Silicon Valley **Power** Amplifiers

SCA FM RADIO BROADCAST AMPLIFIERS

Model	SCA600-FM-A0	SCA1000-FM-A0	SCA1500-FM-A0	SCA3000-FM-A0	SCA5000-FM-A0	SCA10000-FM-A0	
Max RF Power	600	1250	1650	3000	5500	11000	Watts, CW
AC Power	1.1	2.1	2.8	5.5	10.5	21.0	kVA
Size	3U	5U	5U	5U + 1U	30U	40U	IEC 19" Rack
Weight	40	90	98	135	335	790	Pounds
Drive Power	15	10	10	10	10	10	Watts, CW

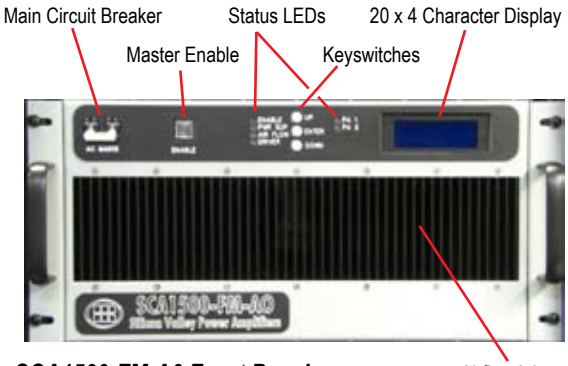
Model not displayed

All amplifiers designed for EIA 19" Rackmount Cabinet, minimum depth 28". Power output is rated into 50 ohms. Low power models are designed using traditional +50V MOSFET technology. MTBF claims based on MIL-HDBK-217/F for SCA1500-FM models.

Reliable! Simple! Cost Effective!

Silicon Valley Power Amplifiers Proudly presents our latest generation of FM broadcast amplifiers. Combining our 15+ year history of amplifier design and manufacturing with our next generation pallet amplifiers, we present our high efficiency, Gold Metallized LDMOSFET solid state amplifiers for radio broadcast.

We draw from our customer's experience to engineer an amplifier product line which addresses customer concerns - including reliability, on air time, ease of maintainability, long term cost.



SCA1500-FM-A0 Front Panel

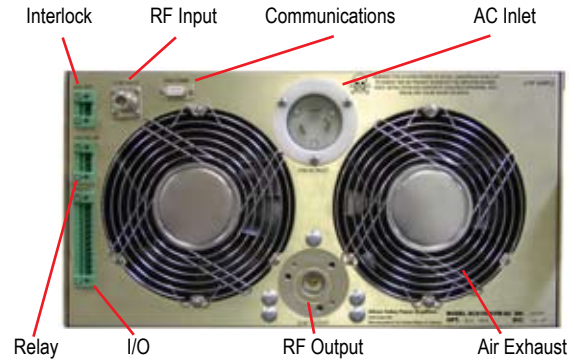
Reliable!

Driving pallet amplifier efficiency to the 80% mark required tremendous engineering effort and the latest generation of high power LMDOS devices. As a result, operating at full rated power, transistor junction temperatures are kept well below our standard broadcast transmitters and increase longterm reliability twofold! The SCA amplifier series shares its mechanicals and thermal management system with our military amplifier product line. Operated to commercial specifications, reliability is exceptionally high! High efficiency redundant switching power supplies, sealed bearing fans, sealed RF component cavities, teflon wiring add up to long term trouble free operation! We recognize the cost of repeated trips to the installation site and have worked to eliminate needless visits. We designed our PAB controller to be autonomous and provide as much or as little amplifier information as required by station personnel. In the event of processor failure, the amplifier is still operational!

Simple!

We offer a high performance product which is easy to maintain. Amplifiers are built with a two-cavity design. The heatsink is the central part of each amplifier - a large bonded fin aluminum heat exchanger - that separates low power and high power electronics. The top chamber houses low power, control, and power supply components which are readily accessible through a single cover. The bottom chamber is a sealed cavity containing high power components including RF Pallet Amplifiers, Combiners, Filters, Directional Couplers. In keeping with its military heritage, all amplifier drawers feature an M.T.T.R. of less than 60 minutes! All wiring harnesses are clearly labelled and placed out of the way of high power components. Component changes are effortless.

Operating menus are designed to be as simple or as detailed as you desire - allowing detailed setup to be performed, then locked out so station operators have access to only the most basic information needed to keep the amplifier on the air. All operational commands, status reports, self diagnostics are available through standard RS-232 communications, optional ethernet communications or analog interface.



