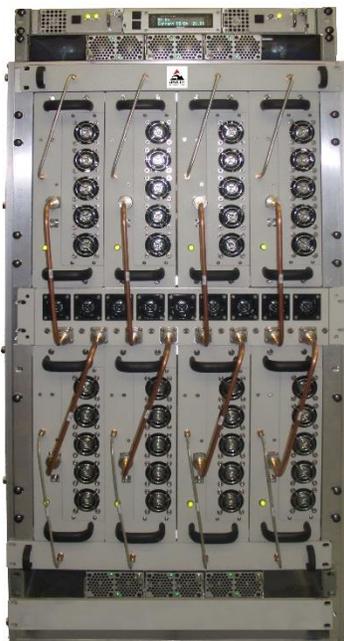


## 12kW Solid State Pulse Amplifier MODEL APRA-L12000A



### Features

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- Modular architecture
- Fast pulse rise/fall times (<100 ns)
- Duty cycle up to 12%
- Minimal pulse droop (<1% @ 100  $\mu$ s)
- High stability (phase and amplitude)
- Gain compensation over temperature
- Remote monitor and control capability via RS485
- Input and output sample monitor ports
- Power factor correction
- Hot swappable elements
- No rear access required for operation or maintenance

### Overview

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The Advantech Wireless Model APRA-L12000A, L-Band solid-state pulse amplifier operates over the band of 1.2 – 1.4 GHz. The peak power at the output connector is 12,000W.

The APRA-L12000A is fully modular. The design of the product is based on Advantech's tradition of high power and high efficiency line of amplifiers.

Built-in features such as duty cycle monitor and pulse width monitor ensure trouble free operation.



## 12kW Solid State Pulse Amplifier MODEL APRA-L12000A

### Description

The design of the APRA pulse amplifier is based on Advantech Wireless' industry proven reliable solid state power amplifiers. The following is a description of the system elements and their salient features.

The APRA pulse amplifier contains the following elements:

- Redundant Input/Driver Module
- Splitter panel, one per amplifier chassis
- RF chassis each containing four 1.5 kW pulse amplifier modules
- Power supply modular package, one per amplifier chassis
- High Power combiner.

### Redundant Input/Driver Module

This 1 RU unit contains hot-swappable 1:1 redundant driver modules and provides the M&C interface for the entire system.

The interface panel provides for:

- Input RS422 DB9 connector for the pulse enabling
- Output RS485 DB9 connector for the serial port interface

The Interface panel is connected to each amplifier module via the blind-mate connectors and also to the power supply shelves.

### Input Splitter panel

The output of the Driver module passes through a 1:2 splitter and then to the 1 RU Input Splitter panel which is a 1:4 splitter. One is associated with each RF chassis. The output ports are accessible from the front. Each output port is connected to the input of each amplifier module.

### Amplifier module

The individual amplifier module provides 1.5 kW of output power. Each amplifier module is pre-adjusted for a normalized phase and gain. The units are hot-swappable. The input and output connectors are on the front of the module and all other connections are via a blind-mate connector at the back of the module. A micro-controller is included in each amplifier module to specify the timing specs and provide an RS485 interface. The amplifier module reports on fault conditions and internal temperature.

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## 12kW Solid State Pulse Amplifier MODEL APRA-L12000A

Technical Specifications			
	Full system	Amplifier Module	
Operating Frequency Range	1.2 – 1.4 GHz		
Peak Output Power	12,000W min (70.8 dBm)	1,800W typical (62.5 dBm)	
Input Drive Level	0 dBm	+28 dBm	
Gain Variation	2dB p-p over frequency range		
Duty Cycle	12% max		
Pulse Width	1 – 100 $\mu$ s		
Pulse Repetition Rate	500 – 1150 pulses/s		
Pulse droop	<1% max at 100 $\mu$ s		
T-rise/T-fall	<100ns		
Harmonics	-45 dBc max		
Non-Harmonic Spur	- 75 dBc		
Input Impedance	50 Ohms		
Input Return Loss	18 dB		
Input Connector	N-type /Female/		
Output Impedance	50 Ohms		
Output Return Loss	18 dB	18 dB	
Output Connector	7/16 type	N-Type	
Gain variation over frequency	2 dB p-p		
Gating Signal	TTL to precede RF pulse by 5 $\mu$ s		
Decay Interval	Amplifier output will cease 2 $\mu$ s after loss of gating signal		
Monitor Output (optional)		Calibrated output sample loop with 48dB attenuation. SMA connector	
Dimensions	19" rackmount 17U high (29.75") 20" deep	H D W	6U (11.5") 17" 4"
Combiner (Qty 1/system)			
Insertion loss	0.8 dB typical		
Power handling capacity	> 12,000W @ 12% duty ratio		
Input connector	Qty 8 N-type		
Output connector	7/16 type		
Power Supply shelf (Qty 2/system)			
Operating Input Voltage	220V nominal (180 – 164V) AC 47-63 Hz or 3phase		
Power factor	0.97		
Total capacity (N+1)	4.5 kW		
Dimensions	19" rackmount, 1U high, 17" deep		

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## 12kW Solid State Pulse Amplifier MODEL APRA-L12000A

Splitter Panel (Qty 2/system)	
Output ports	4
Input/Output connectors	SMA (F)
Dimensions	19" rackmount 1U high
Interface Panel (Qty 1/system)	
Gating signal connector	DB9 P
Serial port Interface	RS485 DB9S
Total power consumption	4.5kW max
Cooling system	Forced air
Environmental Conditions	
Operating temperature range	0°C to +50°C
Non-operating	-55°C to +85°C
Humidity	5% to 95%, non-condensing
Altitude	10,000' AMSL, derated 2°C/1000' from AMSL

### SAFETY FEATURES

To protect the amplifier from permanent damage, the following features are incorporated in the amplifier modules:

- Automatic shutdown in the event of pulse width exceeding 120  $\mu$ s
- Automatic shutdown with excessive duty cycle
- Amplifier output will cease 2  $\mu$ s after loss of gating signal

Ref.: PB-APRA-L12000A -001-18243

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