

Single Mode Fiber Optical Inline Tap Power Monitor

(SM, PM, 750nm to 2300nm, Directional and Unidirectional)



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Applications

- Channel Monitoring
- Power Monitoring in Optical
- Interface Modules
- Gain Monitoring for Amplifier
- DWDM System Monitoring

Features

- Integrated
- Low Loss Device
- Custom Tap Ratios Available
- Compact Design

The Tap Optical Power Monitor is a hybrid fiber optical passive component that integrates a thin-film tap of flat spectral response with a high sensitivity PIN photodiode for power monitoring applications. The Power Monitor minimizes component assembly costs and module footprint while increasing module design efficiency by facilitating fiber Management.

The Power Monitor combines the functionality of an optical coupler and a photodiode while delivering low insertion loss and low dark current with high temperature stability over a wide wavelength range. Our directional version works well from 1260nm to 1620nm band.

Due to their high sensitivity to electrostatic discharge, warranty coverage applies only to fully metal covered modules the benchtops, which include proper protection. Other versions of the lasers and photodetectors are not covered by any warranty. Please use them with great caution.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	780		2300	nm
Tap Ratio	1	3	5	%
Insertion Loss ^[1]	0.3	0.5	1	dB
Responsivity ^[2]	8	25	45	mA/W
Input Power	-45		27	dBm
WDL		0.02		dB/nm
PDL ^[3]		0.03	0.05	dB
Polarization extinction ratio ^[4]	18	23		dB
Tensile load		5		N
Return Loss		45		dB
Dark Current at 23°C		0.4	1.0	nA
Directivity ^[5]		None or >25		dB
Capacitance		0.7	0.9	pF
Optical Power Handling			0.5	W
Reverse Voltage		5	20	V
Rise/Fall Time		0.3		ns
Cut-Off Frequency		2		GHz
Operating Temperature	-30		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 1209 and 1221			

Notes:

- [1]. Insertion Loss excluding connectors.
- [2]. It is tap ratio and input optical power dependent. 1% corresponds to the minimum value with sufficient optical input power.
- [3]. Single Mode Fiber version only.
- [4]. PM Fiber version only.
- [5]. Directivity defines the responsivity contrast between the case that light power comes from input fiber port and the case that light power comes from output fiber port. From 1260 to 1620nm.

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 once the package is removed.

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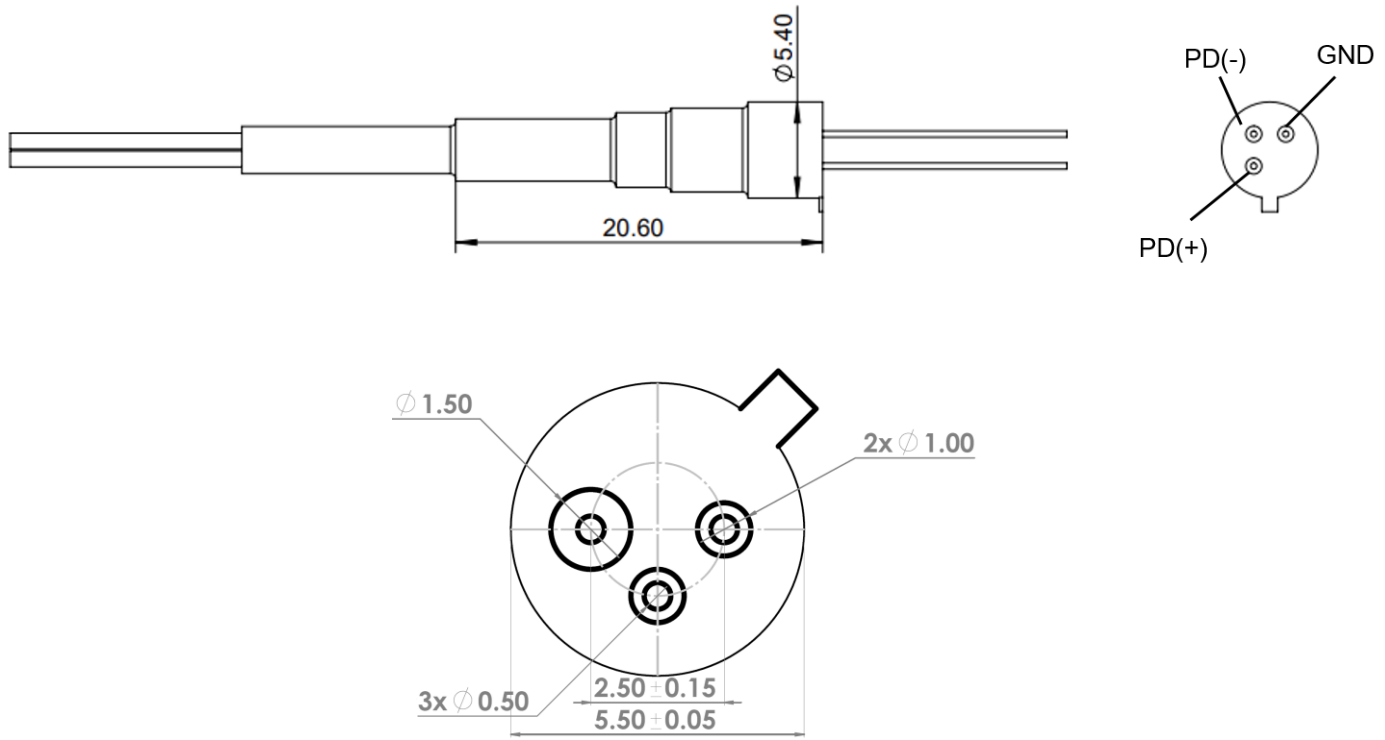
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Mechanical Footprint Dimensions (mm)



