PHOTONICSystems, Inc.®
We Light the Way®

PSI-1600-10AT
Amplified RF Photonic Transmitter

Features

» Wideband up to 12 GHz
» Integrated RF Preamp
» High Dynamic Range
» Customization Available
» Fully Integrated Module
» Complete Link Option

Applications

» Replaces Coax Cable
» Radio Over Fiber
» Radio Astronomy
» Remote Antenna Sites
» Phased Array Radar
» EW/ECM
» Optical Delay Lines
» SATCOM

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Description

The PSI-1600-10AT is a high performance microwave photonic transmitter with an RF pre-amplifier providing wideband electrical to optical (E/O) conversion for RF input signals beyond 12 GHz. Along with a PSI-1600-10UR receiver module, the PSI-1600-10AT provides a complete fiber optic link solution designed to replace low loss coaxial cable or microwave repeaters for applications in military systems, satellite communications, radio astronomy, optical delay lines, cellular/wireless base stations or other RF/Microwave related systems.

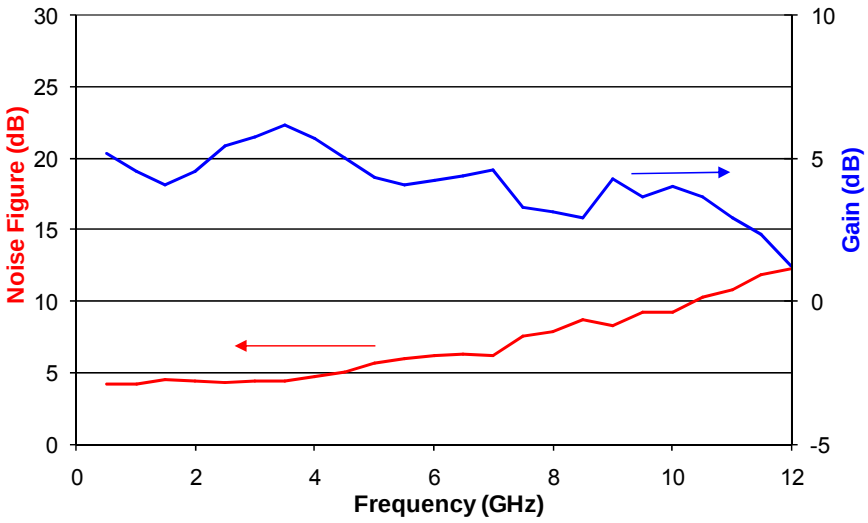
Custom RF performance, packaging, connectors and link gain configurations are also available. **Please contact PSI with your application needs.**

RF Link Performance

Parameter	Condition	Min	Typ	Max	Units
Operating Bandwidth		0.1		12	GHz
Link Gain	@ 5 GHz		0	2	dB
Noise Figure	@ 5 GHz		8	9	dB
Input IP3	@ 5 GHz	-10			dBm
Spur Free Dynamic Range	1 Hz band @ 10GHZ	101	103		$dB/Hz^{2/3}$
Gain Flatness	1-12 GHz			±3	dB
	Any 100 MHz band			±0.5	dB

Note: RF link performance specifications with -15 dBm RF_{in} and using the PSI-1600-10UR receiver module

PSI-1602-10L Typical Response Over Frequency



Rev. 5-12

RF Characteristics

Parameter	Condition	Min	Typ	Max	Units
Maximum RF Input				-14	dBm
Input 1 dB Compression		-18			dBm
RF Input Impedance			50		Ω
RF Return Loss		9.5	15		dB
RF Input Connector	SMA Female				

Optical Characteristics

Parameter	Condition	Min	Typ	Max	Units
Wavelength		1520	1550	1556	nm
Optical Output Power		0.5		10	mW
Optical Output Connector	FC/APC Standard, please contact PSI for other options				

