

High Power/High Directivity Fiber Inline Tap Monitor

(power handling up to 40W, high directivity)

(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 uniquely feature high-power handling with low tapping ratios and high directivity. They are designed for in-line high-power measurement, precision power control, and sensing applications that require high directivity. Based on a patent-pending design, they tap light without breaking the fiber, avoiding the need for coating or lenses. This design offers ultra-low loss, high return losses, high power, low polarization and wavelength dependence, variable tap ratios, as well as low cost and high reliability for continuous transmission fiber.

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

For high-power applications one should select a tapping ratio that does not saturate the detector yet provides sufficient detectivity. We also make variable ratio tap monitors.

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	300		2500	nm
Tap Ratio	0.001		5	%
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			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:

- [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.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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 and wearing ESD finger cots 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	Optical Power ^[1]	Fiber Type	Fiber Cover	Fiber Length	Connector
ICPM-	1% = 100 0.001% = 00E 0.01% = 001 0.1% = 010 0.3% = 030 0.5% = 050 3% = 300 5% = 500	350 = 7 530 = 9 850 = 8 1060 = 6 1310 = 3 1550 = 5 2000 = 2 Special = 0	<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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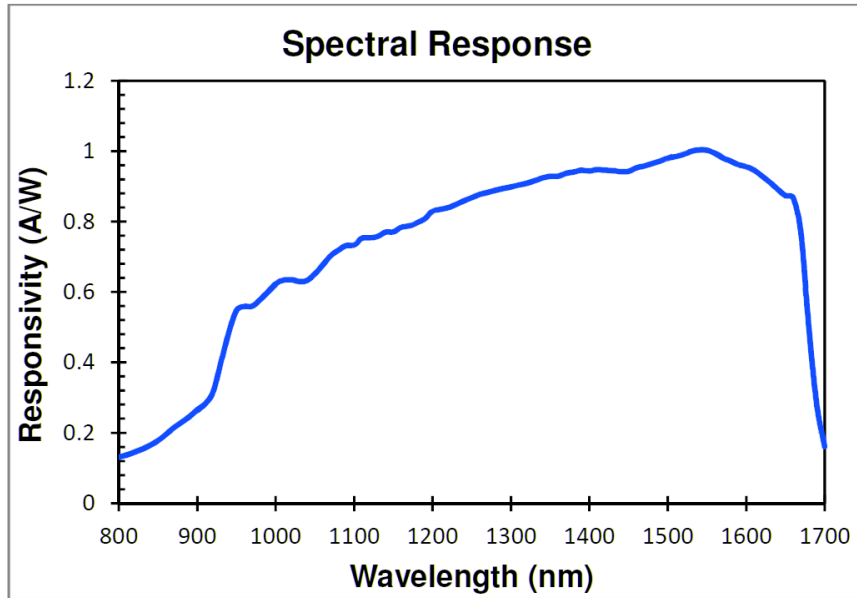
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Spectral Response



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.