SCA1000-FM-A0 Rear Panel

Cost Effective!

As any radio station engineer knows, the initial purchase price is only part of the cost equation.

Using our high power solid state building blocks, we are able to offer extremely competetive pricing. Due to our high efficiency and simple layout, maintenance is dramatically reduced as are repair costs. The amplifier design uses inexpensive, easy to replace RF pallet amplifier modules. The high power density coupled with our efficient domestic manufacturing allows us to offer competetive pricing.

How many trips up the mountain does it take to offset the cost of a 'cheap' amplifier? Our robust RF design and advanced controller keep your amplifier running through most potential problems - providing you with troubleshooting information remotely so you can be prepared in the unlikely event trouble strikes!

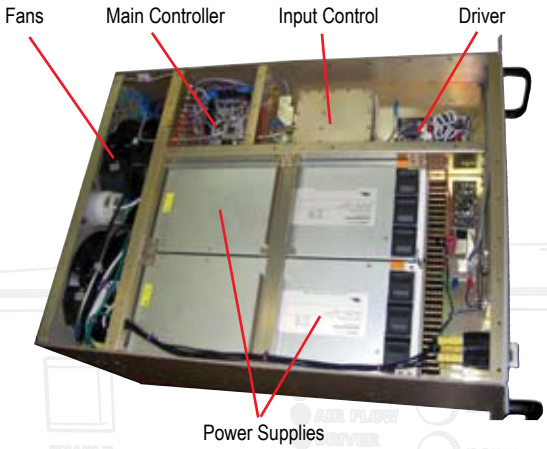
Silicon Valley Power Amplifiers

Standard Features:

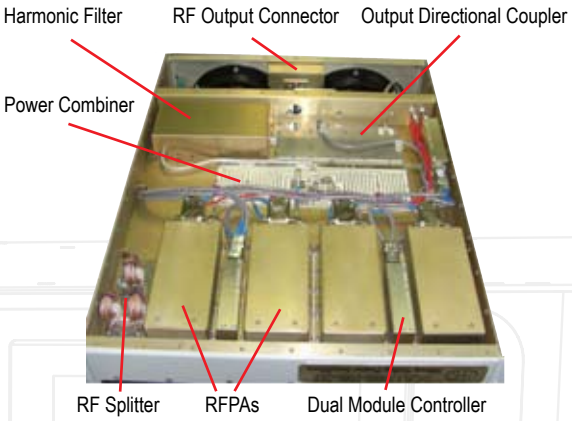
- ***Military Grade Bonded Fin Anodized Heat Sink***
- ***Latest +28V Gold Metallized LDMOS Technology***
- ***Hot Swappable Power Supplies[1]***
- ***All Modular Construction***
- ***Automatic Gain Control & Power Setting***
- ***Always-On PAB Controller***
- ***8 Front Panel Status LEDs for instant status***
- ***High Efficiency & High MTBF Power Supplies***
- ***60 Minute M.T.T.R. for all major components***
- ***Security Lockout for all settings***
- ***Remote Control, Status, Event Warnings through RS-232 Interface***

Available Options:

Ethernet Communications
Mechanical Options:
Drawer Slides, 19" Cabinets
Uninterruptable Power Supply (3kW and lower power)
Hot Swappable Power Supplies for SCA1000-FM and SCA1500-FM
RF Sample Port, Rear (Std) or front mounted
RF Connectors:
N-Female (Std) or BNC-Female for RF Input
BNC-Female (Std) and N-Female for RF Sample
7/8 EIA Flange (Std) and 7/16 DIN for RF Output
Automatic Changeover / Redundant RF Amplifier System



SCA1500-FM-A0 Top Inside View, Cover Removed



SCA1500-FM-A0 Bottom Inside View, Cover Removed

Controller Monitoring and Fault Handling:

Fault Handling:

All faults generate a log record, and will automatically generate a message through remote communications. The controller will keep running and will not disable amplifier except as a last resort.

Fan Operation and Temperature Monitoring

Fan fail detector intelligently monitors fan operation and reduces power in response to failed fan to keep temperature below safe limits. Will ultimately turn power off if temperatures exceed ratings, (all airflow fail) and re-enable when temperature is within safe levels.

VSWR and Reflected Power

Constantly monitor reflected power through both software and fast hardware trip. As reflected exceeds safe threshold, forward power is gradually reduced, to a max load VSWR of 5:1, then disable.

