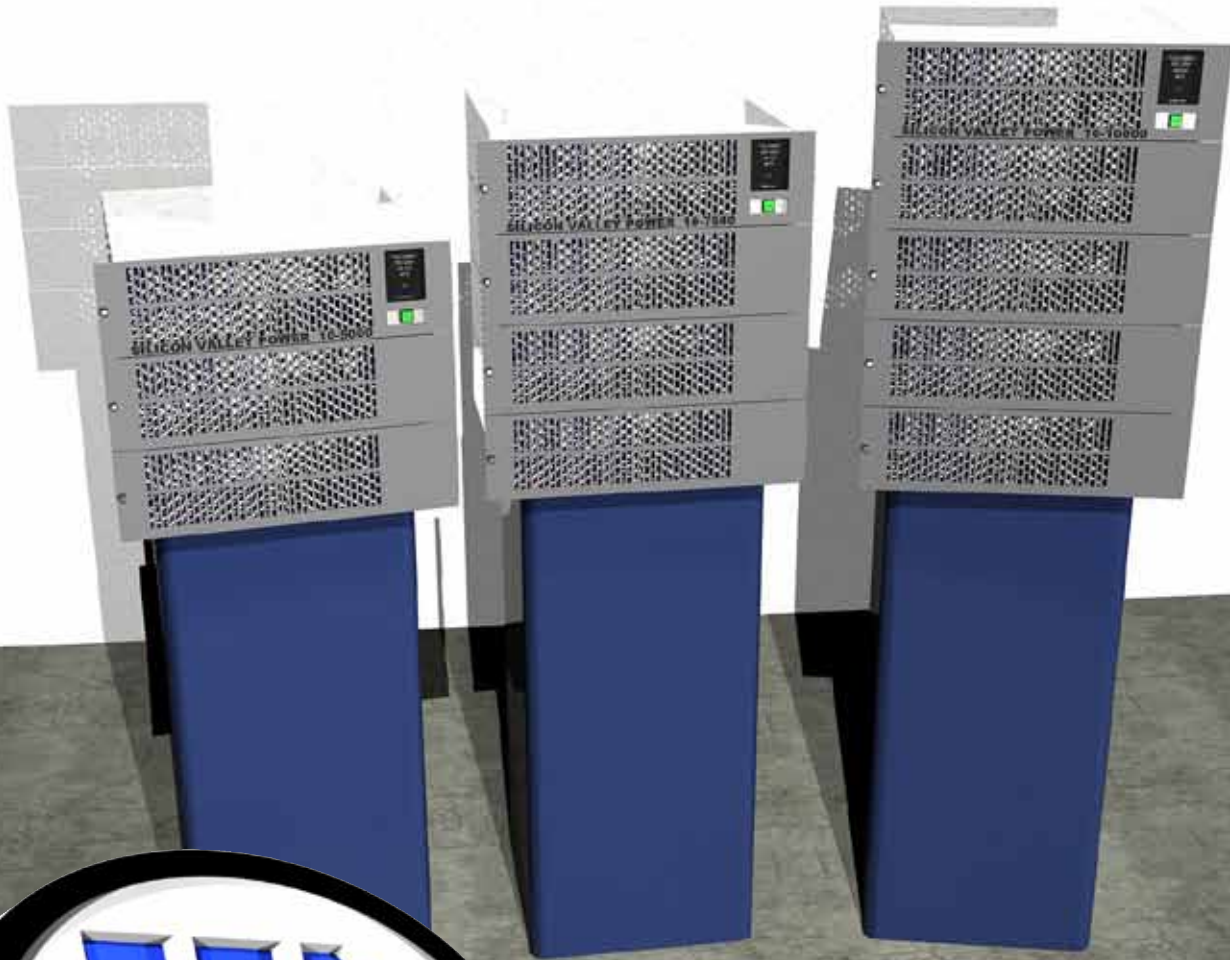


10-SERIES

FM RADIO AMPLIFIERS & TRANSMITTERS



SILICON VALLEY **POWER** AMPLIFIERS

SILICON VALLEY POWER AMPLIFIERS

began in 1990 building solid state amplifier communications modules. The emerging SSPA business became a major focus for many companies, and SVPA was no exception: first a MOSFET based IPA module for FM radio transmitters, SVPA went on to manufacture IPA and PA modules for companies such as Harris Corporation, Continental Electronics, CCA. Other modules joined the FM product line, all MOSFET based, including modules for medical applications, military electronics, M.R.I. to name a few.

