

High Directivity Fiber Optical Inline Tap Monitor

(high directivity, high power handling up to 40W)

(US Patent No: 9535218)



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Applications

- Systems
- Instruments
- Laboratory

Features

- All Fiber Types
- All Wavelengths
- Lowest insertion loss
- Lowest return loss
- High Power Up To 40W
- High directivity

The ICPM Series Fiber Optic Tap Power Monitors are used for in line power measurement and precision power controlling. It is based on a patent pending design that taps light without braking the fiber, no coating, no lens. It offers ultra-low loss, high directivity, high return losses, high power, low polarization and wavelength dependence, high directivity, variable tap ratios, as well as low cost and high reliability continuous transmission fiber.

The continuous fiber device is particularly suited for high power handling. ICPM integrated a hermetically sealed PIN photodiode, meeting GR1209 and GR1201 compliance qualification.

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	300		2500	nm
Responsivity ^[1]	5	20	60	mA/W
Polarization Stability ^[2]	0.1	0.2	0.25	dB
Insertion Loss	0.2	0.6	0.8	dB
Polarization Dependent Loss ^[3]			0.01	dB
Polarization Extinction Ratio ^[4]	23			dB
Directivity ^[5]	25	28	40	dB
Return Loss		55		dB
Optical Power Handling ^[6]			40	W
Dark Current@-5V, 23°C			1	nA
3dB bandwidth@-5V bias	10	200	2000	MHz
Capacitance			10	pF
Max. Forward Current		10		mA
Max. Reverse Current		5		mA
Max. Reverse Voltage		10		V
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C

Notes:

- [1]. It is tap ratio and input optical power dependent. 1% corresponds to the minimum value with sufficient optical input power.
- [2]. PDR, responsivity variation with polarization, only for polarization independent version.
- [3]. PDL for polarization independent version.
- [4]. ER for polarization maintaining version.
- [5]. The responsivity ratio between forward and backward directed light.
- [6]. For optical power >5W, the tap ratio spec is no longer adequate since the detector is easily saturated. We will produce the tap detector with 20mA/W at the maximum specified input optical power while biasing the detector at 5V. The tap ratio will be kept at a minimum of about 1% for minimum loss.

Warning: The device is extremely ESD-sensitive. Its dark current increases by unprotected handling. It is recommended to be handled under a certified ion fan once the package is removed.

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Mechanical Footprint Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Ordering Information

Prefix	Tap ratio	Wavelength	Directivity	Optical Power ^[1]	Fiber Type	Fiber Cover	Fiber Length	Connector
ICPM-	1% = 01 3% = 03 5% = 05 0.1% = 06 0.3% = 07 0.5% = 08 0.7% = 09 Special = 00	350 = 7 530 = 9 850 = 8 1060 = 6 1310 = 3 1550 = 5 2000 = 2 Special = 0	1	<0.5W = 1 0.5-5W = 2 5-10W = 3 10-20W = 4 20-30W = 5 30-40W = 6 Special = 0	SMF28e = 1 PM1550 = 2 Hi1060 = 3 PM980 = 4 MM50/125 = 5 MM62.5/125 = 6 SM850 = 8 PM780 = B PM400 = C	Bare fiber = 1 900um tube = 3 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 Duplex LC/PC = 8 MTP = 9 LC/APC = A LC/UPC = U Special = 0

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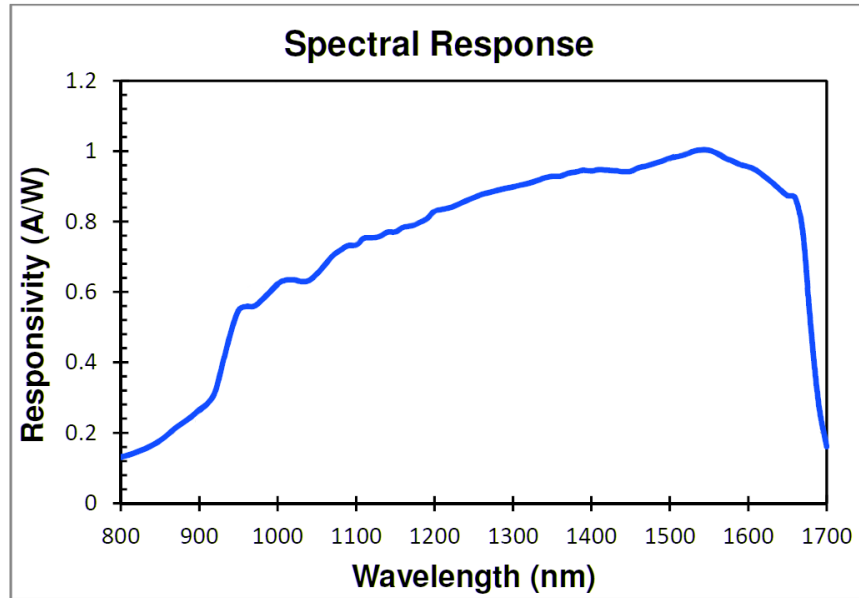
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Spectral Response



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.