



### Features

- » Includes RF Amplification
- » Extremely Wideband >20 GHz
- » 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-1601-20AR is a high performance microwave photonic receiver with RF post-amplifier providing wideband optical to electrical (O/E) conversion for RF signals up to and beyond 20 GHz. Along with a PSI-1600-20AT amplified transmitter module, the PSI-1600-20AR 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. Part of the PSI-1600-20L series of microwave links, the PSI-1600-20AR receiver includes RF amplification.

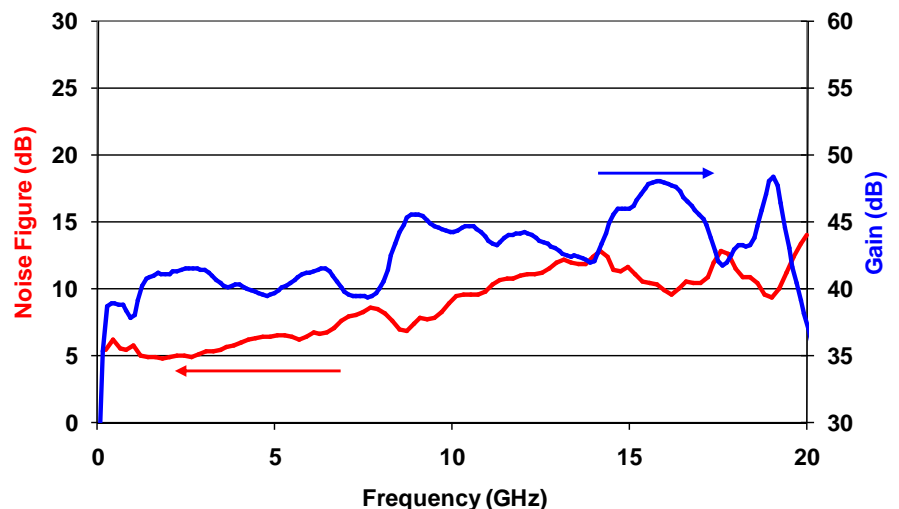
Custom performance, packaging, connectors and RF performance configurations are available. **Please contact PSI with your application needs.**

### 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-1600-20AT transmitter module and a 3m jumper.

PSI-1604-20L Typical Response Over Frequency



### RF Characteristics

Parameter	Condition	Min	Typ	Max	Units
Frequency Range		0.04		20	GHz
RF Output Impedance			50		$\Omega$
RF Return Loss		9.5	15		dB
RF Output Connector		SMA Female			

### Optical Characteristics

Parameter	Condition	Min	Typ	Max	Units
Wavelength		1300		1600	nm
Optical Input Power				10	dBm
Responsivity	@ DC	0.7	0.85		A/W
Optical Output Connector	FC/APC Standard, please contact PSI for other options				

Note: The user supplied fiber optic cable should be singlemode Corning SMF-28 or equivalent. In order to minimize distortion caused by optical reflections the optical cable return loss should be >55 dB (angled-polished connectors).

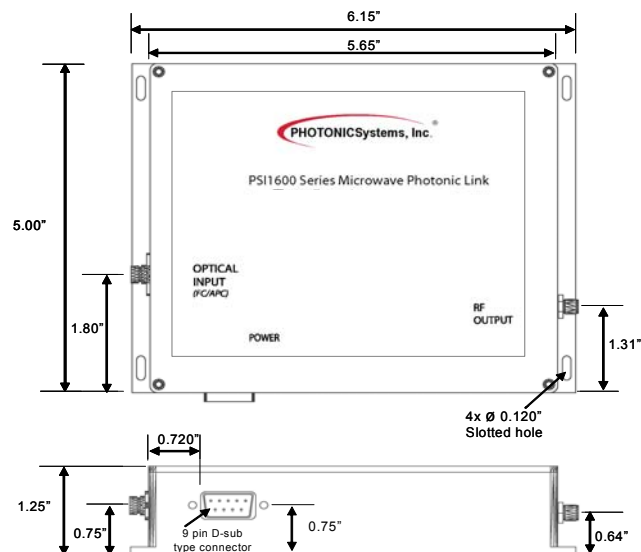
### Environmental Characteristics

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

### DC Power and D-Connector

Pin	Description
1	+15 V <sub>DC</sub> @ 400mA max.
2	Ground
3	NC
4	Ground
5	NC
6	NC
7	Ground
8	Ground
9	NC

### Mechanical Dimensions



### Ordering Information

PSI Part Number	Description
PSI-1600-20AR	Amplified O/E Receiver Module
PSI-1603-20L	RF Photonic Link Includes (PSI-1600-20UT and PSI-1600-20AR)
PSI-1604-20L	RF Photonic Link Includes (PSI-1600-20AT and PSI-1600-20AR)