In 1994, the first B series FM radio amplifier shipped boasting a modular design, including switching power supply and ease of operation and maintenance. Over 700 FM amplifiers in the B series line would ultimately be shipped and over 10000 MOSFET modules. The 10-1000 series FM amplifier followed along with amplifiers in power levels from 150W to 3000W. Early in 2001, SVPA would suffer some engineering setbacks, and the management elected to find a suitor compatible with its range of products and able to support its sizeable customer base. Delta RF Technology would be that suitor, and Delta RF completed the purchase of Silicon Valley Power Amplifiers in August 2002. The entire San Jose, CA, operation was merged into the Reno area headquarters of Delta RF.

In 2004, Delta RF launched a revised model of the venerable gold brick, the 300W / 500W / 700W IPA module, which is still in production today. The SCA series amplifier was released later that year, offering LDMOS performance for FM, VHF, and UHF bands of operation. A second revision was released in 2007 adding a high performance bonded fin heatsink and extending the frequency offerings into the HF band.

2010 brings a new B-series amplifier housed in a compact, high performance, hot pluggable 3U chassis. This state of the art amplifier features 6th generation LDMOS devices and efficiencies in the 80% range. An all new control system and analog / digital exciters are offered and are fully integrated.

For over 20 years, Silicon Valley Power Amplifiers continues to offer value, performance, reliability and support to broadcasters and integrators alike! We continue to manufacture and repair all parts for every broadcast amplifier we delivered!



Original SVPA SSPA System



Original B-Series 2000W Amplifier



SCA Series FM Amplifier, 1500W



10kW Communication Amplifier



B Series RF Power Module

10 SERIES AMPLIFIERS

are the second generation modular RF amplifiers designed for radio broadcast, after the B series. This series, available in 1000W and 2000W models, was unique in the SSPA world in that the RF assembly was integrated with heatsink and control circuit in an easy to service unit. These low cost amplifiers integrated power supply, driver, low pass filter, and control circuitry in a compact cabinet and are still in common use today.



The current generation of amplifier improves on this concept, and using user feedback from our large customer base, we have expanded this concept to bring our customers the most reliable and easiest to service amplifier in the company's history.

Welcome to the new 10-Series, a high power, high performance amplifier designed for the FM radio broadcaster. Hot swappable power modules and power supplies, advanced control system, direct airflow monitoring, DSP based exciter are just a few of the features of this system.

10 SERIES AMPLIFIERS FEATURES

have been well engineered to apply to almost every installation requirement. Through an impressive array of interface and connector options, the 10-Series will retrofit and be the perfect new amp for any radio station.

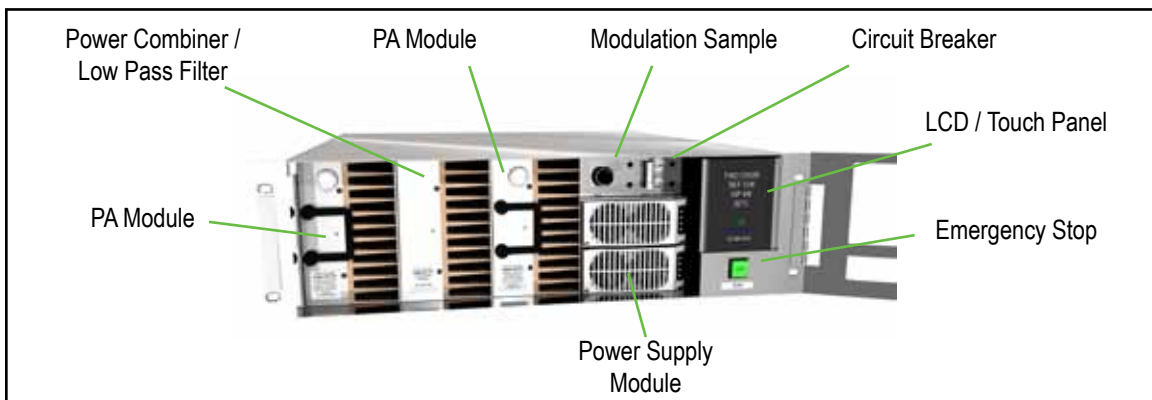
Chassis Design - stacked 3U units, designed for an EIA 19" cabinet. High volume, low noise fans in the rear of the cabinet pulling air through the system. Hot swappable modules in the front behind a hinged door requiring no tools for most service items. User replaceable air filter element in the front of the amplifier.

