

PT-1KW Series Pulse TWT Microwave Power Amplifiers

1.0 – 18 GHz • 1,000 – 2,000 watts, Minimum Rated Power

The PT series of KW Pulse amplifiers built by IFI; are high power, "State-of-the-art" Pulse TWT amplifiers specifically designed for microwave testing applications. Our elegant approach provides 1,000-2,000 Watts of pulse power for various frequency ranges from 1.0 to 18.0 Gigahertz in various packages that offers all the controls and communications needed for today's automated test systems. These amplifiers have field proven reliability and unsurpassed performance as the best in the industry.

From the ground up the PT series amps are built to withstand rugged handling, whether it's being shipped to you or hauled around from site to site. Our amplifiers feature modular construction and this concept of modular design minimizes internally produced EMI signal leakage and provides easy access for field service and rapid turnaround at depot level repair facilities. Redundant thermal and airflow sensors prevent the TWT from overheating. In addition, high VSWR protection is built in.

The PT series "State-of-the-art" interface is sophisticated yet simple to use. The backlit LCD screen shows forward/reverse power indication, status and self-diagnostic information. All the amplifiers operating parameters are simultaneously available in the amplifier front panel display as well as over the remote bus. Selection switches allow you to switch the amplifier to the desired mode of operation for local control if the unit is not being operated remotely. For computer automation, both an RS-232 and IEEE-488 interface are included. To meet individual requirements, the PT series amplifiers can be easily customized with our available options that may be required for your application.

With all this capability and its reliable elegant design, the PT series amplifiers are the perfect amplifier for your testing needs. IFI also offers different size packages to best suit your application. We have standard 10.5" high models for most commercial systems, but we also offer an 8.75" high version for space limited applications.

IFI Pulse TWT Amplifier Features:

- ∞ Solid State Power Supply Designs
- ∞ Instantaneous Broadband Frequency ranges
- ∞ Modular Design Construction
- ∞ Rugged construction & High Reliability
- ∞ Backlit LCD Display
- ∞ Integrated Force Air Cooling
- ∞ Self-diagnostic circuitry
- ∞ IEEE-488 interface, RS232





Models & General Specifications:						
Model Number	Frequency Range (GHz)	Rated Power (kW minimum)	Gain (dB min)	Mains (kVA)	Weight (pounds)	Size (Inches)
PT21-1KW	1.0-2.0	1.0	60	1.5	85	10.5"Hx19"Wx25.25D
PT21-2KW	1.0-2.0	2.0	63	1.5	85	10.5"Hx19"Wx25.25D
PT251-1KW	1.0-2.5	1.0	60	1.5	75	10.5"Hx19"Wx25.25D
PT251-2KW	1.0-2.5	2.0	63	1.5	75	10.5"Hx19"Wx25.25D
PT42-1KW	2.0-4.0	1.0	60	1.5	75	10.5"Hx19"Wx25.25D
PT42-2KW	2.0-4.0	2.0	63	1.5	75	10.5"Hx19"Wx25.25D
PT82-1KW	2.0-8.0	1.0	60	1.5	75	10.5"Hx19"Wx25.25D
PT82-2KW	2.0-8.0	2.0	63	1.5	75	10.5"Hx19"Wx25.25D
PT825-1KW	2.5-8.0	1.0	60	1.5	75	10.5"Hx19"Wx25.25D
PT825-2KW	2.5-8.0	2.0	63	1.5	75	10.5"Hx19"Wx25.25D
PT84-1KW	4.0-8.0	1.0	60	1.5	75	10.5"Hx19"Wx25.25D
PT84-2KW	4.0-8.0	2.0	63	1.5	75	10.5"Hx19"Wx25.25D
PT128-1KW	8.0-12.0	1.0	60	1.5	75	10.5"Hx19"Wx25.25D
PT128-2KW*	8.0-12.0	2.0	63	1.5	75	10.5"Hx19"Wx25,25D
PT1812-1KW	12.0-18.0	1.0	60	1.5	75	10.5"Hx19"Wx25.25D
PT1812-2KW*	12.0-18.0	2.0	63	1.5	75	10.5"Hx19"Wx25.25D
PT188-1KW	8.0-18.0	1.0	60	1.5	75	10.5"Hx19"Wx25,25D
PT188-2KW*	8.0-18.0	2.0	63	1.5	75	10.5"Hx19"Wx25.25D
PT186-1KW	6.5-18.0	1.0	60	1.5	75	10.5"Hx19"Wx25,25D
PT186-2KW*	6.5-18.0	2.0	63	1.5	75	10.5"Hx19"Wx25.25D

^{*} Over the majority of the band

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Standard Features for IFI PT-Series Pulse TWT Am
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Standard **Features**

VSWR Reflected Power Protection, the unit operates without damage or oscillation into any magnitude of phase or load impedance, Open & Short Circuit Protection.

