

In-line Optical Power Monitor – Continuous Fiber

(Ultra-Broad Band, Low Loss, High Power, High Directivity, All Fiber Types, All Wavelengths)

(Protected by U.S. Patent No: 9535218)



DATASHEET

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Agiltron ILPM Series Fiber Optic Tap Power Monitors deliver unmatched performance for in-line optical power measurement and precision power control. They feature ultra-low insertion loss, high directivity, high power handling capability, minimal polarization and wavelength dependence, and low cost. The ILPM Series is based on a patented design that taps a portion of light through a groove formed along the side of a continuous optical fiber. This approach eliminates the need for lenses and optical coatings typically used in conventional fiber tap monitors, resulting in superior performance and reliability. The continuous-fiber structure is particularly well suited for compatibility with various fiber types, ultra-broad operating wavelengths, and high-power applications. Each power monitor is packaged in a miniature ceramic housing that integrates a GaAs or silicon PIN photodiode. The devices are qualified to meet GR-1209 and GR-1221 standards. Due to their high sensitivity to electrostatic discharge (ESD), warranty coverage applies only to fully metal-covered modules with proper ESD protection. Handle these devices with extreme care and avoid direct hand contact at all times.

Applications

- ASE light sources
- EDFA gain modules
- Raman amplifiers
- Optical channel monitoring
- Optical fiber test instruments

Features

- Low insertion loss
- Ultra low return loss
- Flat broadband response
- Low PDL
- High directivity
- High reliability

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	300 -2000			nm
Responsivity ^[1]	5	20	60	mA/W
Polarization Stability (PM Fiber)	0.1	0.2	0.25	dB
Insertion Loss	0.2	0.4	0.6	dB
Polarization Dependent Loss ^[2]			0.01	dB
Polarization Extinction Ratio (PM Fiber)	28	30	38	dB
Directivity ^[3]	25	28	40	dB
Return Loss		55		dB
Max Optical Power ^[4]		1	500	W
Dark Current@-5V, 23C			1	nA
3dB bandwidth@-5V bias	10	50	200	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 depended.
- [2]. PDR, responsivity variation with polarization, only for non-PM fiber version.
- [3]. The responsivity ratio between forward and backward directed light.
- [4]. Need to specify the max level so that the device can be optimized to avoid saturation.

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.



Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

Rev 06/19/26

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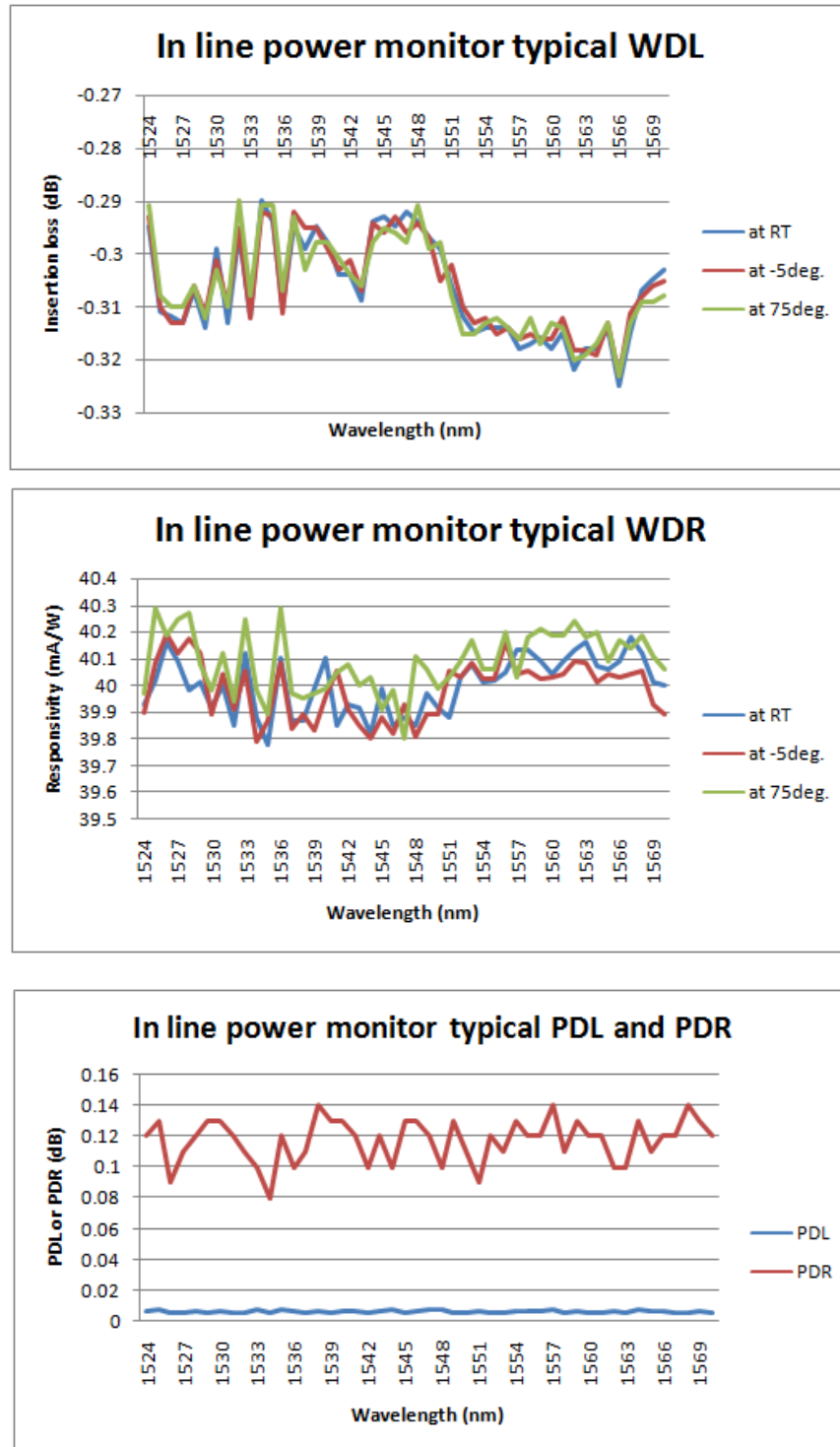
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Typical Performance with SMF-28e Fiber