RF Power Module - hot swappable, using military grade RF connectors and industrial blade power connectors. High efficiency LDMOSFET or MOSFET designs. Embedded microcontroller in each PA constantly monitors input and output power, temperature, voltage, current.

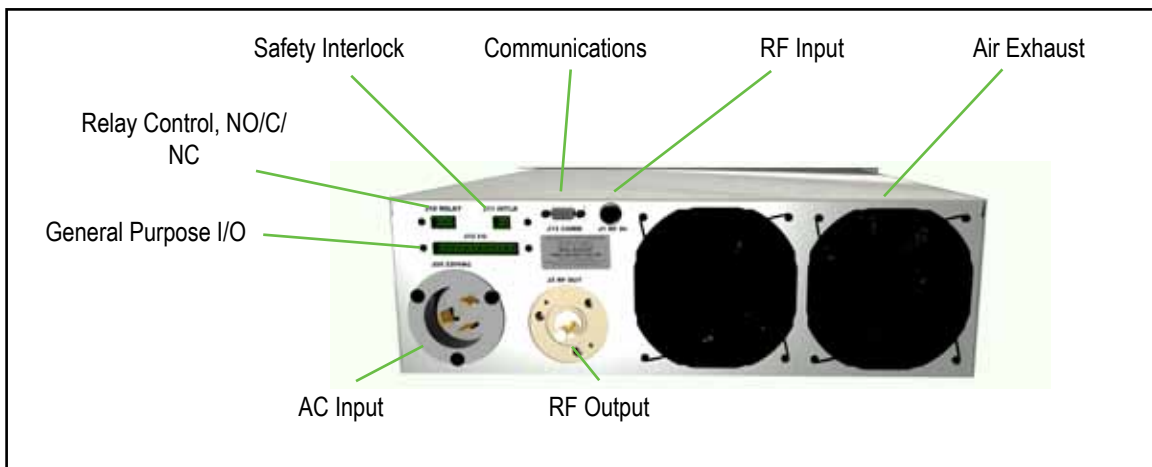
Power Supply - hot swappable, highly efficient, power factor corrected, high power density. Includes logic power supply reducing system complexity.

Power Combiner - heatsink mounted, with oversized isolation loads. Direct temperature monitoring of loads. Integral low pass / harmonic filter. Entire assembly mounted in airflow adjacent to RF PA's.

Control System - Microcontroller based with both front panel graphical interface and serial / ethernet communications. Continuous digital and analog monitoring of power modules, combiner, directional coupler, power supply. QVGA 24 bit color touch panel display.



Front View B Series Amplifier, Door Open



Rear View B Series Amplifier

CONTROL SOFTWARE

System Summary
 Forward Power = 1250 W
 Reflected Power = 17 W
 Input Power = 4.1 W
 Highest Temperature = 45C
 FAN1 = 5155RPM
 FAN2 = 5160RPM
 Uptime = 12Day - 14Hrs - 22Min
 Module 1 Power = 695 W Pin = 2.5 W Temp = 42°C Current = 14A
 Module 2 Power = 680 W Pin = 2.1 W Temp = 46°C Current = 13A
 Vsup = 46.1V Current = 27.3 A
 Touch screen for menu

**FWD 1250W
REF 17W
INP 4.2W
TEMP 46C
OK**
 103.7 XABC 1.0KW

MAIN MENU
 System
 Status
 TURN OFF
 F = 1250W T = 46°C

MAIN MENU
 System
 Status
 TURN ON
 F = OFF T = 46°C

SYSTEM MENU
 Transmitter
 Status
 Display
 F = 1250W T = 46°C

DISPLAY MENU
 Scr Svr Detail On
 Scr Svr Timer 2 min
 Scr Shutdown 5 min
 F = 1250W T = 46°C

