Sales Catalog of HNK Telecommunication Products

Fiber Optic Cable

Optical Characteristics

The difference between single mode and multimode fiber mainly lies in fiber core diameter, wavelength, light source and bandwidth. Single mode fiber typical core diameter is 9µm. And multimode fiber core diameter is 50µm and 62.5µm typically. Due to the large core size if multimode fiber, some low-cost light sources like LEDs and VCSELs that works at the 850nm and 1310nm wavelength are used in multimode fiber cables. While the single mode often uses a laser or laser diodes to produce light injected into the cable. And the commonly used single mode fiber wavelength is 1310nm and 1550nm.

Single mode was for high-speed long-distance transmission and multimode was used for lower speed short-distance applications. The smaller the core diameter, the higher the fiber's bandwidth and the lower the attenuation (loss in dB per kilometer). The fiber's attenuation and bandwidth are also dependent on wavelength. Multimode 50 µm fiber had a lower cost and higher modal bandwidth than multimode 62.5 µm core fiber. A higher bandwidth fiber carries more data. Multimode fiber bandwidth is limited by its light mode and the maximum bandwidth at present is 28000MHz*km of OM5 fiber. OM5 optical fiber can transmit multiple wavelengths using Short Wavelength Division Multiplexing (SWDM) technology, while maintaining OM4 backward compatibility. If the network's transmission distances dictate the use of single-mode optical fiber, consider specifying bend-insensitive, zero water peak (ZWP), full spectrum fibers. See table below.

Fiber Type	Max. Attenuation (dB/km)				Min. Overfill Launch Bandwidth (Mhz.km)		Min. Link Distance (m)		
							1000 BASE-SX	10G BASE-SR	40&100Gigabit Ethernet
	850nm	1300nm	1310nm	1550nm	850nm	1300nm	850nm	850nm	850nm
OM1 62.5/125µm	≤2.7	≤0.6	-	-	≥200	≥600	500	-	-
OM2 50/125µm	≤2.4	≤0.6	-	-	≥700	≥500	750	150	-
OM3 50/125µm	≤2.4	≤0.6	-	-	≥1500	≥500	1000	300	100
OM4 50/125µm	≤2.4	≤0.6	-	-	≥3500	≥500	1100	550	150
OM5 50/125µm	≤2.4	≤0.6	-	-	≥3500	≥500	1100	600	200
G652D 9/125µm	-	-	≤0.34	≤0.20	-	-	-	-	-
G655 9/125µm	-	-	-	≤0.22	-	-	-	-	-
G657A1 9/125µm	-	-	≤0.35	≤0.21	-	-	-	-	-
G657A2 9/125µm	-	-	≤0.35	≤0.21	-	-	-	-	-
G657B3 9/125µm	-	-	≤0.35	≤0.21	-	-	-	-	-

ANSI/TIA/EIA-598-B Standard Fiber Color Code

Fiber Number	Fiber Color	Fiber Number	Fiber Color
Fiber 1	Blue	Fiber 7	Red
Fiber 2	Orange	Fiber 8	Black
Fiber 3	Green	Fiber 9	Yellow
Fiber 4	Brown	Fiber 10	Purple
Fiber 5	Gray	Fiber 11	Pink
Fiber 6	White	Fiber 12	Aqua

Fiber 13 and higher the color code is repeated with added black stripe or dash
Note: Fiber Tube color will be followed with same order.

Ordering Information

Part Number： OC-XX-A(B)CDCL

Ordering Guide

XX	A	B	C	D	CL
Cable Type Code	Jacket	Fiber/Per Loose Tube or Fiber/Per Sub Unit	Fiber Count	Fiber Type	Jacket Color(CL)
please see the reference below	1=PVC 2=LSZH 3=PE	2=2 Fibers/Loose Tube 12=12 Fibers/Loose Tube …… 2=2 Fibers/Sub Unit 12=12 Fibers/Sub Unit	No. Of Fiber 004F, 048F	OM1=62.5/125 OM1, OM2=50/125 OM2 OM3=50/125 OM3, OM4=50/125 OM4 OM5=50/125 OM5, G652D=9/125 G652D G655=9/125 G655, G657A1=9/125 G657A1 G657A2=9/125 G657A2, G657B3=9/125 G657B3	As noted in Color code chart