Power Supply

Multiple supplies are paralleled for all amplifiers over 1kW. In the event of power supply failure, remaining power supplies will keep amplifier operational at reduced power.

Amplifier Failure

In the rare event of amplifier failure, the system will intelligently manage RF power and reduce to safe levels to keep from damaging remaining amplifiers. Output combiner isolation loads are bolted directly to heatsink and are oversized to handle all fault conditions.

Controller Functions:

RF Power Monitoring:	*Forward, Reflected, Input in Watts, CW*
Power Supply Montoring:	*Voltage at each Power Supply*
	Voltage at each Pallet Amplifier
	Current at each Power Supply
	Current at each Pallet Amplifier
Uptime, since RF enable:	*Days, Hours, Minutes*
Temperature, °C	*Chassis, Pallet Amplifier*
Directional Coupler Cal	*Forward, Reflected, Input*
Power Control Method	*Constant Power - Watts*
	Constant Gain - dB

LED Status Indicators - Green (OK), Yellow (Warning), Red (Fault)

Amplifier Operational Status
Fan Status
Power Supply Status
Driver Status
PA Status (1 - 4)

Security - optional password protection front panel and remote
Remote Control Inhibit (Local Operation Only)

Common Specifications:

Environmental and Mechanical:

Operating Temperature: -20 to 55°C
Altitude: 0 to 10000 Feet ASL
Relative Humidity: 5 to 95% Non Condensing
Vibration: Normal Truck Transport
Form Factor: 19" IEC Rackmount mounting
for up to 3kw Systems.
For 5000 - 10000 W systems, cabinet included

Electrical:

Operating Frequency: 88 to 108 MHz - No tuning Required
Load VSWR for full power: 2:1
Load VSWR, power gracefully reduced to 3:1
Load VSWR, absolute maximum 5:1. Disable at higher VSWR
Spurious Emissions, -60dBc
Harmonic Emissions, -60dBc
AGC Output Accuracy 50W, CW
Input Voltage 180 - 265VAC, Single Phase, (3 on 5kw-10kw)

Interface:

Front Panel: 20 x 4 character blue backlit LCD Display
Three switches for menu control, One switch for RF disable
Input Connector, N - Female, Optional BNC - Female
Output RF Connector: 600W - N Female
1000 - 5000W - 7/8 EIA Flange, optional 7/16 DIN-F
10000W - 1 5/8" EIA Flange
AC Input: HBL-30 up to 3 kW, hard wire for higher power
Control: DB-9 Female or optional RJ-45 ethernet interface
5A / 120VAC relay enabled with amplifier
Analog Control: 12-pin Terminal Block Plug
6 Analog to Digital Ports, Configured to output
Forward, Reflected, Input Power
Power Supply Voltage
Power Supply Current
Fault
4 Digital Inputs, Configured for
ON, OFF, Power Increase, Power Decrease

Ordering Information:

Available Models:

SCA600-FM-A0	**SCA1500-FM-A0**	**SCA5000-FM-A0**
SCA1000-FM-A0	**SCA3000-FM-A0**	**SCA10000-FM-A0**

Amplifiers include Operations, Maintenance, Repair Manual, 3 Terminal Block Plugs for I/O, Interlock, Relay. For medium power system, HBL power connector. For 5000 and 10000 W systems, a palletized shipping container included.

Common Options:

-A40	Shipping Crate substituted for cardboard box	-A19	Ethernet Communications, replaces RS-232 port
-A41	Substitute 7/16 DIN Female RF Output Connector	-A24	Add drawer slides
-A17	Substitute BNC Female RF Input Connector	-A26	Add UPS option, 6U add'tl with batteries
-A42	Add Monitor Port, Front Panel, BNC Female	-A44	Add Second power supply, SCA1000-FM
-A43	Add Monitor Port, Rear Panel, BNC Female	-A45	External Power Supply Shelf (hot swap) for SCA1000-FM-A0 and SCA1500-FM-A0

Warranty Statement:

All Silicon Valley SCA Series Amplifiers are covered against manufacturer's defects for 3 years from date of shipment. For complete warranty details, please refer to individual amplifier data sheets or contact the manufacturer directly.

Fitness Disclaimer:

The manufacturer warrants this amplifier will meet FCC specifications at time of advertisement, with proper end user professional installation. End user is responsible for verifying compliance with FCC or user's country of installation specifications prior to operation.

Silicon Valley Power Amplifiers are manufactured by
Delta RF Technology, Inc.
Reno - NV - USA
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