TRANSMITTER MENU
 Power Output 1250W
 Startup Delay 10 S
 Pwr Fail Start ON
 Title XABC
 F = 1250W T = 46°C

EXCITER MENU
 Frequency 103.7
 Audio Input Analog
 Mode Stereo
 Pre-emphasis 75uS
 F = 1250W T = 46°C

POWER MENU
 ^
 1250W
 v
 ACCEPT
 F = 1250W T = 46°C

FREQUENCY MENU
 ^ ^ ^ ^
 1 0 3 7
 v v v v
 ACCEPT
 F = 1250W T = 46°C

PREEMPHASIS MENU
 OFF
 50
 75
 F = 1250W T = 46°C

AUDIO INPUT MENU
 Analog-L SPDIF
 Analog-L/R AES/EBU
 MPX SCA 1
 SCA 2
 F = 1250W T = 46°C

ANTENNA MENU
 PORT 1 (TRANSMIT)
 SWITCH
 Warning: Amplifier output will be blanked before switching. This process may not be interrupted when started. Approximate cycle time 5 - 10 seconds.
 F = 1250W T = 46°C

STATUS MENU
 Ps Ps
 F = 1250W T = 46°C

PA1 STATUS MENU
 PA1 STATUS
 POUT = 865W
 PIN = 2.4W
 Vsup = +46.2V
 I = 14A
 Temp = 46C
 F = 1250W T = 46°C

PS1 STATUS MENU
 PS1 STATUS
 AC IN = 216V AC
 Vout = +46.4V DC
 Iout = 14.3A
 Temp = 37C
 F = 1250W T = 46°C

ERROR
 PA1 Damaged Transistor
 OK
 F = 400W T = 46°C

STATUS MENU
 Ps Ps
 F = 400W T = 46°C

PA1 STATUS MENU
 PA1 STATUS
 POUT = 0W
 PIN = 2.7W
 Vsup = +46.2V
 I = 0A
 Temp = 18C
 Error = Transistor
 F = 400W T = 46°C

MODULE REPLACED
 PA1 - new module.
 Full operation is restored.
 OK
 F = 1250W T = 46°C

Front Panel Display Menus - Please refer to the operations manual for a complete explanation of menus and amplifier operation.

CONFIGURATION

Maximum output power table for damaged Power Amplifier Modules and Power Supply Modules. Maximum typical output power is the lower of the PA / PS column. All systems have 1 minimum redundant power supply and additional redundant power supplies may be added.

	PAs				PS			
Model	1	2	3	4	1	2	3	4
10-5000	3000W	1000W	500W	n/a	5000W	3500W	1500W	500W
10-7500	4500W	2000W	1000W	500W	7500W			
10-10000	6500W	3000W	1500W	1000W	10000W	8000W	6500W	5000W

Certain PA combinations are software limited to less than theoretical maximum to avoid placing strain on any components. Below listed number of PAs / PS system is disabled. User selectable option within menu system to set both PA and PS disable threshold.

MODELS

All of our 10-Series FM Radio Amplifiers and Transmitters are built in a standard EIA 3-U chassis designed to be rack mounted in a 19" cabinet using the front panel rails and rear panel retainers. Since all service items are designed to be removed from the front, rails are not required.

10-5000

The 300 watt amplifier is available in a single module or dual redundant module amplifier using a standard MOS-FET based design which has been in continuous production for 15 years.

10-7500

The 750 watt amplifier is available in several versions: a single module, based on our latest generation LDMOSFET design; a dual module based on our time tested MOSFET design; a redundant module design using our latest generation LDMOSFET design.

10-10000

The 1500W amplifier is available in several versions, all based on our latest generation LDMOSFET design: a single module, a dual module, and a redundant module design.

The standard amplifier comes with a single power supply module which is capable of powering the amplifier to 1400W. A second power supply may be ordered if 1500W is desired.

OPTIONS

Options must be configured at time of order. Some options may incur additional cost.

Input AC Voltage:

10-5000 / 10-7500 may be ordered single phase or three phase. 10-10000 is available only as three phase. Input voltage may be ordered as 220V AC or 400V AC. For all AC options, 47 - 63 Hz line current.

