



### Features

- » Extremely Wideband >20 GHz
- » Includes RF Amplification
- » 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-1600-20AT is a high performance microwave photonic transmitter with RF preamplifier providing wideband electrical to optical (E/O) conversion for RF input signals up to 20GHz. Along with a PSI-1600-20AR amplified receiver module, the PSI-1600-20AT 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.

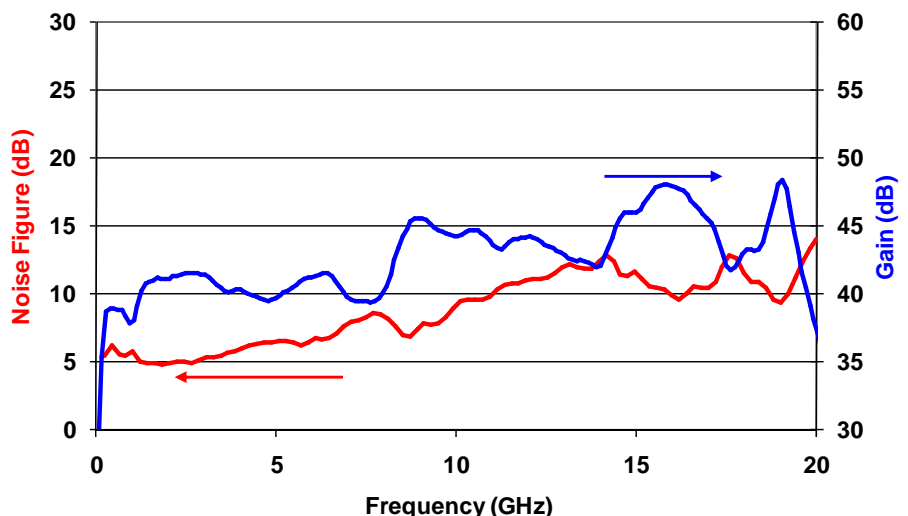
Custom RF performance, packaging, connectors and link gain configurations are available. **Please contact PSI with your application needs.**

### RF Link Performance

Parameter	Condition	Min	Typ	Max	Units
Operating Frequency		0.1		20	GHz
Nominal Link Gain	@ 10 GHz		44	50	dB
Noise Figure	@ 10 GHz		12	15	dB
Input IP3	@ 10 GHz	-15	-13		dBm
Spur Free Dynamic Range	1 Hz band @ 10 GHz	95	97		dB/Hz <sup>2/3</sup>
Gain Flatness	1-20 GHz			±4	dB
	Any 100 MHz band			±0.5	dB

Note: RF link specifications with PSI-1600-20AR amplified receiver and a 3m jumper.

PSI-1604-20L Typical Response Over Frequency



### RF Characteristics

Parameter	Condition	Min	Typ	Max	Units
Maximum RF Input				-14	dBm
Input 1 dB Compression		-18			dBm
RF Input Impedance			50		$\Omega$
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