Notes:
1. User supplied fiber optic cable should be singlemode Corning SMF-28 or equivalent
2. To minimize distortion caused by optical reflections the optical cable return loss should be >55 dB using angled-polished connectors
3. ITU channel wavelength selection is possible, please contact PSI with requirements

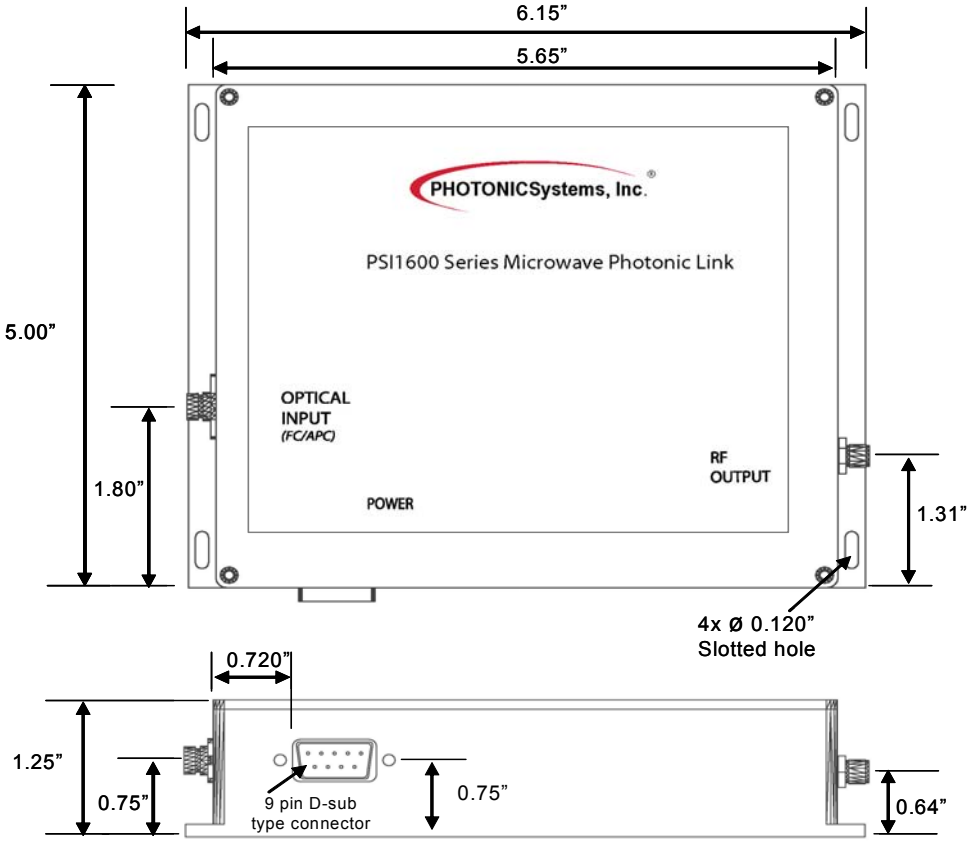
Environmental Characteristics

Parameter	Condition	Min	Typ	Max	Units
Operating Temperature	Within Specifications	-5		70	°C
Storage Temperature	No damage	-40		85	°C
Humidity		0		95	%

DC Power and 9-pin D-Connector Pin Out

Pin	Description
1	+12 V_{DC} at 300mA max.
2	Ground
3	+5 V_{DC} at 1.8 A max.
4	Ground
5	-5 V_{DC} at 1.0 A max.
6	NC
7	Ground
8	Ground
9	NC

Mechanical Dimensions



Ordering Information

PSI Part Number	Description
PSI-1600-10AT	Amplified E/O Transmitter Module (Final tested with PSI-1600-10UR)
PSI-1602-10L	Microwave Photonic Link Includes : • PSI-1600-10AT Amplified Transmitter Module • PSI-1600-10UR Receiver Module
PSI-1604-10L	Microwave Photonic Link Includes : • PSI-1600-10AT Amplified Transmitter Module • PSI-1600-10AR Amplified Receiver Module