

## INSTALLATION

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### 2-1. INTRODUCTION

This section contains installation recommendations, unpacking, inspection, and installation instructions for the Multicarrier Cellular Amplifier. Carefully read all material in this section prior to equipment unpacking or installation. Also read and review the operating procedures in Section 3 prior to installing the equipment. It is important that the licensee perform these tasks correctly and in good faith. If applicable, carefully read Parts 73 and 74 of the Federal Communications Commission (FCC) rules to determine how they apply to your installation. **DON'T TAKE CHANCES WITH YOUR LICENSE.**

### 2-2. ELECTRICAL SERVICE RECOMMENDATIONS

Powerwave Technologies recommends that proper AC line conditioning and surge suppression be provided on the primary AC input to the +27 Vdc power source. All electrical service should be installed in accordance with the National Electrical Code, any applicable state or local codes, and good engineering practice. Special consideration should be given to lightning protection of all systems in view of the vulnerability of most transmitter sites to lightning. Lightning arrestors are recommended in the service entrance. Straight, short ground runs are recommended. The electrical service must be well grounded.

Each amplifier system should have its own circuit breaker, so a failure in one does not shut off the whole installation. Circuit breakers should be thermal type, capable of handling the anticipated inrush current, in a load center with a master switch.

### 2-3. UNPACKING AND INSPECTION

This equipment has been operated, tested and calibrated at the factory. Only in the event of severe shocks or other mistreatment should any substantial readjustment be required. Carefully open the container(s) and remove the amplifier module(s). Retain all packing material that can be reassembled in the event that the unit must be returned to the factory.

#### CAUTION

Exercise care in handling equipment during inspection to prevent damage caused by rough or careless handling.

Visually inspect the amplifier module for damage that may have occurred during shipment. Check for evidence of water damage, bent or warped chassis, loose screws or nuts, or extraneous packing material in the connector or fans. Inspect the rear panel connector for bent connector pins. If the equipment is damaged, a claim should be filed with the carrier once the extent of any damage is assessed. We cannot stress too strongly the importance of IMMEDIATE careful inspection of the equipment and the subsequent IMMEDIATE filing of the necessary claims against the carrier if necessary. If possible, inspect the equipment in the presence of the delivery person. If the equipment is damaged, the carrier is your first area of recourse. If the equipment is damaged and must be returned to the factory, write or phone for a return authorization. Powerwave may not accept returns without a return authorization. Claims for loss or damage may not be withheld from any payment to Powerwave, nor may any payment due be withheld pending the outcome thereof. **WE CANNOT GUARANTEE THE FREIGHT CARRIER'S PERFORMANCE.**

## 2-4. INSTALLATION INSTRUCTIONS (Refer to figures 1-1 and 2-1)

The G3S-800-150 amplifier module is designed for installation in a subrack that permits access to the rear of the subrack for connection of DC power, RF, and monitor cables.

To install the amplifier proceed as follows:

1. Install subrack in equipment rack and secure in place.
2. Connect antenna cable to rear of subrack.
3. Connect the transceiver output(s) to rear of subrack.
4. Connect alarms cable(s).

### **WARNING**

**Verify that all circuit breaker switches on the rear panel of the subrack are in the OFF position. Turn off external primary DC power before connecting DC power cables.**

7. Connect positive primary power and negative primary power to the subrack. Tighten the subrack power connections.
8. Install the plug-in amplifier module(s) in the subrack. Tighten top and bottom thumbscrews.
9. Check your work before applying DC voltage to the system. Make certain all connections are tight and correct.
10. Measure primary DC input voltage. DC input voltage should be  $+27\text{ Vdc} \pm 1.0\text{ Vdc}$ . If the DC input voltage is above or below the limits, call and consult Powerwave before you turn on your amplifier system.
11. Refer to section 3 for initial turn-on and checkout procedures.

## 2-5 AMPLIFIER MODULE CONNECTORS

The amplifier has two connectors on the right rear of the module. The larger is a 21-pin male D-Sub combo which provides the status, alarm, control, and power connections. The smaller is a 2-pin female D-Sub which provides the RF connections. Refer to figure 2-1.

