

High Power Fiber Optic Patch Cable/Connector



SM, PM, MM, up to 15W. Must be used in connector pairs with matching part numbers.

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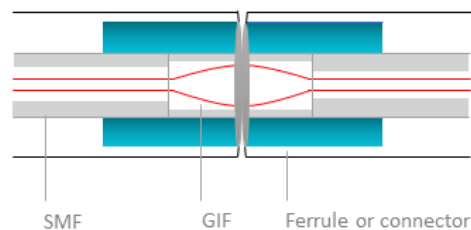
Features

- High Power Handling
- Low Insertion Loss
- High Stability
- Reliability
- Low Cost

Applications

- Telecommunications
- Defense
- Medical and Biotech
- Instrumentation

The High Power Fiber Optic Connector (HPFC) features a beam-expanded fiber lens end within a conventional butt-coupling format, as illustrated below. The mode field diameter (MFD) is expanded to 15 μm for 5 W and 35 μm for 10 W and 15 W operation. Each connector is manufactured to tight tolerances to ensure identical performance across units with the same part number, enabling proper mating. HPFC connectors must be used in pairs with identical part numbers. Mating with conventional connectors results in higher insertion loss and does not support high-power handling. Each device equipped with an HPFC connector typically requires an additional patch cable with one HPFC connector end and one bare fiber end for splicing to the connected unit. Polarization-maintaining (PM) fiber versions and cabling options are available. This connector is ideal for high-power optical transmission systems as well as medical and biotech laser delivery. Automated high-volume production is supported in-house.



Specifications

Parameter	Minimum	Typical	Maximum	Unit
Operating Wavelength	400		2000	nm
Insertion Loss*	0.01		0.35	dB
Polarization Dependent Loss		<0.02	0.15	dB
Temperature Sensitivity		0.002	0.004	dB/°C
Return Loss	SM 0°	50		dB
	SM 8°	70		
	MM	40		
Optical Power Handling**		5	15	W
Beam Diameter	15		35	μm
Operating Temperature	-40		85	°C
Connector Styles	SC, ST, FC, PC, APC, LC			

Notes:

* Insertion loss depends on fiber and MFD. @1310/1550nm

** Continuous operation. @1310/1550nm

Note: The high-power connector only works in pairs, mating between two connectors having the same part number.

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Ordering Information (Part Number) System

Prefix	Model	Wavelength	Power ^[1]	Configuration ^[2]	Fiber Length	Fiber Type	Cable Type	Key	Connector ^{[3][4]}
HPCC-	SM = 1 MM = 2 PM = 3	480 = 4 630 = 6 780 = 7 850 = 8 980 = 9 1060 = 1 1310 = 3 1400 = 2 1550 = 5 Special = 0	5W = 5 10W = 2 15W = 7 Special = 0	One Connector = 1 Two Connectors = 2 Special = 0	1m = 1 1.5m = A 2m = 2 2.5m = B 3m = 3 Special = 0	RGB400 = 4 PM480 = 3 PM630 = 6 HI 780 = 7 PM980 = 9 HI1060 = 1 SMF28 = 2 50/125 = A 62.5/125 = B Special = 0	Bare fiber = 1 900um loose = 2 Special = 0	Regular = 1 Narrow = 2	FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

[1]. @1310/1550nm

[2]. Two connectors is a patch cable

[3]. For MM fibers no need to have APC angle polishing

RED color – for special order

[4]. The connector cannot be installed directly onto bare fiber, as it 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 can remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SM28 fiber and decreases further with smaller core fibers.

Application Notes

Fiber Core Alignment

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness

Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power

Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.