* Alternate Prime Power (specify at time of order)

GPIB IEEE 488 & RS232 Remote Control

RF Sample Port on the Front Panel, 112R for rear panel

Internal Pre-amplification to obtain rated output power with an input level of 0 dBm or less.

RF Input/Output Connectors on the Front Panel, 118R for rear panel

Internal Systems Diagnostics & Status Indicators

Filament/Beam Elapsed Time Metering in hours

RF Safety Interlock

Forward/Reflected Power Indication simultaneously on Front Panel display

PT- Series Specifications:		
Frequency Range:	As Specified in Model Table	
Rated Output Power:	As Specified in Model Table	
Gain @ Rated Power:	As Specified in Model Table	
Prime Power:	As Required for Customer (Some are listed below)	
Input/output Impedance:	50 ohms	
RF Input/ Sample Connectors:	Type N Female, unless specified otherwise	
	Type SC or 716 Female up to 8 GHz,	
	8-12 GHz is WR90, 12-18 GHz is WR62, 7.5-18 GHz is WRD750, 6.5-18 GHz is WRD650	
RF Output Connector:	Other waveguides available by request or specification (see Option 117)	
Input VSWR/Output VSWR:	2.0:1/ 2.5:1	
Pulse Input:	BNC Female Front Panel {TTL into 50ohms standard}consult factory for special requirements	
Pulse Width Range:	100nsec - 100usec	
PRF Range:	Up to 100 KHz Standard, Higher PRF ranges available consult factory	
Duty Cycle:	6% Standard, Lower & Higher PRF ranges subject to TWT spec.	
Rise & Fall Time:	15 ns nominal; 20 ns maximum	
Pulse to Pulse Jitter:	+/- 5 nsec maximum	
Pulse Width Jitter:(Distortion)	+/- 5 nsec maximum	
Pulse Recovery Time:	150 nsec maximum	
Pulse Delay:	250 nsec maximum / 180 nsec typical	
Pulse Droop:	0.5 dB/100usecs, 0.1dB/10usec	
Power Output Stability:	0.2dB Pulse to Pulse at constant drive level & PRF	
Pulse On/Off Ratio:	$80 \mathrm{dB}$	
Phase Stability Pulse to Pulse:	+/-1 degree nominal	
Temperature:	0° to 50° C operating, -40° to 70° C non-operating	
Humidity:	95% without condensation	
Altitude:	10,000 feet operating, 50,000 non-operating	
Cooling System:	Air cooled, self-contained	
Modulation:	All types, AM, FM, Pulse	
Configuration:	Rack Mount as specified in Model Table	
Spurious Outputs:	<-60 dBc nominal	

Standard Prime Powers:

100, 115, 120 VAC ±10% 50/60 Hz, single phase

200, 220, 230, 240VAC ±10% 50/60 Hz, single phase

100/200 VAC, 115/208 or $200/220/230/240 \text{VAC} \pm 10\%$ 50/60 Hz, three phase Wye or Delta and/or 400 Hz power is available.

Special Prime Powers other then listed are subject to availability

Some Available Options for IFI PT- Series TWT Amplifiers				
Option 103 G/D:	VSWR Reflected Power Protection "Graceful Degradation Feature" which will automatically reduce the input drive and fold back the output			
	power when the average reflected power exceeds a preset limit of 3.0:1.			
	The unit operates without damage or oscillation into any magnitude of phase or load impedance.			
Option 110-1E:	GPIB IEEE-488 RS232 and Ethernet Remote Control			
Option 110-2:	GPIB IEEE-488 and RS 422 Remote Control			
Option 110-3	GPIB IEEE-488 and RS 485 Remote Control			
Option 113:	Chassis Slides for 19" Rack Mounting			
Option 118F or R:	Front Panel RF Connections 118R for Rear Panel RF Connections			
Option 123F or R:	Reflected RF Sample Port -40, -50 or -60dB N or SMA, Front or Rear Panel			

Instruments For Industry

AMPLIFIERS

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Outline Configurations:



