre, OM1 MM, Indoor Breakout, LSZH, Fibre Cable

HUBNETIX Prefix			1	2	3	4	5	6
<b>H</b>	<b>L</b>	<b>H</b>	<b>F</b>	<b>AB</b>	<b>M1</b>	<b>L</b>	<b>04</b>	<b>XX</b>

1=F - Fibre Optic	2=Cable construction	3=Fibre type	4=Flame Rating	5=XX - Fibre Count	6=XX - Fibre Color code
	<b>AD</b> – Indoor Distribution	<b>S1</b> – <b>Singlemode</b> OS1 9/125µm	<b>L</b> – Low Smoke Zero Halogen	<b>02</b> – 02-fibre	<b>OR</b> – ORANGE (OM1/OM2)
	<b>AB</b> – Indoor Breakout		<b>H</b> – HDPE	<b>04</b> – 04-fibre	<b>AQ</b> – AQUA (OM3/OM4)
	<b>SX</b> – Indoor Simplex	<b>S2</b> – <b>Singlemode</b> OS2 9/125µm (ITU G.652.D)	<b>P</b> – PVC	<b>06</b> – 06-fibre	<b>YL</b> – YELLOW (OS1/OS2)
	<b>DX</b> – Indoor Duplex			<b>08</b> – 08-fibre	<b>BK</b> – BLACK
	<b>AR</b> – Indoor Ribbon Interconnect	<b>M1</b> – Multimode OM1 62.5/125µm		<b>12</b> – 12-fibre	
		<b>M2</b> – Multimode OM2 50/125µm		<b>96</b> – 96-fibre	
		<b>M3</b> – Multimode OM4 50/125µm			

**Note:** All packaging is 2,000 mtr drum reel. The above shown cable designs are HUBNETIX standard designs. Other lengths and customised designs are available upon specific request.

**HUBNETIX CORPORATION**  
71-75, Shelton Street, London, UK.  
[www.hubnetix.com](http://www.hubnetix.com)

The dimensions and specifications in this document are for reference purposes only and are subject to change without notice. Consult HUBNETIX Corp. for the latest dimensions and design specifications.

