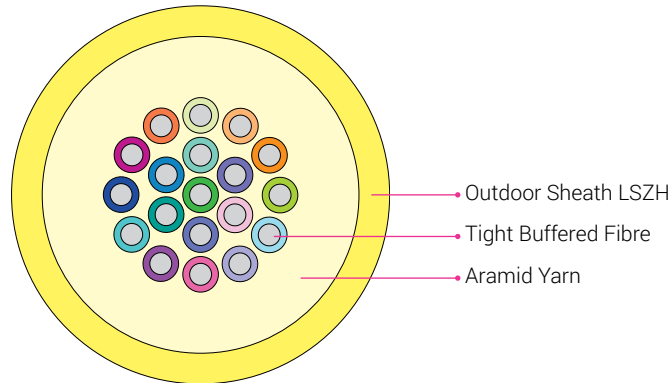


HUBNETIX

Indoor Distribution Fibre Optic Cable



Description

LANLINE Indoor Distribution Fibre Optic Cable is a key part of HUBNETIX Fibre Optic Cabling System. These Tight buffered design cables are perfectly for inter- equipment connections within building backbones to provide high-density connectivity and ease of installations in indoor applications. These cables have high strength and good bend performance. Individual Fibres are tight buffered with Nylon-12/PVC up to 900 microns which are surrounded with Aramid Yarn and overall jacketed with LSZH/PVC compound. The tight buffered construction is ideal for direct termination of connectors consequently saving on installation time. Cable design and flexible buffer tubes allow for easy to operate and splice. LANLINE Indoor Fibre cables are available in fibre counts from 2 to 24 fibres. These OM1, OM2, OM3, OM4 multimode, and OS2 singlemode Indoor-Outdoor FO cables are compliant with IEC 60794, EIA/TIA, ITU-T international standards.

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

- Indoor, Ducts/Conduits
- Local loop, 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 |
| 2-4 | 5.0 | 26 | 1000 | 500 | 500 | 50 | 100 |
| 6-8 | 5.8 | 32 | 1000 | 500 | 500 | 58 | 116 |
| 10-12 | 6.2 | 36 | 1000 | 500 | 500 | 62 | 124 |
| 14-16 | 7.5 | 52 | 1200 | 600 | 500 | 75 | 150 |
| 18-24 | 8.0 | 60 | 1200 | 600 | 500 | 80 | 160 |

Indoor Distribution Fibre Optic Cable



Fibre Technical Specifications

Optical Characteristics

Multi-Mode - Fibre Type & Grade

| Characteristics | Conditions | Specified Values | | Units |
|------------------------------|------------|------------------|-------------------------|--------|
| | | 62.5/125µm – OM1 | 50/125µm – OM2/OM3/OM4 | |
| 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 & Grade

| Characteristics | Conditions | Specified Values | | | Units |
|---|-------------------|------------------|----------------|----------------|------------------------|
| | | ITU-T G.652.D | ITU-T G.657.A1 | ITU-T G.657.A2 | |
| 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 _{cc} | | | ≤ 1260 | | nm |
| Zero Dispersion wavelength | | | 1300 - 1324 | | nm |
| Zero Dispersion slope | | | ≤ 0.092 | | ps/nm ² .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 & Grade

| | Conditions | Specified Values | | | Units |
|-----------------------------|------------|------------------|----------------|----------------|-------|
| | | ITU-T G.652.D | ITU-T G.657.A1 | ITU-T G.657.A2 | |
| 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 Distribution Fibre Optic Cable



Fibre Color Code

| | | | | | | | |
|---|-------------|----|----------------|----|---------------------------|----|---------------------------|
| 1 | RD – Red | 7 | BR – Brown | 13 | RD – Ring mark every 50mm | 19 | BR – Ring mark every 50mm |
| 2 | GR – Green | 8 | VT – Violet | 14 | GR – Ring mark every 50mm | 20 | VT – Ring mark every 50mm |
| 3 | BL – Blue | 9 | TQ – Turquoise | 15 | BL – Ring mark every 50mm | 21 | TQ – Ring mark every 50mm |
| 4 | YL – Yellow | 10 | BK – Black | 16 | YL – Ring mark every 50mm | 22 | BK – Ring mark every 50mm |
| 5 | WT – White | 11 | OR – Orange | 17 | WT – Ring mark every 50mm | 23 | OR – Ring mark every 50mm |
| 6 | GY – Grey | 12 | PK – Pink | 18 | GY – Ring mark every 50mm | 24 | PK – Ring mark every 50mm |

Ordering Info & Part Numbers

| Part Number Example | Description |
|---------------------|---|
| HLH-FADM4L08-XX | LANLINE 8-Fibre, OM4 MM, Indoor Distribution, LSZH, Fibre Cable |

| HUBNETIX Prefix | | | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------|---|---|---|----|----|---|----|----|
| H | L | H | F | AD | M4 | L | 08 | XX |

| 1=F - Fibre Optic | 2=Cable construction | 3=Fibre type | 4=Flame Rating | 5=XX - Fibre Count | 6=XX - Fibre Color code |
|-------------------|--|---|-----------------------------------|----------------------|------------------------------|
| | AD – Indoor Distribution | S1 – Singlemode OS1 9/125µm | L – Low Smoke Zero Halogen | 02 – 02-fibre | 02 – 02-fibre |
| | AB – Indoor Breakout | S2 – Singlemode OS2 9/125µm (ITU G.652.D) | H – HDPE | 04 – 04-fibre | 36 – 36-fibre |
| | SX – Indoor Simplex | | P – PVC | 06 – 06-fibre | 48 – 48-fibre |
| | DX – Indoor Duplex | M1 – Multimode OM1 62.5/125µm | | 08 – 08-fibre | 72 – 72-fibre |
| | AR – Indoor Ribbon Interconnect | M2 – Multimode OM2 50/125µm | | 12 – 12-fibre | 96 – 96-fibre |
| | | M3 – Multimode OM3 50/125µm | | | |
| | | M4 – Multimode OM4 50/125µm | | | |
| | | | | | OR – ORANGE (OM1/OM2) |
| | | | | | AQ – AQUA (OM3/OM4) |
| | | | | | YL – YELLOW (OS1/OS2) |
| | | | | | BK – BLACK |

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.

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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.

