



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

RF Link Performance

Parameter	Condition	1600-20UT	1600-20AT	Units
Operating Frequency		0.04 - 20	0.1 - 20	GHz
Nominal Link Gain	@ 5 GHz	-32	0	dB
Noise Figure	@ 5 GHz	41	10	dB
Input IP3	@ 5 GHz	27	-10	dBm
Spur Free Dynamic Range	1 Hz band @ 5GHz	107	103	dB/Hz ^{2/3}
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-1600-20UR and a 3m jumper at 25°C

Ordering Information

PSI Part Number	Description
PSI-1600-20UT	E/O Transmitter Module
PSI-1600-20AT	E/O Transmitter Module with Wideband RF Preamp
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
Maximum RF Input	1600-20UT Model			+20	dBm
				0	dBm
Input 1 dB Compression	1600-20UT Model	+17			dBm
	1600-20AT Model	-5			dBm
RF Input Impedance			50		Ω
RF Return Loss		9.5	15		dB
RF Input Connector		SMA Female			

Optical Characteristics

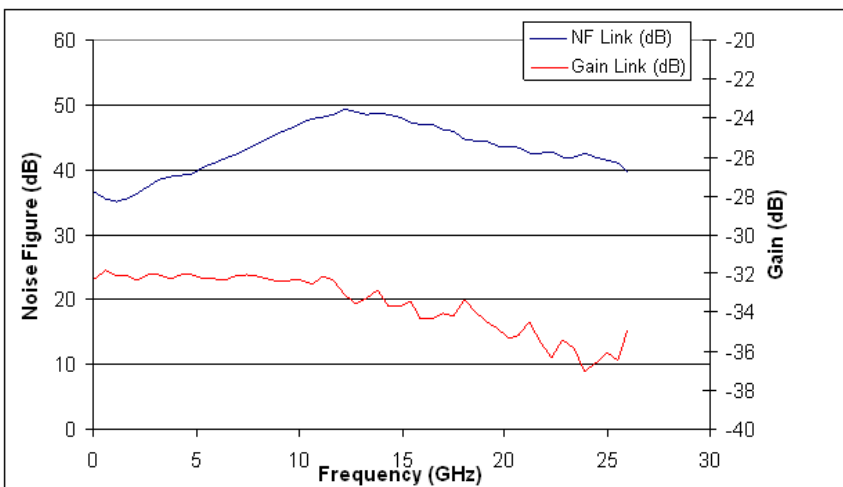
Parameter	Condition	Min	Typ	Max	Units
Wavelength		1520	1550	1556	nm
Optical Output Power		0.5		10	mW
Connector Return Loss		55			dB
Optical Output Connector		FC/APC (Others Available Upon Request)			

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	-5	25	75	$^{\circ}\text{C}$
Storage Temperature	No damage	-40		85	$^{\circ}\text{C}$
Humidity	Non-condensing	0		95	%

PSI-1601-20L Typical Response



DC Power and Control

Pin	PSI-1600-20UT		PSI-1600-20AT	
	Description	Max Current	Description	Max Current
1	NC		+12 V _{DC}	350 mA
2	Ground		Ground	
3	+5 V _{DC}	1.8 A	+5 V _{DC}	1.8 A
4	Ground		Ground	
5	-5 V _{DC}	1.0 A	-5 V _{DC}	1.0 A
6	NC		NC	
7	Ground		Ground	
8	Ground		Ground	
9	NC		NC	

Mechanical Dimensions