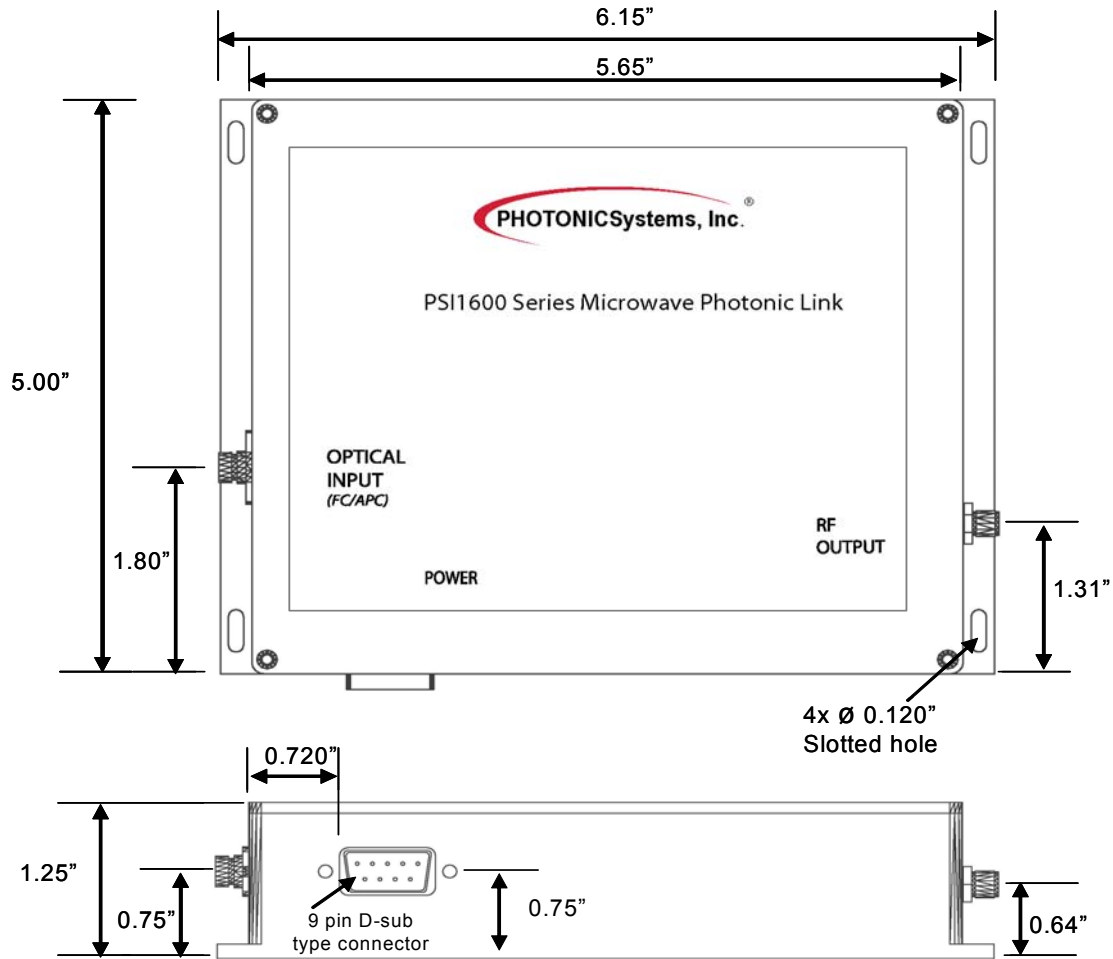
### Environmental Characteristics

Parameter	Condition	Min	Typ	Max	Units
Operating Temperature	Within Specifications	-5	25	70	$^{\circ}\text{C}$
Storage Temperature	No damage	-40		85	$^{\circ}\text{C}$
Humidity	Non-condensing	0		95	%

### DC Power and 9-pin D Connector Pin Out

Pin	Description
1	+12 V <sub>DC</sub> @ 400mA max
2	Ground
3	+5 V <sub>DC</sub> @ 1.8A max.
4	Ground
5	-5 V <sub>DC</sub> @ 1.5A max.
6	NC
7	Ground
8	Ground
9	NC

## Mechanical Information



## Ordering Information

PSI Part Number	Description
PSI-1600-20AT	Amplified E/O Transmitter Module
PSI-1602-20L	RF Photonic Link Includes: <ul style="list-style-type: none"> <li>• PSI-1600-20AT Amplified RF Photonic Transmitter Module</li> <li>• PSI-1600-20UR RF Photonic Receiver Module</li> </ul>
PSI-1604-20L	RF Photonic Link Includes: <ul style="list-style-type: none"> <li>• PSI-1600-20AT Amplified RF Photonic Transmitter Module</li> <li>• PSI-1600-20AR Amplified RF Photonic Receiver Module</li> </ul>