

## GENERAL DESCRIPTION

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### 1-1. INTRODUCTION

This manual contains information and procedures for installation, operation, and maintenance of Powerwave's G3S-800-150 multicarrier cellular amplifier. The manual is organized into six sections as follows:

- Section 1. General Description
- Section 2. Installation
- Section 3. Operating Instructions
- Section 4. Principles of Operation
- Section 5. Maintenance
- Section 6. Troubleshooting

### 1-2. GENERAL DESCRIPTION

The G3S-800-150 (see figure 1-1) is a linear, feed-forward power amplifier that operates in the 25 MHz frequency band from 869 MHz to 894 MHz. The amplifier can simultaneously transmit multiple frequencies, with better than -65 dBc third order intermodulation distortion (IMD). It is designed for use in an amplifier system that is modular in design, and is ideally suited for use in AMPS/TDMA/CDMA base stations. When used in a subrack employing two G3S-800-150 amplifiers, the system offers up to 270 watts output. The plug-in Model G3S-800-150 amplifier modules can each provide 150 watts of power and function completely independently of each other. The amplifier modules are designed for parallel operation to produce high peak power output and backup redundancy for remote applications. All solid-state, the system is designed to provide trouble-free operation with minimum maintenance. The system's modular construction and unique and highly effective LED-based operational status and fault indicators help minimize downtime. The turn-on and turn-off sequences of voltages are fully automatic, as is overload protection and recycling. Inadvertent operator damage from front panel manipulation is virtually impossible.

Each amplifier module has a status connector that allows the host system to monitor the amplifier module performance. The front panel of each amplifier module has unit level status/fault indicators and an RF on/off/reset switch. Primary power for the amplifier is +27 Vdc. Cooling for each plug-in amplifier module is provided by four fans, two mounted on the front and two on the rear of the module. The fans draw outside air through the front of the module and exhaust hot air out through the rear of the module.

### 1-3. FUNCTIONAL AND PHYSICAL SPECIFICATIONS

Functional and physical specifications for the amplifier are listed in table 1-2.

### 1-4. EQUIPMENT CHANGES

Powerwave Technologies, Inc. reserves the right to make minor changes to the equipment, including but not necessarily limited to component substitution and circuitry changes. Changes that impact this manual may subsequently be incorporated in a later revision of this manual.

### 1-5. ORDERING INFORMATION

Table 1-1 following gives the part numbers and descriptions to be used when ordering either an entire amplifier or replacement fans.

Table 1-1. Major Amplifier Components

MODEL NUMBER	DESCRIPTION
G3S-800-150	150 W 869-894 MHz MCPA Module.
800-00972-001	Front fan assembly
800-00972-002	Rear fan assembly.

Table 1-2. G3S-800-150 Multicarrier Cellular Amplifier Functional Specifications

Frequency Range	869-894 MHz (25 MHz Bandwidth)
Total Maximum Input Power	-6 dBm
Total Output Power	150 W typical (1 Module)
Intermodulation Distortion and In-Band Spurious:	-65 dBc (Min) @ +24 to +28 Vdc @ 150 Watts -62 dBc (Max) @ +21.7 to +24 Vdc
RF Gain at 880 MHz	58 dB
Gain Flatness:	$\pm 0.7$ dB @ 27 Vdc $\pm 1$ Vdc
Gain Variation Over Temperature:	$\pm 0.3$ dB from 23 to 30 Vdc
Output Protection:	Mismatch Protected
Input Port Return Loss:	-16 dB (Min)
Second Harmonics:	-13 dBm (Max)
Out of Band Spurious:	Better than -60 dBc, +24 Vdc to +28 Vdc
Duty Cycle:	Continuous
DC Input Power:	+27 Vdc $\pm 1$ Vdc, 60 Amps Max @ 150 Watts Operational +21.7 Vdc to 30 Vdc
Operating Temperature:	0 °C. to +50 °C.
Storage Temperature:	-40 °C. to +85 °C.
Operating Humidity:	5 % - 95 % Relative Humidity (Noncondensing)
Storage Humidity:	5 % - 95 % Relative Humidity (Noncondensing)
RF Input / Output Connector	2-Pin D-Subminiature Connector
Status / Alarm / Control / DC Input Connectors:	21-Pin D-Subminiature Combo Connector
Dimensions:	5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans)

