



Member of LEONI Group

OptiGrade Multimode Fiber series

OM3 Standard Compliant

Optimized Graded Index Multimode Fiber series

With OptiGrade j-fiber offers an enhanced 50/125 Multimode fiber series for the high-speed network protocols and transmission rates. The 10 Gigabit Ethernet capable laser-optimized Multimode fiber series provides highest bandwidth performance for premises, Local Area Network (LAN), Metropolitan Area Network (MAN) and Storage Area Network (SAN) applications while achieving the lowest overall system cost.

OptiGrade fibers support 10 Gb/s serial transmission, scalable from 300 m up to 500 m in the 850 nm wavelength range. Available in several performance characteristics they are designed for use with low-cost 850 nm lasers (VCSELs) to enable a cost-efficient high bandwidth solution.

OptiGrade fibers are fully compatible with the installed fiber base of conventional 50 μ m Multimode fiber (Legacy Local Area Networks) and j-fiber's entire line of high-performance 50 μ m Multimode fiber. While optimized for 10 Gb/s performance @ 850 nm (SX) serial applications, OptiGrade fiber also exceeds industry standards at lower speed network protocols.

Benefits

- 10 Gb/s Ethernet serial transmission with guaranteed OM3 standard compliant optical performance
- Guaranteed OM3 standard compliance: Effective Modal Bandwidth (EMB) \geq 2000MHz-km @ 850 nm
- Provides high performance at overfilled launch (OFL) bandwidth \geq 1500 MHz-km @ 850 nm
- Ensures compatibility with currently commercially available bend-insensitive MMF and standard MMF
- Supports compact cable management systems in advanced data center applications
- Supports high fiber count cable manufacturing
- Guarantees reliable system performance by most stringent DMD characterization

Standardization and Compliances for OptiGrade OM3

- IEC 60793-2-10
- ITU G651.1
- TIA/EIA 492AAAC-B
- IEEE 802.3

For further information about our Multimode Fibers and other j-fiber products and services, please contact us:

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Performance Characteristics

OptiGrade Classes		300	400	500	Unit
Bandwidth (Overfilled Launch)	850 nm	≥ 1500	≥ 2000	≥ 2500	MHz-km
	1300nm	≥ 500	≥ 500	≥ 500	MHz-km
Effective Modal Bandwidth (EMB)	850 nm	≥ 2000	≥ 2700	≥ 4000	MHz-km
Transmission Link Lengths for 10 Gb/s ¹	850 nm	300	400	500	m
	1300nm	300	300	300	m

¹ 850 nm operating wavelength, transmitters meeting encircled flux of ≤ 30% @ radius 4.5 μm and ≥ 86 % @ radius 19.0 μm. At 1300nm link length using LX4.

Optical Characteristics

		Spec. Values	Unit
Attenuation Coefficient ¹	850nm	≤ 2.2 – 2.4	dB/km
	1300nm	≤ 0.6	dB/km
Attenuation @ 1383 nm (OH-Peak)		< 2.0	dB/km
Attenuation Discontinuities (OTDR 1300 nm)		< 0.05	dB
Chromatic dispersion			
Zero Dispersion Wavelength λ ₀		1295 ≤ λ ₀ ≤ 1340	nm
Zero Dispersion Slope S ₀	– form 1295 ≤ λ ₀ ≤ 1310	≤ 0.105	ps/nm ² ·km
	– form 1310 ≤ λ ₀ ≤ 1340	≤ 0.000375·(1590-λ ₀)	ps/nm ² ·km
Macrobend loss ²	850nm	0.5	dB
	1300nm	0.5	dB
Numerical Aperture		0.200 ± 0.015	
Effective Group Index of Refraction	850nm	1.483	
	1300nm	1.478	

¹ Special attenuation values available upon request

² Mandrel radius 37,5mm, Number of turns 100.

Geometrical Characteristics

	Spec. Values	Unit
Core Diameter	50 ± 2.5	μm
Core Non-Circularity	≤ 5.0	%
Core/Clad Concentricity Error	≤ 1	μm
Cladding Diameter	125 ± 1.0	μm
Cladding Non-Circularity	≤ 1.0	%
Coating Diameter	242 ± 7	μm
Coating /Clad Concentricity Error	≤ 10	μm
Standard Lengths	2.2 - 8.8	km

¹ Other coating diameters are available upon request

Mechanical Characteristics

	Spec. Values	Unit
Proof Test	≥ 0.69	GPa
	≥ 8.8	N
Dynamic Tensile Strength		
Unaged Fiber (0.5 m)		
Median Tensile Strength	≥ 3.8	GPa
15th Percentile Tensile Strength	≥ 3.3	GPa
Aged Fiber (0.5 m)		
Median Tensile Strength	≥ 3.03	GPa
15th Percentile Tensile Strength	≥ 2.76	GPa
Dynamic Fatigue Stress	≥ 23	
Corrosion Parameter n _d (typical)		
Operating Temperature Range	-60 to +85	°C
Coating Strip Force (typical)	1.9	N

Environmental Characteristics

	Spec. Values	Unit
	850/1300 nm	
Change of Temperature Attenuation increase, -60°C to +85°C	≤ 0.1	dB/km
Dry Heat Attenuation increase, 30 days @ 85°C	≤ 0.1	dB/km
Damp Heat Attenuation increase, 30 days @ 85°C/85% R.H.	≤ 0.1	dB/km
Water Immersion Attenuation increase, 30 days in 23°C water	≤ 0.1	dB/km

Coating

j-fiber Multimode optical fiber is protected with our enhanced coating material that guarantees long-term performance and reliability. The dual-layer acrylate material is user-friendly and compatible in all cable constructions, such as tight buffer and loose tube designs with low bending loss. Optimized for multimode fiber, the coating shows lowest microbending sensitivity. The coating is mechanically strippable and leaves no residue. Coating options for special applications are available on request.

Spool Size

	Size
Spool diameter	9.25"/23.5 cm
Spool width	4.21"/10.7 cm
Spindle	1"/2.54 cm
Traverse width	3.75"/9.5 cm

Environmental friendly Packaging

The shipping spool is designed to safeguard j-fiber optical fiber not only during shipping but also during subsequent handling in the customer's plant. It features smooth inside surfaces to ensure that the fiber is wound on and off the reel without the risk of breaking. The reel barrel is isolated via a polyethylene cover. The inside end of the fiber can be accessed for various measurements while still on the shipping spool. All reels and transport boxes are designed to take advantage of our recycling program.

Ordering Information

To order OptiGrade optical fiber please call, fax or email us and specify the following parameters when ordering:

Fiber Type:	OptiGrade Multimode Fiber 50/125/242 μm
Desired Performance:	OptiGrade Class
Desired Attenuation:	at 850 nm/1300 nm
Fiber Quantity:	kms
Other:	desired ship date, reel length, special requests

All fibers and preforms are subject to j-fiber's ongoing process and quality improvement programs ensuring excellent performance and high reliability. We reserve the right to make changes to the above specification without notice.

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