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

Ordering Information (Part Number)

Prefix	Tap ratio	Wavelength	Directivity	Package Type	Fiber Type	Fiber Cover	Fiber Length	Connector ^[1]
TAMR-	3% = 33 5% = 55 Special = 00	1260~1620 = 1 1880 = 2 2000 = 3 1060 = 4 980 = 9 850 = 8 780 = 5 630 = 6 Special = 0	None = 1 Yes = 2	Standard = 1 Special = 0	SMF-28 = 1 PM1550 = 5 SM600 = 6 Hi780 = 7 SM800 = 8 Hi1060 = 3 SM1950 = 2 50/125 = 4 PM630 = A PM780 = B PM850 = C PM980 = D PM1950 = E	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 LC/APC = A LC/UPC = U Special = 0

[1]. 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.

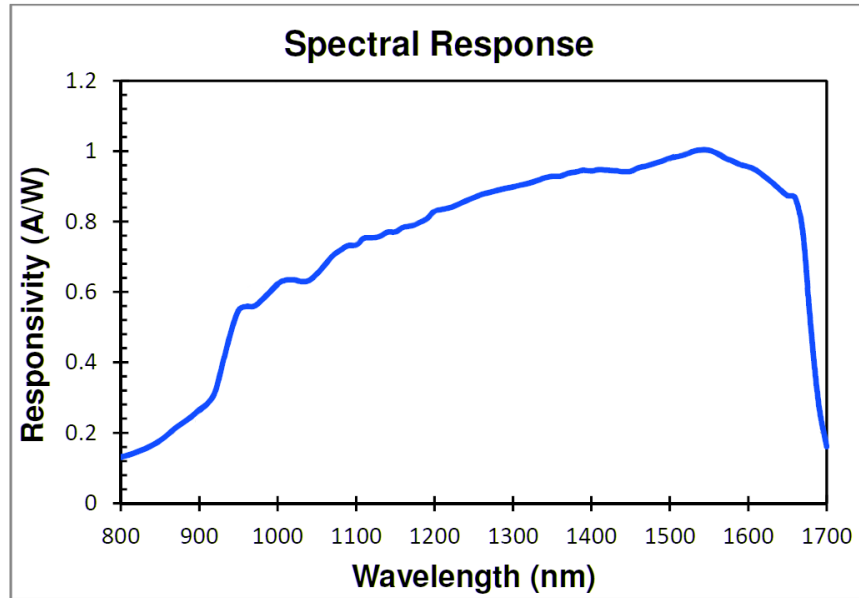
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Spectral Response



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 handling by expanding the core side at the fiber ends.

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Caution Electrostatic Sensitivity



- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots



Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 μm .

Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

*IEC is a registered trademark of the International Electrotechnical Commission.