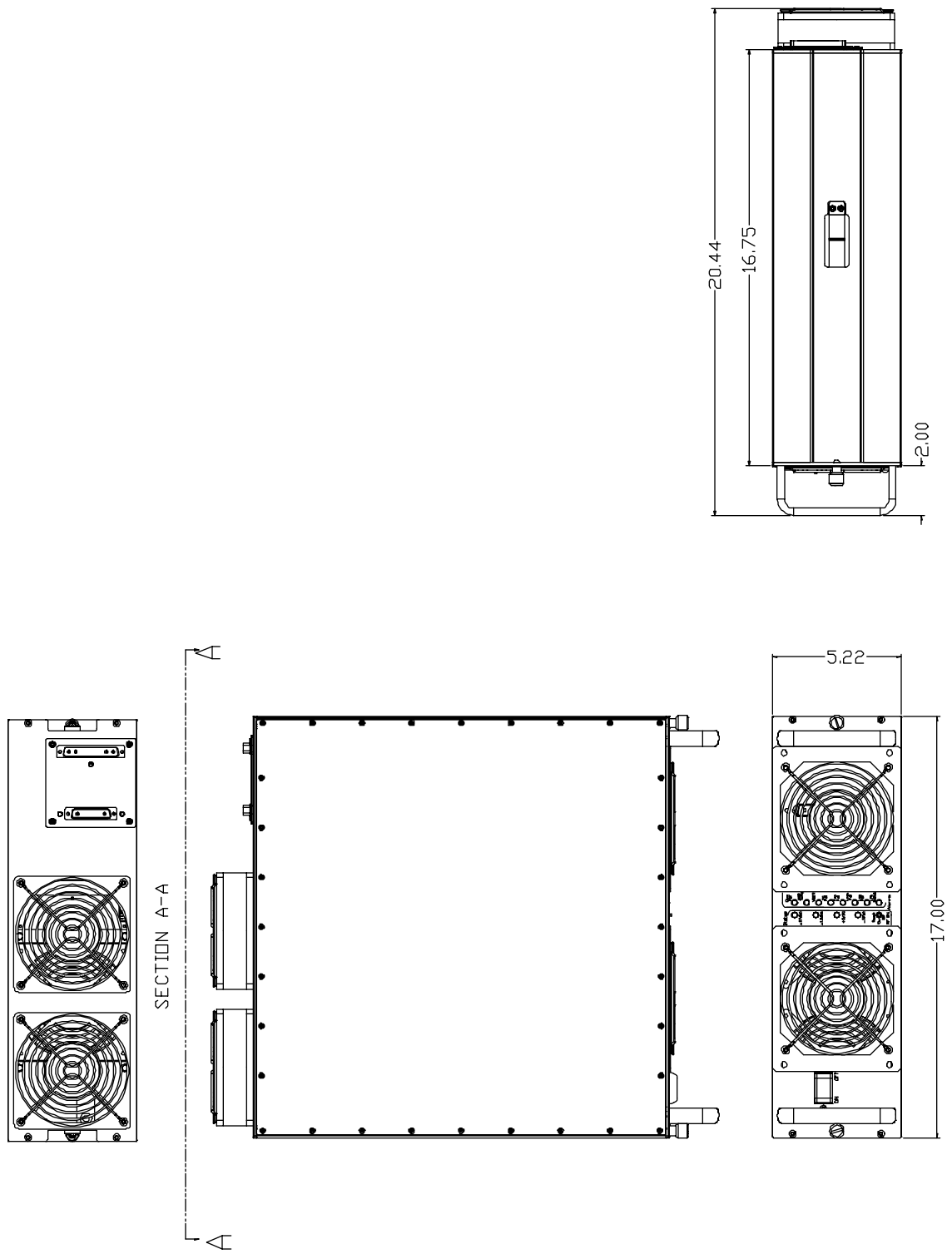


Figure 1-1. G3S-800-150 Amplifier