

B-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

B SERIES AMPLIFIERS

are the first modular RF amplifiers designed for radio broadcast. This series, available in 150W, 300W, 600W, 1000W, 1500W, 2000W, and 3000W 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 B-Series, a low cost, 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.



B SERIES AMPLIFIERS FEATURES

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

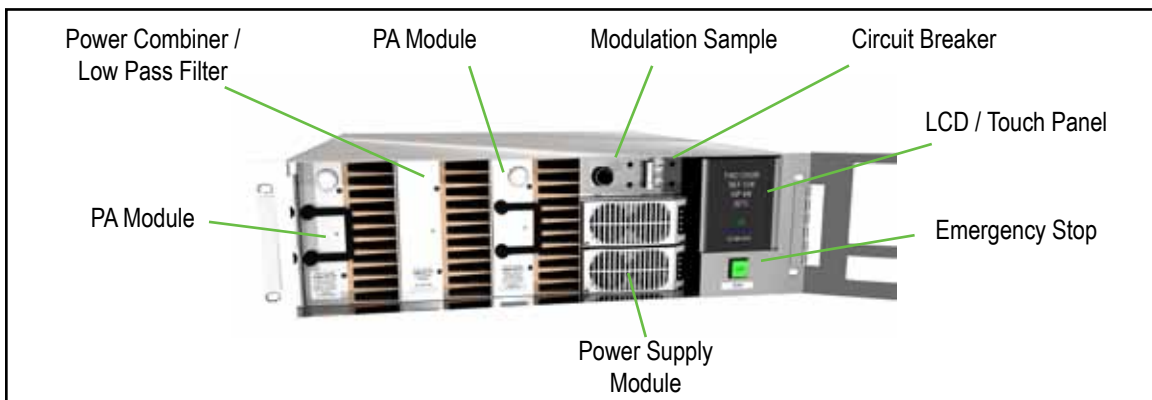
Chassis Design - 3U, designed for an EIA 19" cabinet. High volume, low noise fans in the rear of the cabinet pulling air through the system. Hot swappable modules in the front behind a hinged door requiring no tools for most service items. User replaceable air filter element in the front of the amplifier.

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.

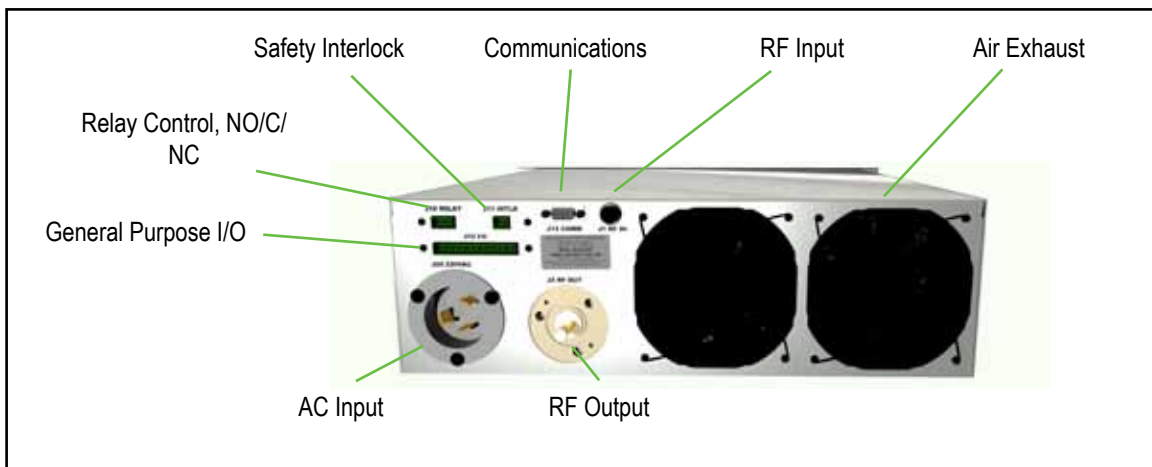
Power Supply - hot swappable, highly efficient, power factor corrected, high power density. Includes logic power supply reducing system complexity.

