

### Outdoor PowerMAX System with 16 Compact Outdoor Modules



Teledyne Paradise Datacom's Outdoor PowerMAX system is a purely parallel redundant, modular HPA system. It can be populated with four, eight, or sixteen modules. The Outdoor PowerMAX system with either use the popular Compact Outdoor SSPA module, or the High Power Outdoor module.

A modular system is used either as an extremely high output power amplifier or as a self-redundant amplifier system. Parallel architecture systems make excellent redundant systems. The PowerMAX SSPA system should be configured such that a failure of a single SSPA module can be tolerated by the system power budget.

The sophisticated PowerMAX firmware design permits the system to operate as if it were a single amplifier. There is no need to communicate directly with each individual amplifier, whether operating the system by remote link or locally via the controller front panel.

The Outdoor PowerMAX system frame was shipped from the factory partially assembled. The user needs to complete the installation of the SSPA Modules, Outdoor Controllers, RF Distribution Box and optional AC Distribution Box. System settings were configured at the factory, and no adjustment should be necessary.

### System Installation

Refer to the installation manual shipped with your system for instructions.

Before applying power to the system, make sure to properly terminate the RF Output.

Switch on all circuit breakers to power up the system.

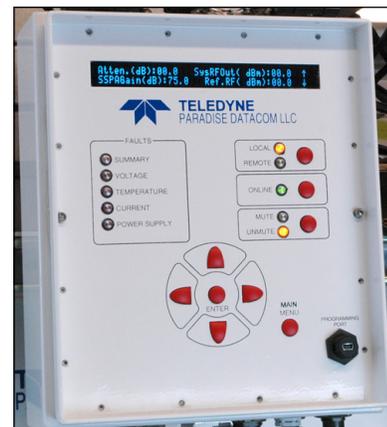
**WARNING! Never look into an open RF waveguide. RF transmission at high power levels may cause eyesight damage and skin burns.**

### Controlling System Operation

The PowerMAX System is under the control of the Master Outdoor SSPA Controller at all times. Any system-wide settings changes (local or remote) need to be performed on the Master Controller. If a setting is adjusted on a Slave Controller, the Master unit will erase and override it with the current system setting.

### Mute/Unmute System

The Master Controller controls the mute state of the entire system. See **Figure 1**.



**Figure 1: Master Controller**

To mute the system, press the **Main Menu** button on the Master unit; select **3.Operation** and press the **Enter** button; select **3.Mute** and press the **Enter** button; select **1.Mute On** and press the **Enter** button.

To unmute the system, press the **Main Menu** button on the Master unit; select **3.Operation** and press the **Enter** button; select **3.Mute** and press the **Enter** button; select **2.Mute Off** and press the **Enter** button.

### Adjust System Gain

Nominal system gain with Auto Gain enabled is 65 dB; nominal system gain with Auto Gain disabled is 70 dB.

To adjust the gain of the system, press the **Main Menu** button on the Master unit; select **3.Operation** and press the **Enter** button; select **5.Attenuation** and press the **Enter** button. Use the **Arrow** buttons to

select a value between 0.0 and 20.0 dB and press the **Enter** button to accept the value entered. If Automatic Gain Control is enabled, the system will reserve 5 dB of attenuator range for gain compensation and attenuation is limited to a value between 0 and 15.0 dB.

### Automatic Gain Control

Any modular hitless SSPA system such as PowerMAX may exhibit natural gain drift when one or more individual SSPA chassis is removed from the system or malfunctions. The automatic gain control option allows the system to maintain a constant gain level during such events. This feature is user selectable and can be activated from the Master Controller or a remote interface.

To toggle the Automatic Gain Control option, press the **Main Menu** button; select **6.Redundancy** and press the **Enter** button; select **6.N+1** and press the **Enter** button; select **3.Gain Control** and press the **Enter** button. Select **2.Auto Gain 5dB** or **1.Auto Gain Off**.

When this option is activated, the SSPA will automatically reserve 5 dB of attenuator range for future gain compensation. This will reduce the maximum SSPA gain by 5 dB. The attenuator range will also be reduced to 15 dB.

Five dB of reserved attenuator range allows the system to fully auto compensate gain when up to two SSPA chassis fail in an 8-module PowerMAX system and up to one failed chassis in a 4-module system.

### Document Download

Visit <http://www.paradisedata.com/index.php/products/powermax/>

#### Systems Using Compact Outdoor SSPA Modules



#### Systems Using High Power Outdoor SSPA Modules



### Safety Considerations

Potential safety hazards exist unless proper precautions are observed when working with this unit. To ensure safe operation, the operator must follow the information, cautions and warnings provided in the Operations Manual, and observe the warning labels placed on the unit itself.

### High Voltage Hazards

High voltage is any voltage in excess of 30V. Voltages above this value can be hazardous and even lethal under certain circumstances. Care should be taken when working with devices that operate at high voltage.

### Electrical Discharge Hazards

An electric spark can not only create ESD reliability problems, it can also cause serious safety hazards. Follow all ESD precautions when working with this unit.

### High Current Hazards

Many high power devices are capable of producing large surges of current. This is true at all voltages, but needs to be emphasized for low voltage devices. Low voltage devices provide security from high voltage hazards, but also require higher current to provide the same power. High current can cause severe injury from burns and explosion.

### Warranty

Refer to the manufacturer's warranty document for specific warranty coverage by product. The warranty does not apply to any goods that, upon examination by the manufacturer, are found to have been (i) mishandled, misused, abused, or damaged by the Buyer or Buyer's customer, (ii) altered from their original state, (iii) repaired without the manufacturer's prior written approval, or (iv) improperly stored, installed, operated, or maintained in a manner inconsistent with the manufacturer's instructions. This warranty does not apply to defects attributed to normal wear and tear.

### Use and Disclosure of Data

This product is classified as EAR99 and is subject to U.S. Department of Commerce regulations. Export, reexport or diversion contrary to U.S. law is prohibited. Specifications are subject to change without notice.

Teledyne Paradise Datacom  
 11361 Sunrise Park Drive  
 Rancho Cordova, CA 95742 USA  
 Tel: (814) 238-3450

[www.paradisedata.com](http://www.paradisedata.com)

Teledyne Paradise Datacom Ltd.  
 106 Waterhouse Lane,  
 Chelmsford, Essex, England, CM1 2QU  
 Tel: +44(0)1245 847520