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SUMITOMO SPECIFICATION

SF-F04-021

FutureFLEX®

Multimode 62.5 µm Core Optical Fiber (OM1)
Gigabit Grade

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SEL is a Member of the Sumitomo Electric Industries, Ltd. Group
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CONTENTS

1. GENERAL

This specification covers the design requirements and performance standards for the optical fiber described below. This fiber is used in Sumitomo's optical cables. The features described in this document are intended to provide information on the performance of Sumitomo Electric's optical fiber and aid in handling and use. Refer to the appropriate *cable* specification for details regarding the finished cable's performance.

1.1 Fiber Description

Sumitomo's Gigabit Grade 62.5/125 µm Multimode (MM) optical fiber is a graded index fiber with glass core, glass cladding and dual acrylate protective coatings. This Type Ia TIA specified fiber is optimized for operation at both 850 and 1300 nm transmission windows. It is fully compatible with commercially available splicing and connector products and can be spliced to other commercially available 62.5 µm MM fibers. 62.5 µm MM fiber is ideal for data and local area networks and is available in both standard and extended distance grades, based on maximum gigabit Ethernet link distance requirements (see Section 2.3).

1.2 Quality

Sumitomo ensures a high level of quality through ISO / TL 9000 registered Quality Management Systems and our commitment to continuous improvement. Guaranteed, high quality products have been manufactured at Sumitomo's facility in Research Triangle Park, North Carolina since 1984.

1.3 Reliability

Sumitomo ensures product reliability through rigorous qualification testing of each product family against industry standards. Both initial and periodic qualification testing are performed to assure the fiber and cable's performance and durability in the field environment.

Sumitomo supports industry standards organizations such as Bell Communications Research (Bellcore), Telecommunications Industry Association (TIA), International Telecommunications Union (ITU), International Electrotechnical Commission (IEC), American Society for Testing and Materials (ASTM), Rural Electrification Administration (REA), and The Institute of Electrical and Electronics Engineers (IEEE).

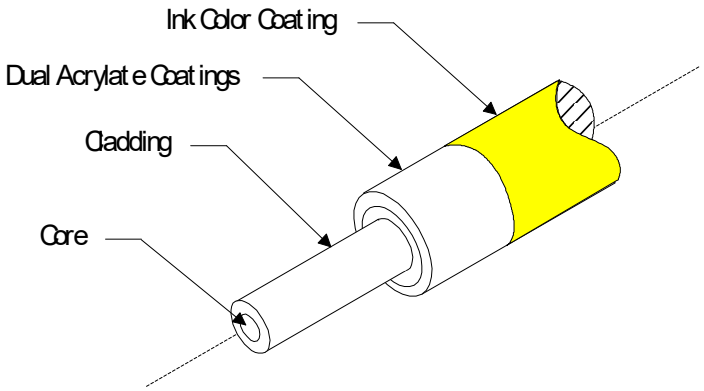
2. MULTIMODE OPTICAL FIBER

2.1 General Design

Sumitomo employs 62.5 µm Multimode (MM) optical fiber manufactured by chemical vapor deposition. This high quality glass has excellent geometry, high strength characteristics, high bandwidth, and low attenuation. The MM fiber is fully compatible with other commercially available MM fibers and is optimized for transmission at 850 and 1300 nm wavelengths.

The 62.5 µm MM fiber is a graded index design. It's optical properties are achieved through a Germanium doped silica based core with a pure silica cladding. A dual acrylate protective coating is applied over the glass cladding to provide the necessary bending and tensile strength required for handling in the field and to ensure maximum fiber lifetime through increased reliability.

62.5 µm Multimode Fiber



2.2 Construction

62.5 µm Multimode Fiber				
Fiber	**Region**	**Property**	**Test Procedure**	**Specification**
Glass Fiber	Core	Diameter Non-Circularity Core/Cladding Offset	EIA/TIA-455-58 EIA/TIA-455-45 EIA/TIA-455-45	62.5 ± 3.0 µm ≤ 5% ≤ 3 µm
	Cladding	Diameter Non-Circularity	EIA/TIA-455-45 EIA/TIA-455-45	125 ± 1.0 µm < 2.0 %
Coating	Buffer	Material Inked Diameter	EIA/TIA-455-55	UV-Acrylate 250 ± 15 µm

2.3 Optical Characteristics

62.5 µm Multimode Fiber				
Property		**Test Procedure**	**Specification**	
Maximum Attenuation at 850 / 1300 nm		EIA/TIA-455-61	3.5 / 1.5 dB/km	
Point Discontinuities at 1300 nm		EIA/TIA-455-59	≤ 0.1 dB	
Attenuation Change vs. Wavelength	800 to 900 nm 1250 to 1350 nm	EIA/TIA-455-46	≤ 1 dB/km ≤ 0.2 dB/km	
Attenuation Change vs. Bending	100 wraps / 75 mm	EIA/TIA-455-62	≤ 0.5 dB	
Minimum Bandwidth (overfilled launch)	850 nm 1300 nm	EIA/TIA-455-204	220 MHz-km 600 MHz-km	
Min .Gigabit Ethernet Distance		EIA/TIA-455-204	Standard Grade	Extended Grade
	850 nm		300 m	500 m
	1300 nm		500 m	1000 m
Numerical Aperture		EIA/TIA-455-177	0.275 ± 0.015	
Group Index of Refraction	850 nm 1300 nm	EIA/TIA-455-44	1.496 1.491	

2.4 Mechanical Characteristics

62.5 µm Multimode Fiber			
Property		**Test Procedure**	**Specification**
Proof-test Stress		EIA/TIA-455-31	100 kpsi
Minimum Bend Radius	Short Term Long Term		16.0 mm 37.5 mm

3. Testing and Inspection

The optical properties of all fibers are measured prior to cable manufacturing and remain traceable throughout the manufacturing process and the lifetime of the cable.

After cabling, we use statistical process control techniques along with periodic verification to insure 100% compliance to attenuation requirements in each length of cable with bi-directional OTDR at all operating wavelengths. Cable dimensional measurements are also made at final inspection and recorded.

4. Installation / Handling Practices

Sumitomo has incorporated a wide range of technical support and training services for our fiber optic cable products into our Technical Support Services (TSS) program. TSS offers training in the areas of cable installation sheath entry, splicing, testing, and system troubleshooting. The services are available in a variety of media formats and can be customized to better accommodate individual training needs. The TSS program consists of an extensive series of recommended procedure documents, training courses with classroom and hands-on instruction, as well as demonstration video tapes. Please contact Sumitomo's Customer Service department for more information.

5. Ordering Information

To learn more about Sumitomo's cables or to place an order, call, fax, e-mail, or write us at:

Sumitomo Electric Lightwave Corp
201 South Rogers Lane
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Sumitomo Electric Lightwave reserves the right to improve, enhance, or modify the cable's features and specifications. For special requirements different from those shown above, please contact our Inside Sales Department. Each Sumitomo Electric Lightwave Corp. optic cable and/or its manufacture may be covered by one or more of the following US Patents: 4,715,677 4,729,629 4,763,983 4,770,489 4,828,349 4,953,945 5,043,037 5,082,347 5,165,003 D331,567 5,247,599 5,410,901 5,471,555 5,642,452.