RADITEK

HPA 2.5KW
SSPA 1.7-2.1GHz

S Band POWER AMPLIFIER

Tune to within any 100MHz bandwidth within 1.7-2.1GHz, 2.5KW CW/Pulsed POWER-

- **Hot Swappable 8 SSPAs (8 units with 400W per module) Ensuring 2.5KW cw/pulse within any preselected 100MHz bandwidth**
- **LOWER cost and more reliable than Klystron based amps**
- **Modular Power Supplies (8 Units with 2KW capacity)**
- **Water cooled version available or air cooled (needs air conditioner)**
- **Redundancy: Full rated power even if one SSPA/PSU fails.**
- **KLYSTRON (KPA) REPLACEMENT**

19" rack x 60 inch tall in light Grey

PRELIMINARY

1. ***Any KPA is typically 10% efficient; Raditek's SSPA Klystron Replacement is around 35% efficient!***
2. ***Power supplies are hot swappable (in case of failure)***
3. ***KPAs are typically very narrow band, and require a mechanical tuner.***
4. ***Raditek's SSPA has >100MHz full power bandwidth-no extra tuning necessary!***
5. ***MTBF of Raditek's SSPA is better than 50,000 hours, (~ 30,000 hours from a Klystron).***
6. ***Repairs to Raditek SSPA can be typically done in less than 30 minutes. KPA…who knows?***

Finally, the end of dependence on narrow band Klystron amplifiers for multi KWatts, CW and pulsed operation! This is an advanced SSPA that equals or betters the KPA approach. The *RAMP-1.7-2.1GHz-2.5KW-400VAC3P-d16* has a lower price, and better reliability, plus better MTBF (>50,000 hrs) and MTTR (<30 minutes) than any KPA.

***KPAs are now obsolete!* RADITEK's SSPA has caught up and surpassed them!**

This is a high power, *1.7-2.1GHz*, Amplifier, that is one of a family of highly efficient, linear Class A/AB amplifier, that uses the latest, state of the art LDMOS and/or the latest GaN (Gallium Nitride) technology.

The power modules are air cooled (requiring an air conditioner) OR Water cooling, that eliminates the need of providing air conditioning to dissipate the heat generated by the amplifier. Note: Using solid state LDMOS transistors brings a new level of reliability to microwave amplifiers compared to existing Klystron amplifiers.

AC Power Input (Customer Specified):
180-265VAC Single Phase (standard) or optionally 200-370VDC 6500VA or 400 VAC 3 phase (47-53Hz)
The DC power supply for the amplifier consists of hot swappable PFC (power factor corrected) power supply modules. A power supply modules can fail and the system will still operate at full power. The AC input power consists of circuit breakers, transient protection and EMI filters for optional CE compliance.

The amplifier is housed in a 19 inch rack, 60 inches tall
The minimum input power required to generate full output is 0 dBm.
All critical parameters of every RF and Power Supply module is monitored, full time through an internal microcontroller. These parameters can be displayed through a front panel LCD and through an Ethernet and RS485 interface. Control through the Ethernet is also be provided.

Order Examples: **RAMP-*S Band (1.7-2.1G (100MBW) -2.5KW-180-265VAC-D16***
Description: **Description: *(Amplifier, (1.7-2.1GHz tunable within any 100MHz Bandwidth) 2.5KW CW/pulse power, 180-265V AC Single Phase***
***Options: 200*-370VDC 6500VA or 400 VAC 3 phase (47-53Hz)**

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S band SSPA 1.7-2.1GHz, 2.5KW CW/Pulsed

RAMP-1.7-2.1GHz-2.5KW-400VAC3P-d16

Specifications	
Frequency Range	1700-2100 MHz (specify which 100MHz band is needed)
Power Input/connector	1mW/0dBm (50 Ω) in, for rated power output/ N-female (50 Ω),
Power output port	WR430 waveguide, CPR430G flange
Power Output	2.5KW/64dBm PEP(Peak Envelope Power) and CW/average Power
Gain Adjustment	0 to 20 dB, adjustable in 0.1dB steps
Output monitor	O/P monitors at -60dBc
VSWR Rollback (Turndown)	ALC controls amplifier to operate into up to 5:1 output VSWR.
VSWR Withstand:	VSWR >5:1 (ie ALC give no output for >5:1 output VSWR)
Spurious Emissions:	<-65dBc
Harmonic Levels:	<-80 dBc at rated power (into a 50 Ω load)
3rd order IMD:	<-32 dBc with 2 carriers 7 dB below rated power.
RF Noise	<-75 dBc/Hz below the rated 5KW output signal
AM/PM	<3 degree/dB at rated power
Power	
Power Supply	Modular (8 x 2KW DC) hot swappable
AC Line Input (Single phase) (Option)	1 phase or 3 (shared) phase standard 180-265 VAC Single, (or 200-370Vdc)
AC Line Input: (3 phase) (Option)	400 VAC, 3 phase 47-53Hz nominal:.
Power Supply Efficiency	92% efficient
Monitors	
Monitoring/control:	Dual Analog (optional)/LCD display: Monitors providing Forward/Reflected Power and Power Amplifier Voltage and Current (option)
Indicator LEDs	**Front Panel Monitoring and remote monitoring via Built in Test Equipment (BITE)**
Control	**RS232/ RS422/RS485 (standard)**
	ALC to the external exciter BIT parameters via serial bus
Monitor Interface	Transmitter RS232/485, USB interface, Ethernet (read only)
Metering	LCD display is standard. Optional Dual Analog Meters providing Forward/Reflected Power and Power Amplifier Voltage/Current
Size and Weight	
Dimensions:	60" (H) x 31.5" (D) x 23.0" (W) , Standard 19” rack
Weight	< 500 Lbs
Interfaces	
TX Interface	Transmitter RS232/485/USB Note: USB with an adapter.
Monitoring Interface	Ethernet (local)
Monitor & Control	RS232/ RS485 (standard) USB(with an adapter), Ethernet (Option)
Environmental	
Altitude:	Operating: 0-10,000 ft. ASL (not airborne) Non-operating: 0-50,000 ft
Temperature	Operating over 0-50°C at sea level Operating: maximum temp. derated linearly to + 20 ºC at 10,000 ft Non operating: -40 to + 60ºC
Humidity	0-95% relative humidity, non-condensing
Cooling	Internal Forced Air Cooling (from bottom to top of rack. Requires ~4inches headroom above the rack to exhaust hot air.) Water cooling is optional (to remove the need for air conditioning)
Acoustic Noise:	65dBa normal, Optional: 55dBa fans, much quieter with water cooling!

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