

8 GHz Preamp Photoreceiver Module

Analog and Digital, 1100-1600nm, DC Coupling



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Features

- 8 GHz Bandwidth
- InGaAs-PIN
- Differential Output

Applications

- RF Over Fiber
- Analog and Digital Link
- Other Optical Fiber Systems

The FRXM Photoreceiver is designed for high-speed and high sensitivity analog and digital applications, featuring a high bandwidth PIN photodiode and a linear and low noise preamplifier. The module incorporates a highly stable optical coupling system. The RF output is differential, utilizing dual "+" and "-" SMA connectors, which reduces susceptibility to external noise and electromagnetic interference (EMI) while providing high common-mode rejection for superior signal integrity. Alternatively, either connector can be used as a single-ended output relative to ground, though without the advantages of differential operation. The FRXM includes a low-noise power supply for simple, plug-and-play operation.

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	1100		1600	nm
Differential Conversion Gain				
PIN Responsivity	0.7	0.9		A/W
AC Transimpedance	2000	2500		Ω
Maximum Output Voltage Swing		250		mV
S21 Bandwidth	7.0	8.0		GHz
Output Return Loss		8.0		dB
Cut Off Low Frequency		50		kHz
Sensitivity	-19		-16	dBm
Maximum Overload		2		dBm
Optical Return Loss	27			dB
RF Connector	2.92 mm, Female (K/SMA Compatible), GPPO			
Storage Temperature	-40		85	$^{\circ}\text{C}$
Operating Temperature	-5		70	$^{\circ}\text{C}$



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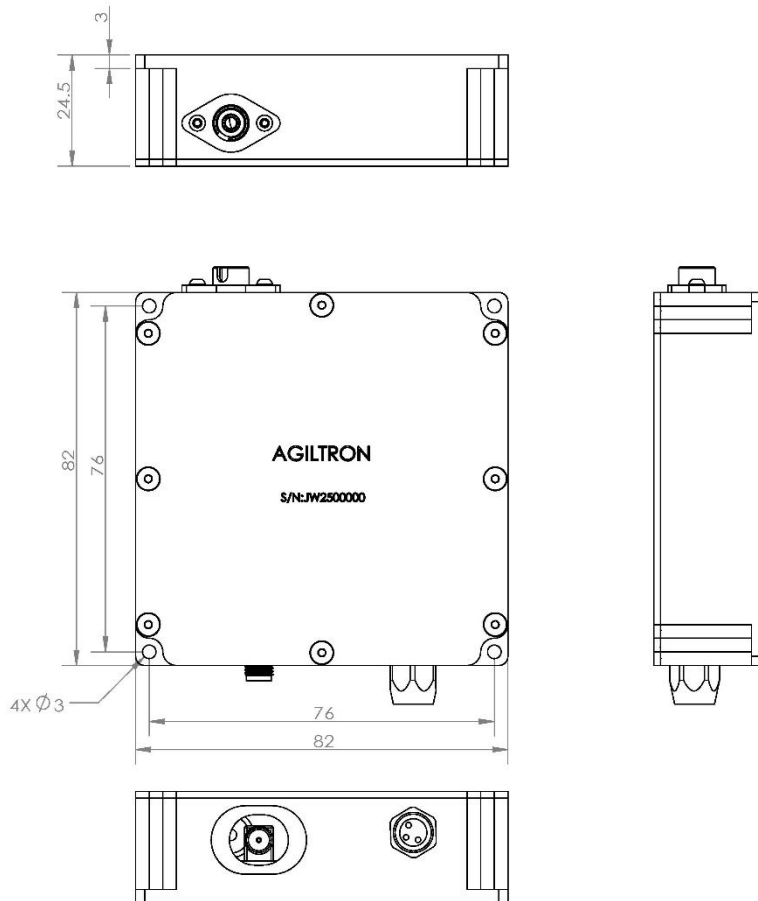
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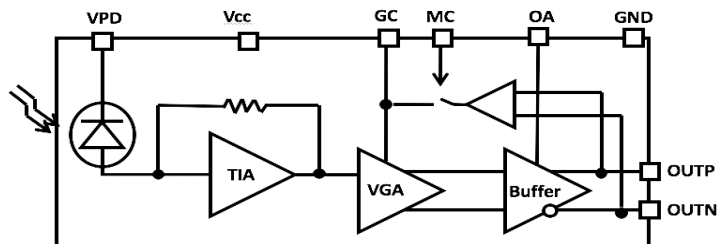
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Dimensions (mm)



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

Function Diagram



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S21 Graph

Ordering Information (Part Number)

	1	1	8	1	2	☐ ☐	3	☐
Prefix	Detector Type	Wavelength Range	Bandwidth		Module ^[1]	Configuration	Connector ^[2]	RF Connector
FRXM-	PIN = 1 APD = 2	1200-1600nm = 1	8GHz = 8		Non = 1 Yes = 2	Standard = 11 Differential = 22	FC/APC = 3 Special = 0	GPPO = G K = 2

[1]. Module contains driver and power supply.

[2]. 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.

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Operation Instruction

1. Connect the optical fiber input port to the signal source.
2. Connect the RF output port to the readout instrument.
3. Plug in the provided power supply to power the device. The LED will turn on.
4. The unit will operate with the performance specified in the test report.
5. If the device is not working, contact us via the sales email. **Do not open the enclosure** — doing so will invalidate the one-year warranty.

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.



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Caution Electrostatic Sensitivity



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



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