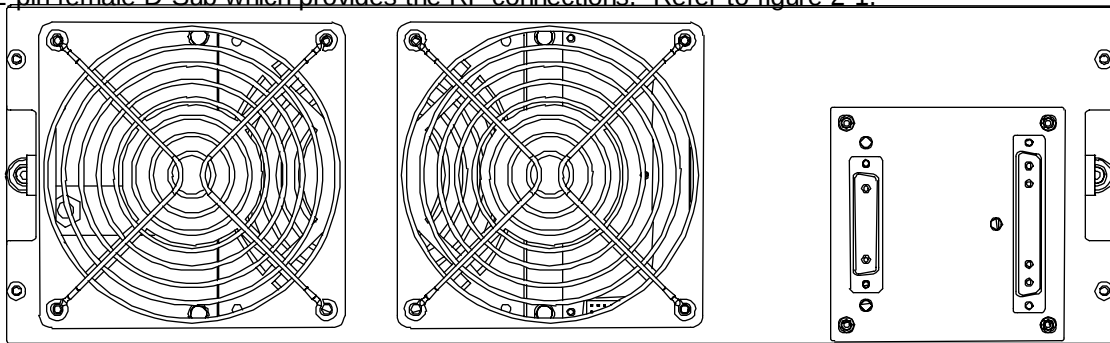


Figure 2-1. G3S-800-150 Amplifier, Rear View

### 2-5.1. AMPLIFIER MODULE STATUS, ALARM, CONTROL, AND POWER CONNECTOR

The amplifier has a separate remote alarm and control connector which may be used by the host system to monitor and control the individual amplifier modules. The status, alarm, control, and power connections on the amplifier connector are made through a 21-pin male D-Sub combo connector (figure 2-2) and are listed and described in table 2-1.

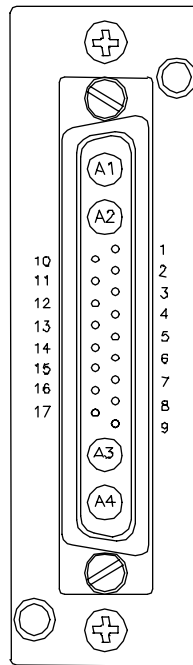


Figure 2-2. DC and Logic Connector (on Rear of G3S-800-150 Amplifier Module]

Table 2-1. Amplifier Module DC and Logic Connector Definition

| PIN | FUNCTION                         | DESCRIPTION                                                                                                                                                               |
|-----|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1  | Power Input                      | +27 Vdc (Power Contact)                                                                                                                                                   |
| A2  | Power Input                      | +27 Vdc (Power Contact)                                                                                                                                                   |
| A3  | Ground                           | Ground (Power Contact)                                                                                                                                                    |
| A4  | Ground                           | Ground (Power Contact)                                                                                                                                                    |
| 1   | RS485 +TxD                       | Serial Communication Data Out                                                                                                                                             |
| 2   | RS485 +RxD                       | Serial Communication Data In                                                                                                                                              |
| 3   | Service Loop                     | TTL input to Amp. Gnd. for special test mode (Note 1)                                                                                                                     |
| 4   | MCPA Disabled<br>(Summary Fault) | TTL signal normally low indicates MCPA enabled. A high level indicates that the MCPA has been disabled. Over Power, Over Voltage takes one second to activate the signal. |
| 5   | Mod Addr 0                       | TTL input to Amp. Gnd. supplied by shelf to identify slot.                                                                                                                |
| 6   | Mod Addr 1                       | TTL input to Amp. Gnd. supplied by shelf to identify slot.                                                                                                                |
| 7   | TP1                              | TTL output. Future test point.                                                                                                                                            |
| 8   | Manual Download                  | GND to download manually                                                                                                                                                  |
| 9   | DC on stat                       | TTL output. High indicates Amp is powered on.                                                                                                                             |
| 10  | RS485 –TxD                       | Serial Communication Data Out                                                                                                                                             |
| 11  | RS485 –RxD                       | Serial Communication Data In                                                                                                                                              |
| 12  | SCL7                             | No connection                                                                                                                                                             |
| 13  | SDA7                             | No connection                                                                                                                                                             |
| 14  | FP Disable Output                | Output, GND if the front panel switch is in the OFF position; +5 volts indicates the front panel switch is in the ON position.                                            |
| 15  | FP RST                           | Output, GND if the front panel switch is in the RESET position; +5 volts otherwise.                                                                                       |
| 16  | GND                              | Ground                                                                                                                                                                    |
| 17  | Module Detect                    | Ground potential. Informs the subrack that an MCPA is plugged in.                                                                                                         |

Note 1: Service loop grounded allows the MCPA to be enabled or disabled by the front panel switch when not mounted in the shelf.

### 2-5.2. AMPLIFIER MODULE RF CONNECTOR

The amplifier has a separate RF connector which is used for the RF signal input and output. The RF connections on the amplifier connector are made through a 2-pin female D-Sub combo connector (figure 2-3) and are listed and described in table 2-2.

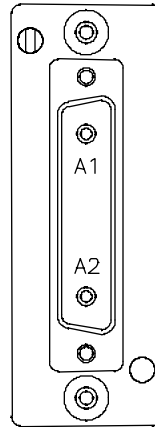


Figure 2-3. Amplifier RF Connector

Table 2-2. Amplifier RF Connector Definition

| PIN | FUNCTION  | DESCRIPTION     |
|-----|-----------|-----------------|
| A1  | RF Input  | Coaxial Contact |
| A2  | RF Output | Coaxial Contact |