Lucent Technologies
Bell Labs Innovations

GigaGuide™ 50 Optical Fiber

product fact sheet

key specifications

Core diameter: 50 ± 3 micron

Clad diameter: 125 ± 1 micron

Attenuation: ≤ 2.4 dB/km at 850 nm; and ≤ 0.7 dB/km at 1300 nm

Allows for Gigabit Ethernet operation up to 600 meters at 850 nm and 1300 nm

Fully compatible with standard 50/125 graded index multimode optical fiber

Proven Fiber Performance for High-Speed Networks

GigaGuide™ 50 multimode optical fiber from Lucent Technologies provides the increased bandwidth and clear transmissions required by today's high-performance networks, including Gigabit Ethernet. A new high-speed design of a proven and tested fiber solution, GigaGuide 50 combines Gigabit Ethernet capabilities and full compatibility with your installed base of standard 50/125 multimode optical fiber.

GigaGuide 50 is designed to provide transmission distances up to 600 meters at both the 850 nm and 1300 nm windows, meeting or exceeding the requirements for IEEE 802.3z Gigabit Ethernet standards. With its low attenuation (≤ 2.4 dB/km at 850 nm; and ≤ 0.7 dB/km at 1300 nm), transmissions are clear and reliable.

Optimized for Gigabit Ethernet

Like other graded-index multimode fibers in the GigaGuide family, GigaGuide 50 is specifically designed to maximize the potential of the Gigabit Ethernet standard. By increasing transmission speeds to 1,000 Mb/s (1 Gb/s), Gigabit Ethernet architecture provides optimal performance for those sites where even Fast Ethernet speeds are inadequate.

GigaGuide 50 is an excellent choice both for Gigabit Ethernet installations and for networks that may be upgraded in the future. In Gigabit Ethernet networks, this laser-certified fiber provides outstanding performance with both conventional edge emitting lasers and Vertical Cavity Surface Emitting Lasers (VCSELs). For use with your installed base, GigaGuide 50 is fully compatible with all standard fiber optic network protocols including FDDI, Fast Ethernet and 155 Mb/s ATM.

product specifications

GigaGuide™ 50 Optical Fiber

GigaGuide meets or exceeds industry standards for fiber specifications.	
Physical Characteristics	
Core diameter (µm)	50 ± 3
Clad diameter (µm)	125 ± 1
Coating diameter (µm)	245 ± 10
Core non-circularity (%)	≤ 5
Clad non-circularity (%)	≤ 2
Core-clad offset (µm)	≤ 3
Clad-coating offset (µm)	≤ 6
Standard prooftest (kpsi)	≥ 100
Standard reel lengths (km)	2.2 – 8.8
Optical Characteristics	
Attenuation at 850 nm (dB/km)	≤ 2.4
Attenuation at 1300 nm (dB/km)	≤ 0.7
Numerical aperture	0.20 ± 0.015
Zero dispersion wavelength range (nm)	1297 – 1316
Maximum dispersion slope (ps/(nm^2•km))	0.101
Macrobend attenuation (dB) 100 turns on a 75 mm mandrel at 850 nm and 1300 nm	≤ 0.5
Point discontinuities (dB) at 850 nm and 1300 nm	≤ 0.08
Group Refractive Index	
850 nm	1.483
1300 nm	1.479
GigaGuide provides resistance to temperature and humidity extremes.	
Environmental Performance	
Maximum induced attenuation @ 850 nm and 1300 nm from -60°C to +85°C (dB/km)	≤ 0.20
Maximum induced attenuation @ 850 nm and 1300 nm from -10°C to +85°C, 85% RH 30 day cycle (dB/km)	≤ 0.20
GigaGuide's dual layer UV-cured acrylate coating provides excellent fiber protection and strips cleanly and easily.	
Coating Removal Performance	
Typical dry strip force (lb_f)	≤ 0.6
Typical wet strip force (lb_f)	≤ 0.6

Advanced Processes, Stringent Quality Control

Robust and easy to connectorize, GigaGuide 50 promotes ease of installation even under the most challenging conditions. Lucent protects the fibers by using a dual-layered, UV-cured acrylate coating system that provides excellent protection against temperature and humidity extremes, yet still strips cleanly and easily.

GigaGuide 50 is manufactured at Lucent's Multimode Center of Excellence (Sturbridge, Massachusetts) using the company's advanced Inside Vapor Deposition (IVD) technology. Using the IVD process, Lucent produces a range of multimode fiber products that offer excellent performance for all transmission protocols. The IVD method enables Lucent to precisely control each fiber's index of refraction. Under the restricted launch conditions used in Gigabit Ethernet, this maximizes fiber bandwidth performance at 1Gb/s speeds.

Like all of Lucent's graded index multimode fibers, GigaGuide 50 fibers are 100 percent quality tested in accordance with the Telecommunications Industry Association (TIA) Fiber Optic Test Procedures (FTP) and other industry standards.

For more information about GigaGuide 50 and Lucent's other multimode optical fiber products, contact:

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