



### Features

- » 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-1601-20xR is a high performance microwave photonic receiver providing wideband optical to electrical (O/E) conversion for RF signals beyond 20 GHz. Along with a PSI-1600-20xT transmitter module, the PSI-1600-20xR 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-1600-20UR receiver does not incorporate any RF post-amplifiers while the PSI-1600-20AR includes a wideband RF post-amplifier. Custom packaging, connectors and RF performance configurations are available. Please contact PSI with your application needs.

### RF Link Performance

Parameter	Condition	1600-20UR	1600-20AR	Units
Operating Frequency		0.04 - 20	0.1 - 20	GHz
Link Gain	@ 5 GHz	-32	0	dB
Noise Figure	@ 5 GHz	41	10	dB
Input IP3	@ 5 GHz	21	-10	dBm
Spur Free Dynamic Range	1 Hz band @ 5 GHz	107	103	dB/Hz <sup>2/3</sup>
Gain Flatness	1 - 20 GHz	±1.5	±4	dB
	Any 100 MHz band	±0.5	±0.5	dB

Note: Typical RF link specifications with PSI-1600-20UT and a 3m jumper at 25°C

### Ordering Information

PSI Part Number	Description
PSI-1600-20UR	O/E Receiver Module
PSI-1600-20AT	O/E Receiver Module with Wideband RF Post-amp
PSI-1601-20L	Link Includes PSI-1600-20UT and PSI-1600-20UR
PSI-1602-20L	Link Includes PSI-1600-20AT and PSI-1600-20UR
PSI-1603-20L	Link Includes PSI-1600-20UT and PSI-1600-20AR
PSI-1604-20L	Link Includes PSI-1600-20AT and PSI-1600-20AR

### RF Characteristics

Parameter	Condition	Min	Typ	Max	Units
Frequency Range		0.04		20	GHz
RF Output Impedance			50		Ω
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 (Others Available Upon Request)			

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	°C
Storage Temperature	No damage	-40		85	°C
Humidity	Non-condensing	0		95	%

### DC Power and Control

Pin	PSI-1600-20UT		PSI-1600-20AT	
	Desc.	I <sub>MAX</sub>	Des.	I <sub>MAX</sub>
1	+12 V <sub>DC</sub>		+12 V <sub>DC</sub>	
2	Ground		Ground	
3	+5 V <sub>DC</sub>		+5 V <sub>DC</sub>	
4	Ground		Ground	
5	-5 V <sub>DC</sub>		-5 V <sub>DC</sub>	
6	NC		NC	
7	Ground		Ground	
8	Ground		Ground	
9	NC		NC	

### Mechanical Dimensions

