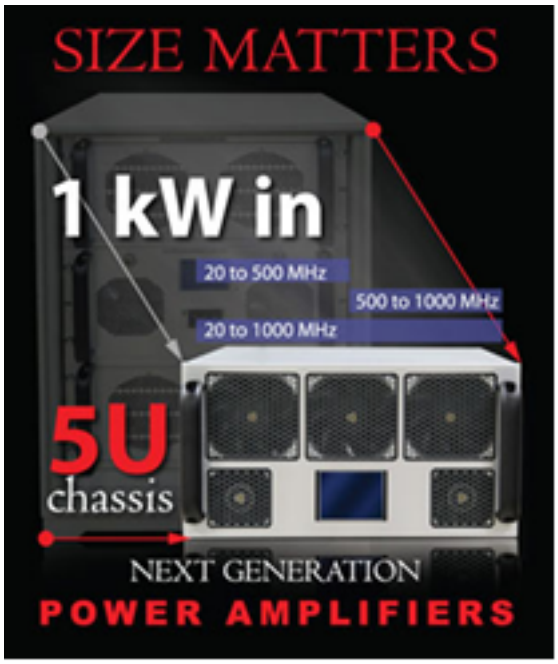
1 kW PA with Unrivaled Size and Power Advantages



Empower is pleased to be releasing the first models of our “Size Matters” high power PA product family. Packaged in a 5U, air cooled chassis and delivering over 1 kW of output power in the frequency ranges of 20 to 500 MHz, 500 to 1000 MHz, and 20 to 1000 MHz, these first units from our industry leading product family offer unrivaled size / power advantages. Specs are guaranteed across full bandwidth and over temperature. Embedded controls and user access that are standard with Empower next generation designs ensure that there is no mystery about system performance, end use conditions, or operational status. One of the units from this product family will be on display at upcoming tradeshows – model 2066 is a 500 to 1000 MHz, 1 kW PA and the particular unit on display also includes a customer specified switch filter combination and, in this case, all still in the 5U chassis.

What is so special about these 1kW systems
Guaranteed 1 kW RF performance over full bandwidth and temperature, which can be packaged in a 5U housing is not "typical" of product presently available in the market. Much larger rack sizes with power levels that are not sustained across an entire bandwidth and/or temperature range are what’s commonly available.

In addition to this, the user interface capabilities of this amplifier that are standard with Empower next generation designs allow the user to initiate remote management and diagnostics via an embedded web server, enabling network managed site status and control simply by connecting the unit’s Ethernet port to a LAN. Using a web browser and the unit’s IP address (IPV6) allows ease of access with the benefit of multilevel security. The control system core supports hardware encryption and runs an embedded OS (Linux).

Event log and non-volatile memory
This allows for internal diagnostics and troubleshooting – basically, we have a flight recorder in the amplifier. In addition, the memory features enable us to record product and configuration information at time of manufacture. Factory or user adjusted settings can be logged, as applicable.

Internal monitoring and protection features
The 1 kW family is designed to be actively (continuously) monitoring critical performance parameters – ie, temperature, current consumption, voltage levels, alarms, etc – and taking action via the microcontroller to initiate protection and/or shutdown to avoid PA damage.

Thermal management and reliability advantages
This is a "minimal touch" design which eliminates a number of manual process steps - design margin evaluation (DME) analysis and a full battery of qualification tests are integral to this product introduction. Detailed thermal simulations, heat spreading techniques, and device management all contribute to high reliability. Temperature compensation is actively running in these systems, including control down to the level of device quiescent current. Also, there is full monitoring and control of cooling fan speed and operation. When temperature is low, fan speed is reduced to prolong serviceability.

Empower RF Systems is a leader in power amplifier solutions for defense, commercial, and industrial applications. Our products incorporate the latest semiconductor and power combining technologies and originate from an extensive library of “building block” designs. Solutions range from basic PA modules to multifunction PA assemblies with embedded, microprocessor controllers.

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