Color Code

BL-Blue	OR-Orange	GR-Green	BR-Brown
GY-Grey	WH-White	RE-Red	BK-Black
YE-Yellow	PU-Purple	PI-Pink	AQ-Aqua

Sales Catalog of HNK Telecommunication Products

Fiber Optic Cable

# Duplex and Simplex Optical Fiber Cable (GJFJ8V, GJFJV)

These cables are constructed with 900 μm buffered fiber, aramid yarn with in the outer PVC/ LSZH sheath. Simplex optical fiber cable only contains one fiber. This cable is often utilized in applications that require one-way data transfer. While duplex optical fiber optic patch cable consists of two separate fiber optic strands. Typically found in a zip cord construction format, which is most often used for duplex communication. The cable is suitable for use with industry standard connectors and can be easily made into a Pigtail or patch cord.

The duplex and simplex cable provide strength and flexibility for interconnect applications due to their easy termination capabilities. They can be used from communication closets to wall outlets, wall outlets to desk and patch panels to equipment.

These optical fiber follows ITU specification and are colour coded as yellow (SM), orange (MM). The standard diameter is 3.0 mm. The specification meets UL (OFNR and OFNP) flame retardant rating.

Cable Cross Section
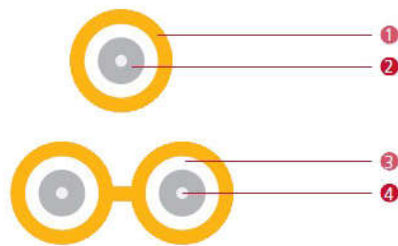
1	2	3	4
Outer Jacket	Tight Buffer	Aramid Yarn	Optical Fiber

Complied with or Exceeds Standard

- IEC 60793-2-10 type A1b, TIA/EIA-492AAAA-A.
- IEC 60793-2-10 type A1a.2, ISO/IEC 11801 OM-3, TIA/EIA-492AAAC.
- IEC 60793-2-10 type A1a.3, ISO/IEC 11801 OM-4, TIA/EIA-492AAAD.
- IEC 60793-2-10 type Ala.4, ISO/IEC 11801 OM5, TIA/EIA-492AAAE.
- ITU-T Recommendation G.652.D/G.655/G.657.A1/G.657.A2/G.657.B2/G.657.B3
- IEC 60793-2-50 type B1.3/B6.a1/B6.a2/B6.b2/ B6.b3 Optical Fiber Specification.
- ANSI/TIA/EIA 568C.3

- IEC 60793-2-10 type A1a.1, TIA/EIA-492AAAB-A.
- IEEE 802.3z Gigabit Ethernet
- IEEE 802.3ae 10 Gigabit Ethernet
- IEEE 802.3ba 40&100 Gigabit Ethernet

- ROHS Compliant Directive 2011/65/EU(ROHS2.0)

Mechanical & Environmental Characteristics

Min. Tensile Load (Short Term)	200N(Duplex) 100N(Simplex)	Min. Tensile Load (Long Term)	100N(Duplex) 60N(Simplex)
Min. Crush Load (Short Term)	500N/100mm	Min. Crush Load (Long Term)	100N/100mm
Bend Radius-Dynamic (mm)	60mm	Bend Radius-Static (mm)	30mm
UL Fire Rated	OFNR	Tight Buffer Jacket Material	PVC or LSZH
Outer Diameter (mm)	Simplex: 1.6mm, 1.8mm, 2.0mm, 2.4mm, 2.8mm or 3.0mm Duplex: 1.6*3.4mm, 1.8*3.8mm, 2.0*4.2mm, 2.4*5.0mm, 2.8*5.8mm or 3.0*6.2mm		
Outer Jacket Material	Standard: PVC Optional: LSZH, or other		
Operating Temperature	-20°C to +60°C	Storage Temperature	-20°C to +60°C

Ordering Sample

Part Number	Description
OC-GJFJ8V-12G652DYE	Duplex Singlemode G652D GJFJ8V Fiber Optic Cable, PVC Jacket, Yellow Color.
OC-GJFJV-11OM3AQ	Simplex Multimode OM3 GJFJV Fiber Optic Cable, PVC Jacket, Aqua Color.