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 ✓ Module 2 ✓
 Power = 695 W Power = 680 W
 Pin = 2.5 W Pin = 2.1 W
 Temp = 42°C Temp = 46°C
 Current = 14A 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

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

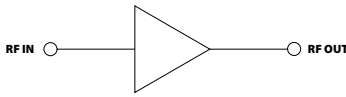
PA1 STATUS MENU

PA1 STATUS
 POUT = 0W
 PIN = 2.7W
 Vsup = +46.2V
 I = 0A
 Temp = 18C
 Error = Transistor

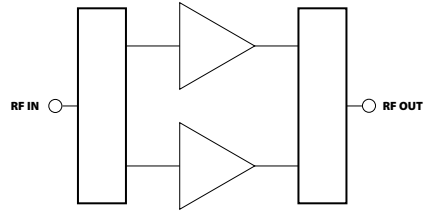
F = 400W T = 46°C

Front Panel Display Menus

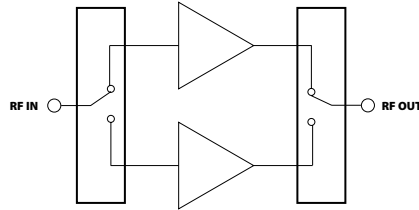
CONFIGURATION



BX Series - Single Full Power Module



BZ Series - Two Half Power Modules Combined



BR Series - Two Full Power Modules with Automatic RF Switch

MODELS

All of our B-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.

BX300 / BR300

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

BX750 / BZ750 / BR750

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.

BX1500 / BZ1500 / BR1500

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.

BZ2500

The 2500W amplifier is available as a dual module design only, based on our latest generation LDMOSFET design. This amplifier comes standard with two power supply modules.

OPTIONS

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

Input AC Voltage:

B300 and B750 models may be ordered to operate on 100 - 120VAC operation. B1500 model may be ordered, however, only in BX or BZ configuration.

Output RF connector:

Standard connector is N- Female for B300 and B750. 7/8 EIA flange for B1500 and B2500.

Available Connectors: N-Female, HN Female, 7/16DIN Female, SC Female, 7/8" EIA and 1-5/8" 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:

A single power supply is provided for all amplifiers except B2500 which includes two. B1500 models are capable of 1400W with a single power supply and may be ordered with a second unit for full 1500W capability. B300, B750, B1500 may be ordered with a second power supply for redundant capability.

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

B **X** **1** **5** **0** **0** - **A** **1** **S** **7** **□**

B Series Amplifier

Module and Power Supply hot swappable

Graphical user interface

Module Configuration

X = Single module for full power

Z = Two modules combined for full power

R = Two modules with switch, each making full power

Power Rating

300 = 300 Watts

750 = 750 Watts

1500 = 1500 Watts

2500 = 2500 Watts

Input Power

A = 220 V AC

B = 110 V AC

D = +50V DC

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

N = N Female Connector

H = H-N Female 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

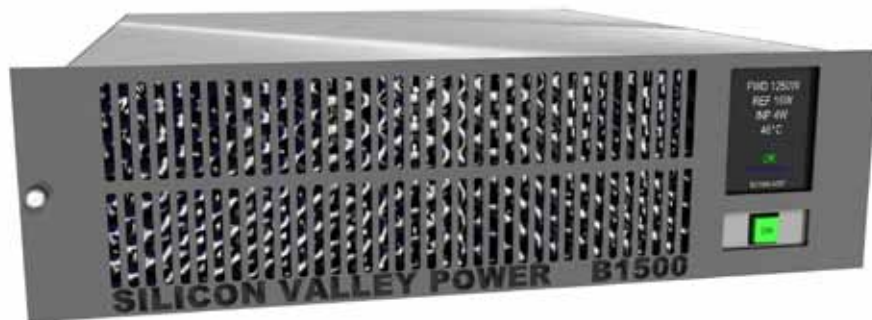
Append -PS to part number

3 Year Limited Warranty - Silicon Valley B 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 | Total Consumption | Efficiency |
|------------|-------------|------------------|-------|-------------------|------------|
| BX300 | 300W | 1 x PAB350-FM | 7W | 0.7kVA | 55% |
| BR300 | 300W | 1 x 1 PAB350-FM | 8W | 0.7kVA | 53% |
| BX750 | 750W | 1 x PAB900-FM | 6W | 1.2kVA | 65% |
| BR750 | 750W | 1 x 1 PAB900-FM | 7W | 1.2kVA | 64% |
| BZ750 | 750W | 1 + 1 PAB400-FM | 15W | 1.4kVA | 52% |
| BX1500 | 1500W | 1 x PAB1800-FM | 12W | 2.5kVA | 61% |
| BR1500 | 1500W | 1 x 1 PAB1800-FM | 13W | 2.5kVA | 60% |
| BZ1500 | 1500W | 1 + 1 PAB900-FM | 13W | 2.6kVA | 60% |
| BZ2500 | 2700W | 1 + 1 PAB1800-FM | 25W | 4.4kVA | 57% |

System efficiency is total power consumption including PS PFC.



SILICON VALLEY POWER AMPLIFIERS

MANUFACTURED BY
DELTA RF TECHNOLOGY, INC.

RENO - NV - USA

Phone +1 775 335 8273

Fax + 1 775 335 8239

website <http://www.drft.com>

email sales@drft.com