UltraL™ Fiber Connectors/Cables

(0.01dB Low Loss, SM, MM)

The UltraL™ Ultra Low Loss fiber optic connectors and patch cables achieve exceptionally low coupling loss, enabling the development of next-generation quantum systems and ultra-low-loss optical networks. The outstanding performance (<0.05 dB when mated as a pair) is achieved through a patent-pending automatic core alignment technology that guarantees precise and repeatable alignment across production. In contrast, standard connectors typically exhibit losses of around 0.3 dB. The UltraL™ connector utilizes ceramic ferrules compatible with standard connector formats and can be repolished to remove surface wear after extended use. UltraL™ connectors must be used in matched pairs with identical part numbers to maintain performance, as mating with conventional connectors eliminates the low-loss advantage. Each device equipped with an UltraL™ connector typically requires an additional patch cable with one UltraL™ connector end and one bare fiber end for splicing to the connected unit. Due to its near-perfect butt-coupling design, the return loss exceeds 55 dB for FC/PC configurations. The UltraL™ series is engineered for cost-effective, high-volume production.

Features

- Ultra Low Loss
- High Reliability
- High Repeatability

Applications

- Quantum System
- Networks
- Data Center

Specifications

UltraL Connector SM28 Fiber	Min	Typical	Max	Unit
Operation Wavelength	1200		2000	nm
Insertion Loss	0.01	0.04	0.15	dB
NA		0.14		
Return Loss			55	dB
Operating Temperature	-40		75	°C
Storage Temperature	-45		85	°C

UltraL Connector 50/126 Fiber	Min	Typical	Max	Unit
Operation Wavelength	350		2000	nm
Insertion Loss	0.00	0.005	0.1	dB
Return Loss			40	dB
Operating Temperature	-40		75	°C
Storage Temperature	-45		85	°C

UltraL Connector SM600 Fiber	Min	Typical	Max	Unit
Operation Wavelength	1200		2000	nm
Insertion Loss	0.01	0.04	0.07	dB
NA		0.14		
Return Loss			55	dB
Operating Temperature	-40		75	°C
Storage Temperature	-45		85	°C

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UltraL™ Fiber Connectors/Cables

(0.01dB assured, SM, MM)

Specifications

UltraL Connector SM450 Fiber	Min	Typical	Max	Unit
Operation Wavelength	490		633	nm
Insertion Loss		0.3	0.6	dB
NA		0.13		
Return Loss			55	dB
Operating Temperature	-40		75	°C
Storage Temperature	-45		85	°C

UltraL Connector SM400 Fiber	Min	Typical	Max	Unit
Operation Wavelength	405		532	nm
Insertion Loss		0.4	0.6	dB
NA		0.13		
Return Loss			50	dB
Operating Temperature	-40		75	°C
Storage Temperature	-45		85	°C

UltraL Connector SM300 Fiber	Min	Typical	Max	Unit
Operation Wavelength	320		430	nm
Insertion Loss		0.5	1.1	dB
NA		0.13		
Return Loss			50	dB
Operating Temperature	-40		75	°C
Storage Temperature	-45		85	°C

Ordering Information (Part Number)

	☐	☐	☐	☐☐	☐	☐☐☐
Prefix	**Fiber Type**	**Connector**[1]	**Configuration**	**Power**	**Cable Type**	**Length**
ULFC-	SM28 = 1 50/125 = 2 60/125 = 3 SM600 = 6 SM450 = 5 SM400 = 4 SM300 = 3 Hi1060 = A	FC/PC = 1 FC/APC = 2	One End Connector = 1 Both End Connector = 2	0.5W = 05 5W = 50 10W = 10 15W = 15 20W = 20	0.9mm loose = 2 3mm loose = 3 Special = 0	0.5m = 005 1m = 010 1.5m = 015 10m = 100 15m = 150 20m = 200 25m = 250 Special = 000

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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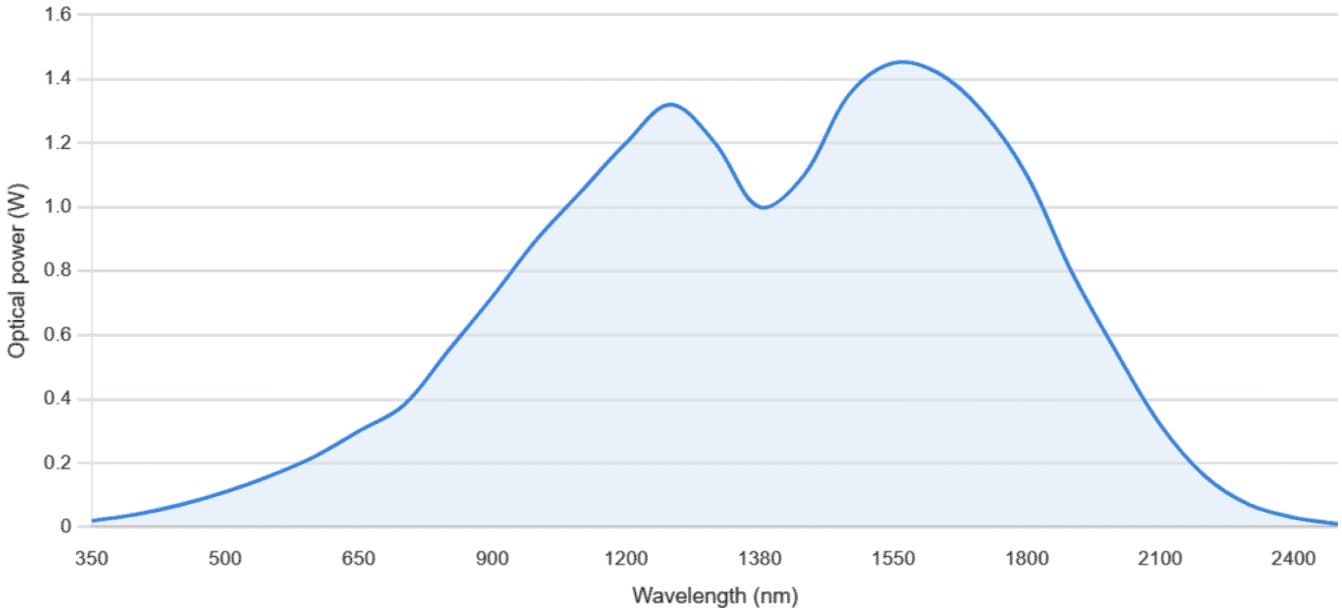
(0.01dB Low Loss, SM, MM)

Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength



Single mode fiber optical power is limited by nonlinear effects in addition to absorption that increase loss and generate heat. The curve shows the approximate safe CW power envelope for standard single-mode fiber. Actual limits depend on fiber design, core size, length, and laser characteristics. Specialty fibers can significantly increase the power limit.

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