500Wrms DAB/1kW p-synk VHF TV Amplifier
AV500-D amplifier embodies LD-MOS and TETRAFET technologies and is designed for both digital and analog applications. The unit is the state of the art in terms of easy assembly, reliability and performances. The complete unit can assure the compliance to all relevant international standards.

- 1kWps Out
- 500Wrms Out DAB
- BroadBand (170-230 MHz)
- Designed for SKD sales
- Internal cabling free
- Easy maintenance without special tools
- RS232-RS485 interface
- Control software included
- Extremely strong mechanical structure
- Requires external PSU (see PS200-D series from Res-Ingenium)

### BLOCK DIAGRAM

![Block Diagram](image)

### ELECTRICAL DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Supply</td>
<td>28-32 Vdc 30V nominal</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>2200W @1000W Ps Black Field @ 200MHz (typ.)</td>
</tr>
<tr>
<td></td>
<td>1800W @500Wrms DAB @ 200MHz (typ.)</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>80 A max @ 32 V analog application</td>
</tr>
<tr>
<td></td>
<td>65 A max @ 32 V Digital application</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 to +45 °C</td>
</tr>
<tr>
<td>Humidity</td>
<td>Up to 90% (non condensing)</td>
</tr>
<tr>
<td>Gain Stability</td>
<td>0 to 45 deg. +/-0.5dB¹</td>
</tr>
<tr>
<td>Gain</td>
<td>56dB ±2dB nominal</td>
</tr>
<tr>
<td>Power Out (@1dB compression)</td>
<td>Min. 1400W (Typ. 1600W)</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>Min. -16dB (Typ. -20dB)</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>Min. -18dB (Typ. -22dB)</td>
</tr>
<tr>
<td>Load Mismatch</td>
<td>All phase angle</td>
</tr>
<tr>
<td>(CW 1000W F₉ 200MHz VSWR=2:1)</td>
<td>No degradation</td>
</tr>
</tbody>
</table>

¹ WARM UP:
To achieve the stability vs temperature correct value when the equipment is cold, please wait 30 minutes at least after switching on.

Contact Res-Ingenium, +39 0763 316333 Fax +39 0763316002 or visit [www.res-ingenium.com](http://www.res-ingenium.com) for a complete listing.
## External High Power Supply Technical Specifications
### Output Power Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vout</td>
<td>30Vdc</td>
</tr>
<tr>
<td>Iout</td>
<td>2 x 50A or 1 x 100A in analog application</td>
</tr>
<tr>
<td></td>
<td>2 x 30A or 1 x 60A in digital application</td>
</tr>
<tr>
<td>Max operative current</td>
<td>2 x 30A or 1 x 60A in analog application</td>
</tr>
<tr>
<td>Current Limit</td>
<td>2 x 55A or 1 x 110A in analog application</td>
</tr>
<tr>
<td></td>
<td>2 x 35A or 1 x 70A in digital application</td>
</tr>
<tr>
<td>Load Regulation</td>
<td>+/- 0.5% from 10% up to 100% dynamic load change</td>
</tr>
<tr>
<td>Output Ripple</td>
<td>400mV max</td>
</tr>
<tr>
<td>Sense</td>
<td>External Sense for both sections (if double). Sense Impedance 6.8 KΩ each positive/GND wire.</td>
</tr>
<tr>
<td>Enable</td>
<td><strong>AV500-D</strong> provides a signal 0/5V (0 = disable; 5 = enable). Open collector with internal pull-up. This signal must be used to enable the power supply.</td>
</tr>
</tbody>
</table>

## External Service Power Supply Technical Specifications
### Output Power Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vout</td>
<td>5Vdc</td>
</tr>
<tr>
<td>Iout</td>
<td>0.5A</td>
</tr>
<tr>
<td>Load Regulation</td>
<td>+/- 0.5% from 10% up to 100% static load change</td>
</tr>
<tr>
<td>Output Ripple</td>
<td>50mV max</td>
</tr>
<tr>
<td>Enable</td>
<td>This tension must be always enabled and connected</td>
</tr>
</tbody>
</table>
### MECHANICAL DATA AND INTERFACES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>19” 3HU std 600mm depth⁴</td>
</tr>
<tr>
<td>Weight</td>
<td>25Kg.</td>
</tr>
<tr>
<td>RF in</td>
<td>N connector rear panel</td>
</tr>
<tr>
<td>RF out</td>
<td>7/16” connector rear panel</td>
</tr>
<tr>
<td>RF mon</td>
<td>SMA connector rear panel</td>
</tr>
<tr>
<td>RS232</td>
<td>D 9 poles front and rear panel</td>
</tr>
<tr>
<td>RS485</td>
<td>D 9 poles rear panel</td>
</tr>
<tr>
<td>Local Enable</td>
<td>Switch front panel</td>
</tr>
<tr>
<td></td>
<td>Two-pole connector rear panel</td>
</tr>
</tbody>
</table>