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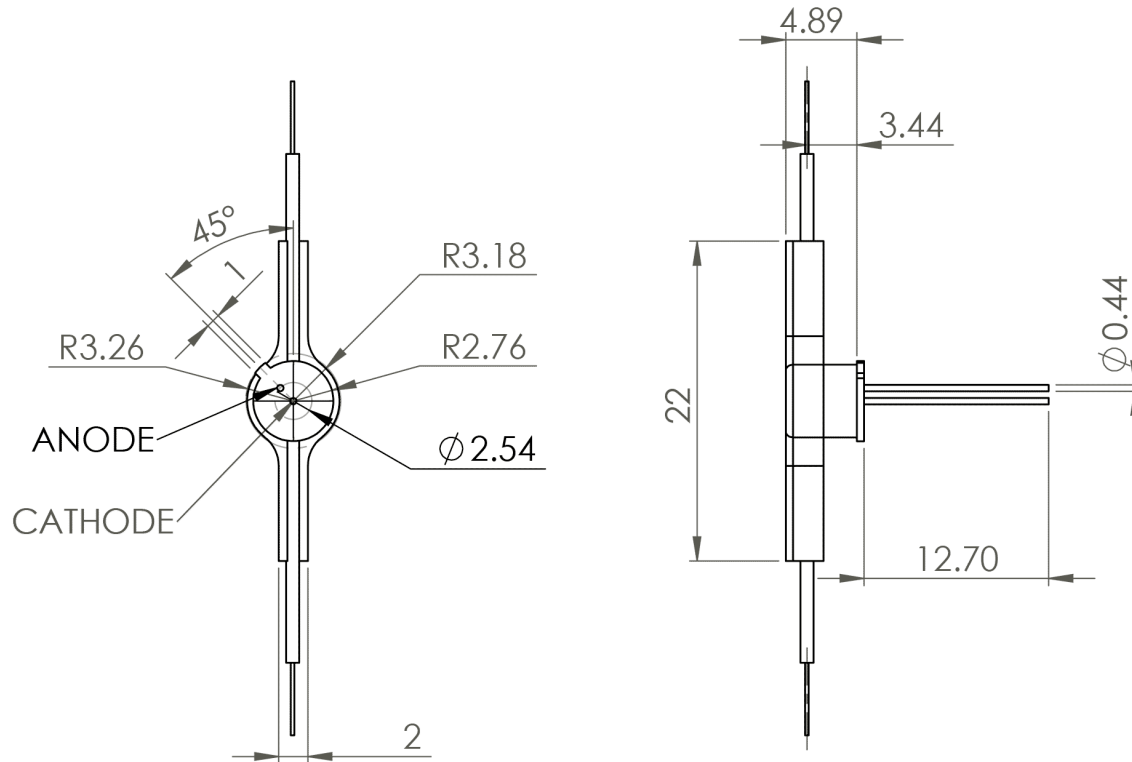
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Mechanical Dimensions (mm)



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

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Ordering Information (Part Number)

Prefix	Tap ratio	Wavelength	Max Power	Package Type	Fiber Type	Fiber Cover	Fiber Length	Connector ^[1]	Grade ^[2]
ILPM-	1% = 01 3% = 03 5% = 05 0.1% = 06 0.3% = 07 0.5% = 08 0.7% = 09 Special = 00	1550 = 5 350 = 3 450 = 4 530 = A 850 = 8 1060 = B 1310 = 3 650 = 6 2000 = 2 750 = 7 950 = 9 Special = 0	0.5W = 05 0.2W = 02 1W = 10 5W = 50 10W = 1A 50W = 5A 100W = 1B 200W = 2B 300W = 3B 400W = 4B 500W = 5B 1kW = 1C	Component = 1 On Amplifier PCB = 2 Benchtop = 3	SMF28 = 01 Select Below	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 SMA = S Special = 0	Regular = 1 Space = S Directional = D

[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.

