1kW Broadband, Next Generation Amplifier Family
Common building blocks, systems architecture, software and interface

<table>
<thead>
<tr>
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<th>Model 2126 20 to 500 MHz</th>
<th>Model 2066 500 to 1000 MHz</th>
<th>Model 2162 20 to 1000 MHz</th>
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<tbody>
<tr>
<td><strong>What are they?</strong></td>
<td>Compact size, LDMOS based, high performance 1 kW PA. Power output performance guaranteed over full bandwidth, temperature, and environmental (not spec’d as “typical”). 5U chassis – standalone or rack slide configurable</td>
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<td><strong>Market Suitability</strong></td>
<td>Suitable for use in target markets and related applications - Electronic Attack - Digital Communications - Test and Measurement</td>
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<td><strong>What makes them different than what I currently use?</strong></td>
<td>Size and weight are superior to anything in the market at these frequencies and power level - user interface and diagnostics capabilities are built around high performance microprocessor and IP addressable, embedded web server - Guaranteed performance over full bandwidth and temperature.</td>
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20 to 1000 MHz rack mount, 1kW family of products

1kW P3dB, minimum – full bandwidth

Under all specified temp and environmental
-10 to +50 C ambient temperature

Internal monitoring and protection
Microprocessor control
Event logs, non-volatile memory
IP addressable, embedded web server

Configurable, universal power supply
(single phase, two phase, three phase)

Touch screen interface
Built in test, remote diagnostics

Product line platform
configurable without being custom
1. **What’s so special about these 1kW products?**

Guaranteed 1 kW RF performance, guaranteed 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 and datasheets with power levels that are not sustained across an entire bandwidth and/or temperature range are what’s out there from competitors.

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).

2. **What is important about an event log and non-volatile memory?**

This allows for internal diagnostics and troubleshooting in a systems failure scenario – 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.
3. **What do you mean by “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.

4. **What are the 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.

5. **How “linear” are these 1 kW PAs?**

The general purpose, market introduction product has not been specifically optimized for linearity, but adjustments can be made and we would be pleased to discuss business opportunities. Attached data plots highlight performance of the general purpose product with modulated carrier waveforms.
6. **How do these 1 kW products compare to other commercially available products?**

   Our intention with this product family is to drive industry leading size reductions and also eliminate the guess work and “specs-manship” routinely found with high power PA rack mount products in the market. Specs are guaranteed across full bandwidth and over temperature - embedded controls and user access that is standard with Empower next generation designs insures that there is no mystery about system performance or end use condition while operating the PA.

7. **What is the availability of this product and lead-time on higher quantities?**

   With our partnership with Richardson RFPD, the 2066 and 2016 models are in stock and ready for immediate delivery with the 2162 being available in April for delivery.