### REMOTE CONTROL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable</td>
<td>RF Enable ON/Stand By</td>
</tr>
<tr>
<td>GAIN (option)</td>
<td>Gain setting</td>
</tr>
</tbody>
</table>

### READABLE DATA BY REMOTE COMPUTER OR CONTROL LOGIC UNIT (THROUGH RS232/RS485)

#### STATUS/ALARMS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable</td>
<td>ON/STAND BY</td>
</tr>
<tr>
<td>RF Faults</td>
<td>ACTIVE if Gain &lt; 6dB referred to nominal</td>
</tr>
<tr>
<td>°C max</td>
<td>ACTIVE when RF Thermal Protection is ON</td>
</tr>
<tr>
<td>Pin max</td>
<td>ACTIVE when RF Overdrive Protection is ON</td>
</tr>
<tr>
<td>VSWR max</td>
<td>ACTIVE if VSWR max Protection is ON</td>
</tr>
<tr>
<td>I max</td>
<td>ACTIVE when Current is too high</td>
</tr>
</tbody>
</table>

#### MEASUREMENTS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF in</td>
<td>Input Power in µW (PS for analog, RMS for DAB and DVB-T)</td>
</tr>
<tr>
<td>RF out</td>
<td>Output Power in W (PS for analog, RMS for DAB and DVB-T)</td>
</tr>
<tr>
<td>RF Heatsink Temperature</td>
<td>Temperature in °C</td>
</tr>
<tr>
<td>IDC Driver</td>
<td>Value in A</td>
</tr>
<tr>
<td>IDC Final Stage 1</td>
<td>Value in A</td>
</tr>
<tr>
<td>IDC Final Stage 2</td>
<td>Value in A</td>
</tr>
<tr>
<td>VDC</td>
<td>PS Output Voltage</td>
</tr>
</tbody>
</table>

---

⁴ See pag. 5
⁵ An output on the rear panel can manage the external Power Supply ON/OFF. The external PS will be switched OFF in case of alarm.

Conctat Res-Ingenium, +39 0763 316333 Fax +39 0763316002- or visit www.res-ingenium.com for a complete listing.
SELF PROTECTIONS

<table>
<thead>
<tr>
<th>RF Thermal Protection</th>
<th>Overdrive</th>
<th>VSWR max</th>
<th>I max</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pin max must be set on the working channel with the used DAB or Analog signal</td>
<td>VSWR max must be set on the working channel with the used DAB or Analog signal</td>
<td></td>
</tr>
</tbody>
</table>

**Without precorrection**

![Graph](https://via.placeholder.com/150)

**In channel IMD vs Frequency**
Four-tone test -5, -16, -13, -20 dB ref. 1000W

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>IMD (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>-40</td>
</tr>
<tr>
<td>180</td>
<td>-45</td>
</tr>
<tr>
<td>200</td>
<td>-50</td>
</tr>
<tr>
<td>220</td>
<td>-55</td>
</tr>
<tr>
<td>240</td>
<td>-60</td>
</tr>
</tbody>
</table>

**Without precorrection**

![Graph](https://via.placeholder.com/150)

**SHOULDER vs FREQUENCY**
500Wrms DAB

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>dBc</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>-35</td>
</tr>
<tr>
<td>180</td>
<td>-33</td>
</tr>
<tr>
<td>200</td>
<td>-31</td>
</tr>
<tr>
<td>220</td>
<td>-29</td>
</tr>
<tr>
<td>240</td>
<td>-27</td>
</tr>
</tbody>
</table>
IMPORTANT NOTICE
RES-INGENIUM RESERVE THE RIGHT TO MAKE CHANGES TO THE PRODUCT(S) OR INFORMATION CONTAINED HEREIN WITHOUT NOTICE. RES-INGENIUM ASSUMES NO RESPONSIBILITY FOR ANY ERRORS WHICH MAY APPEAR IN THIS DOCUMENT.

WARRANTY INFORMATION APPLICABLE TO THE PRODUCT IDENTIFIED HEREIN IS AVAILABLE UPON REQUEST. NOTHING CONTAINED HEREIN SHALL CONSTITUTE A WARRANTY, REPRESENTATION OR GUARANTEE OF ANY KIND. RES-INGENIUM EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND/OR IMPLIED INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, AND OF FITNESS FOR A PARTICULAR PURPOSE, USE OR APPLICATION.

No part of this document may be copied or reproduced in any form or by any means without the prior written consent of Res-Ingenium.

WARNING
RES-INGENIUM PRODUCTS ARE NOT INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS. USE OF A RES-INGENIUM PRODUCT IN ANY SUCH APPLICATION WITHOUT WRITTEN CONSENT IS PROHIBITED.