Radioddity PAX100 User Manual

Warning

1. The PAX100, like all 100-watt solid-state amplifiers, will require a power supply capable of delivering 20 Amps current at 13.8 Volts. If your power supply does not have, at a minimum, 15 Amps current capability, do not use the amplifier until you have a suitable power source.

2. Before using the PAX100 with your G90 make sure the built-in antenna tuner has been turned off to avoid damaging the PAX100.

3. The PAX100, like all solid-state amplifiers, requires a resonant antenna on every frequency you operate on. If the antenna is not resonant, you will need an external Antenna Tuner. The tuner must be able to deliver SWR to the output of the amplifier of less than 2.0:1. The lower the SWR, the less chance there is of damaging the amplifier. It is best to keep the SWR below 1.5:1 to avoid potential damage to the PAX100. It is recommended not to exceed 2.0:1. When the amplifier is in use the radios internal antenna tuner will NOT be usable. If the antenna’s SWR is much higher than 1.5:1 the output performance can suffer. As it approaches the maximum allowable SWR of 2.5:1, the amplifier can be damaged. NEVER use the PAX100 with an SWR of 2.5:1 or higher, as the amplifier will be damaged and unusable until repaired.

4. The input power (from the G90) to the amplifier should never exceed 10 Watts; even on SSB peaks. Driving the amplifier with an output from the G90 higher 10 watts will result in damage to the PAX100 amplifier.

5. Output with an open circuit or short circuit is prohibited.

What You Need

To run an external power amplifier, you should have the following items at least:

1. A power supply capable of delivering, at a minimum, 20 Amps; preferably with voltage and amperage meters built in to monitor amplifier current draw and voltage under load.

2. An external antenna tuner capable of handling, at least, 100 Watts.

3. Crimpers and crimp connectors are necessary for terminals that connect to the power supply. The crimper and connector must be able to handle 20 Amps.

4. An accurate power meter that can read up to 150 watts. It has to be usable from 1.8 to
Operating Guide

1. According to the installation guide, connect the G90 to the PAX100 then to an antenna.
Prepare the DC power supply: set the DC voltage to 13.8V output and the maximum current to 20A.
Note: The power cord of APX100 can be directly connected to the power cord of G90. Pay attention to the positive and negative poles.

2. Power on in the G90 and PAX100 in following order:
   Turn on the DC power supply then Turn on G90 (the PAX100 will power up automatically)

3. Power setting:
   ① Set the output power of the G90 to 2-10W
   ② Press the PTT button of G90 to transmit. The PAX100 will automatically amplify the output power to 80-100W.

Included Items:

<table>
<thead>
<tr>
<th>Power Cable A with 3 20A Fuses</th>
<th>Input &amp; Output Feeder (B)</th>
<th>PTT Trigger Cable (C)</th>
</tr>
</thead>
</table>

Product
Installation Guide (Xiegu G90/X5105)

1. Connect the power cable to the power interface of G90 (supply voltage: 12V-16V, 100W/15.8V; 70W/13.8V, which can reach 100W. The average CW is 95W, the average SSB is 85W.)

2. Connect to the DC power supply: 13.8V/20A
   Note: The power cord of PAX100 can be directly connected to the power cord of G90. Pay attention to the positive and negative poles.

3. Connect the input & output feeder B. One for connecting G90 to the amplifier, the other for antenna and the amplifier (supply voltage: 15.8V, 2-10W signal input, 80-100W signal output)
4. Connect the PTT cable (C) (When the G90 is transmitting, the amplifier will automatically activate).
Power Test Results
**Signal Test**

<table>
<thead>
<tr>
<th>UTC</th>
<th>Mode</th>
<th>Frequency</th>
<th>ID</th>
<th>TX signal</th>
<th>RX signal</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:11</td>
<td>SSB</td>
<td>14270</td>
<td>BDXXXXX</td>
<td>59+20</td>
<td>59+</td>
<td>1200KM</td>
</tr>
<tr>
<td>7:38</td>
<td>CW</td>
<td>14017</td>
<td>R5XXXXX</td>
<td>599</td>
<td>599</td>
<td>5800KM</td>
</tr>
<tr>
<td>7:50</td>
<td>CW</td>
<td>14010</td>
<td>UNXXXXX</td>
<td>599</td>
<td>599</td>
<td>3600KM</td>
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<tr>
<td>7:57</td>
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<td>14023</td>
<td>BGXXXXX</td>
<td>539</td>
<td>559</td>
<td>1550KM</td>
</tr>
</tbody>
</table>

**Specifications**

- Frequency Range: 3 MHz～30MHz
- Supported Modes: A1A (CW), J3E (SSB), A3E (AM), F3E (FM), F7M (C4FM), F1B (FSK)
- Power Supply Voltage: DC 12V ~ 16V
- Power Supply Current: Standby 0.2A | Transmit 12A
- Input SWR: <2.0: 1
- Input / Output Impedance: 50 ohms (± 10%)
- Through Loss: less than 0.5dB
- Power Gain: greater than 15dB (± 2dB)
- Maximum Input Power: 10W
- Maximum Output Power: Input 5W, frequency <21MHz, power supply 15V = 100W
  - Input 5W, frequency >21MHz, power supply 15V = 70W
- Low-pass Filter Frequency: 33MHz (-6dB)
- Harmonic Output: greater than -50db (even order), greater than -30db (odd order)
- Spurious Output Suppression: greater than 40dB
- Input / Output Connector: SMA-K
- Working Temperature: 0-50 ℃
- Storage Temperature: -20-70 ℃
- Storage Humidity: less than 55%
- PTT Trigger Level: + VCC-2V (low trigger), GND + 5V (high trigger)
- PTT Trigger Current: 2ma