[2] The space-grade package incorporates NASA-approved low-outgassing epoxy and has successfully passed high-vacuum testing to verify the detector package's hermetic sealing integrity and long-term reliability under space environment conditions.

Fiber Type Selection Table:

01	SMF-28	34	PM1550	71	MM 50/125μm
02	SMF-28e	35	PM1950	72	MM 62.5μm
03	Corning XB	36	PM1310	73	MM 105/125μm
04	SM450	37	PM400	74	MM200 μm
05	SM1950	38	PM480	75	MM300 μm
06	SM600	39	PM630	76	MM400 μm
07	Hi780	40	PM850	77	MM600 μm
08	SM800	41	PM980	78	IRZS23
09	SM980	42	PM780	79	IRFS32
10	Hi1060	43	PM350	80	PCF
11	SM400	44	PM405	81	UV180nm
12		45	PM460	82	LMA-PM-10
13		46		83	MM 1 mm
				84	MM800 μm

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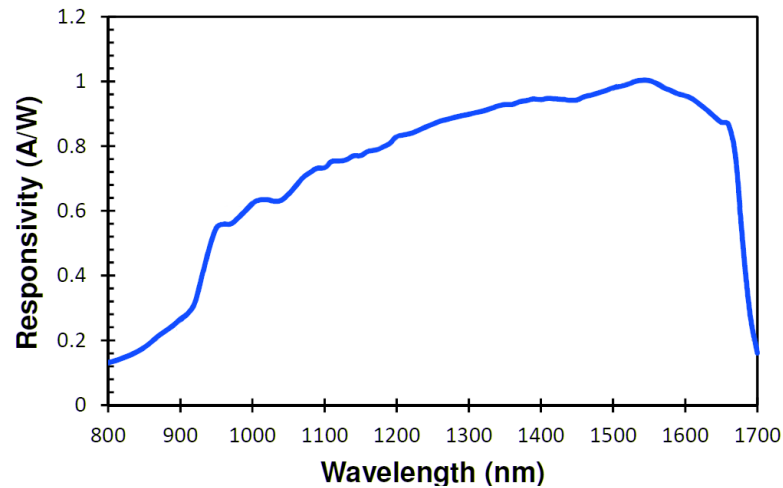
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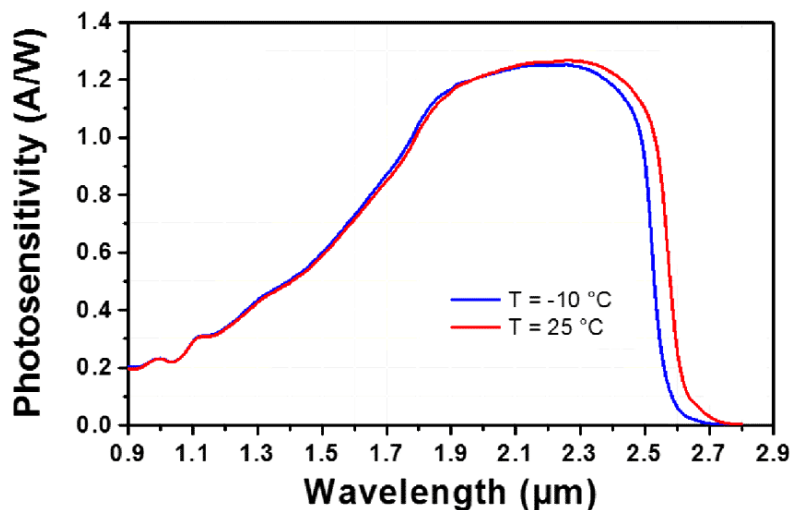
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Spectral Response

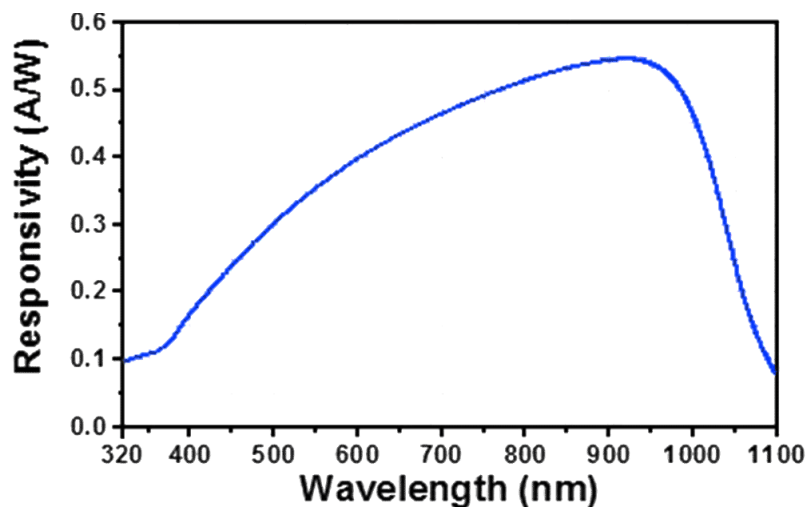
■ GaAs Detector



■ Extended GaAs Detector



■ Silicon Detector



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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.

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