Output RF connector:

Standard connector is 7/8" EIA Flange 10-5000 and 10-7500. 1-5/8" EIA flange for 10-10000.

Available Connectors: 7/8" EIA, 1-5/8" EIA Flange, and 3-1/8" EIA Flange.

Interface Controller:

A rear panel mounted controller which adds a simple SPDT relay control for control of external equipment, with analog outputs for measurement of power, voltage, current, and digital inputs and outputs for interface with legacy equipment.

J10: Relay. CO, NC, NO. Relay rated for 120VAC / 5A

J11: Interlock, 2 pin. Ground and Enable. Ground to Enable.

J12-1: Output voltage scaled 1V / 10V, PS1

J12-2: Output voltage scaled 1V / 10V, PS2

J12-3: Output voltage scaled 1V / 20A, PS1

J12-4: Output voltage scaled 1V / 20A, PS2

J12-5: User selectable option, analog output voltage

J12-6: Ground

J12-7: TTL, 3dB down

J12-8: TTL, Power output down, 10W increment

J12-9: TTL, Power output up, 10W increment

J12-10: TTL, Amplifier disable

J12-11: TTL, Amplifier Enable

J12-12: TTL, Fault Output

Exciter:

Analog exciter, DSP / DDS based, with inputs for Analog Audio L&R, Analog SCA1 & SCA2, AES/EBU, SPDIF digital inputs, analog composite input (MPX). Frequency agile in 100kHz steps. RDS capability. Dual exciters may be ordered which includes software for automatic changeover in the event of an exciter failure.

A digital (IBOC) series exciter may be ordered, which is a hybrid analog / IBOC configuration.

Power Supply:

Power supplies are modular and enough are provided to power the system to specification. Additional units may be added as redundant to the system. Quantity varies by model and power configuration.

Communications:

RS-485/RS-422 may be substituted for standard RS-232 communications. This includes addressed mode (9-bit) communications. Ethernet connectivity is also available which is IPV6 compatible. TELNET style connections with simple password protection is included. An optional Windows based connectivity program may be used to interface with the transmitter.

ORDERING INFORMATION

1 0 - 5 0 0 0 - A 1 S 7

10 Series Amplifier

Module and Power Supply hot swappable

Graphical user interface

Power Rating

5000 = 5000 Watts

7500 = 7500 Watts

10000 = 10000 Watts

Input Power

A = 220 V AC, single phase

E = 400V AC, three phase

F = 220V AC, three phase

Exciter Option

0 = Amplifier Only, DC output for power control

1 = DDS / DSP based analog FM Stereo Exciter

2 = Dual Redundant Analog FM Stereo Exciter

5 = Digital IBOC Exciter

9 = Custom Configuration

Communications

S = Standard RS-232 Serial Communications

E = 10 Base T ethernet Communications

R = RS-485 or RS-422 Half Duplex Communications

Output RF Connector

D = 7/16 DIN Female Connector

7 = 7/8 EIA Flange Connector

1 = 1-5/8 EIA Flange Connector Adaptor with 7/8 EIA Flange

Display Configuration

Blank = Standard Display and Interface Controller

X = Delete Display

Y = Delete Interface Controller

Z = Delete Both

Power Supply Second Unit

Append -PS to part number

3 Year Limited Warranty - Silicon Valley 10 Series Transmitters are covered by a 3- year limited manufacturer's warranty against any manufacturer's defects. Warranty requires units be returned to manufacturer for warranty service. Warranty does not cover acts of improper installation, improper use, Acts of God. Please consult the factory for full warranty terms. All costs of transport shall be the sole responsibility of the customer.

Amplifier Summary

Model Name	Power Level	Number PA's	Drive	Power Consumption	Efficiency
10-5000	5000W	2 x 2 PAB1800-FM	10W	8.0kW	64%
10-7500	7500W	2 x 3 PAB1800-FM	10W	12.3kW	62%
10-10000	10000W	2 x 4 PAB1800-FM	10W	16.6kW	60%

System efficiency is total power consumption DC - RF.



SILICON VALLEY POWER AMPLIFIERS

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