

Radioddity PAX100 User Manual

Conditions of Operation:

1. The PAX100 requires a power supply capable of delivering 20 Amps current at 13.8 Volts. If your power supply does not have the capacity to deliver 15 amps continuously, do not use the amplifier until you have a suitable power source.
2. The PAX100 requires a resonant antenna on every frequency it can operate on. If the antenna is not resonant, you will need an external Antenna Tuner. The tuner must be able to present an SWR to the output of the amplifier of less than 2.0:1. The lower the SWR is, the less chance of damage to the amplifier. Anything above 1.5: should be used with caution. The final transistors specifications recommend not exceeding 2.0:1. The internal tuner of the radio will not be useful then the amplifier is in use. If the SWR of the antenna in use is much higher than 1.5:1, after sustained operation, the amplifier may be damaged. At 2.5:1 or higher, the amplifier will be damaged and unusable until repaired. If needed, the final transistors are available from general parts suppliers and are low-cost.
3. When using PAX100, please turn off the built-in antenna tuner of G90, otherwise PAX100 will be damaged. (External tuner is allowed to use.)
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 amplifier.
5. Amplifier's gain is large on 160 meters. Please reduce drive to 5 watts on 160 meters.
6. 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:

1. A power supply capable of delivering 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. Be sure that the connection lugs on your DC cables connected to the power supply are capable of delivering 20 amps. If they are not, they will heat up and you will have voltage

drop and reduced power output.

4. An accurate power meter that can read up to 150 watts. It has to be designed for 1.8 to 30MHz.

Operating:

1. Wire it according to the picture. Adapter cables are provided to connect the G90 to the input of the PAX-100. Then connect the output of the PAX to the antenna. Connect the DC power cable between your power supply and the amplifier.

If using the APX-100 filter: Connect it's DC power cord to the power supply.

Double-check the positive and negative poles.

2. Connect the Amplifier keying line (PTT trigger cable "C") between the rear connector of the G90 and the "PTT trigger" two pin connector on the circuit board.

3. Power on in the following order:




Turn on the DC power supply - Turn on G90 (PAX100 will work automatically)

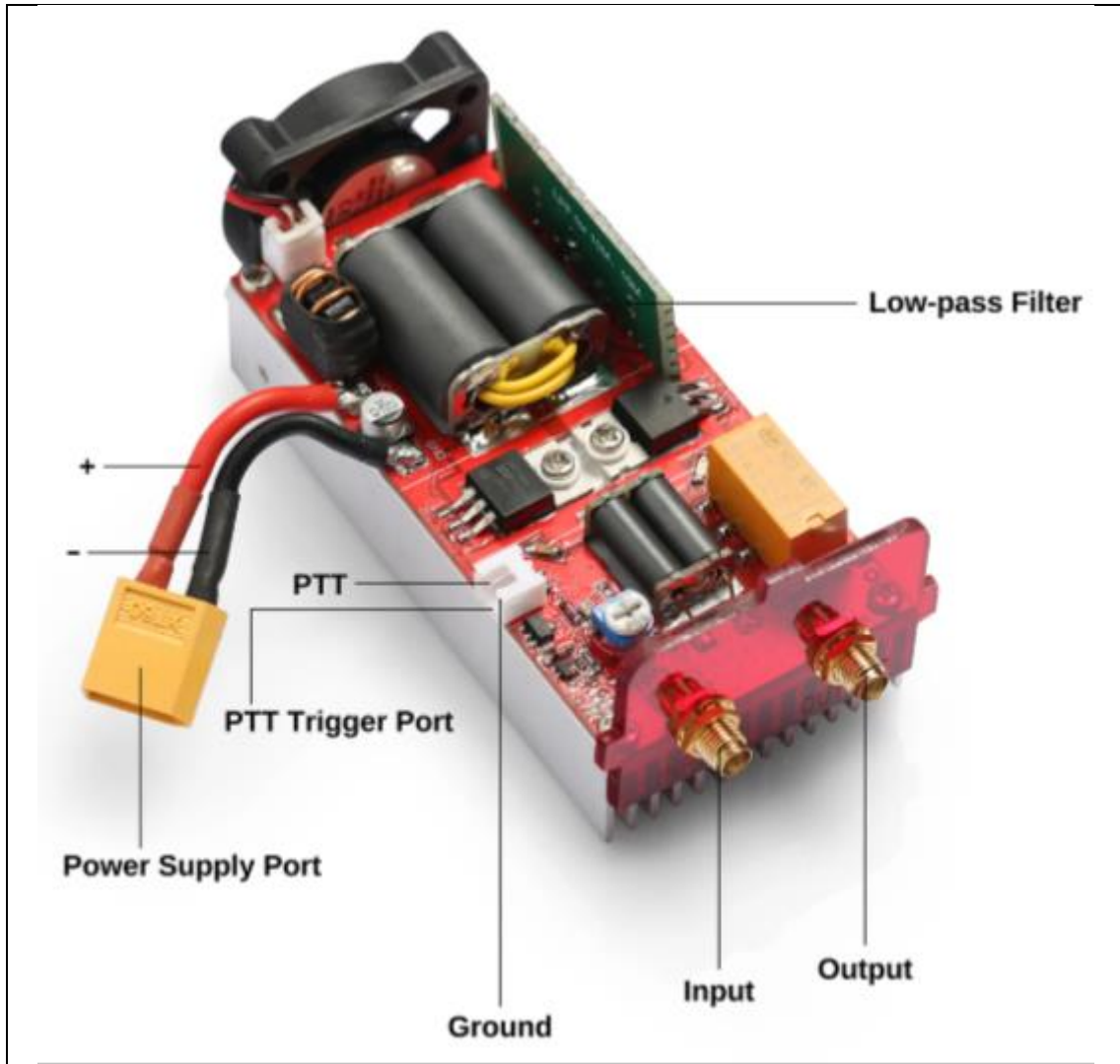
2. Power setting:

① Set the output power of G90 from 2-10W. 10W will provide max power output.

② Press the PTT key of G90 to transmit. PAX100 will "key up" and amplify the output power to 80-100W.

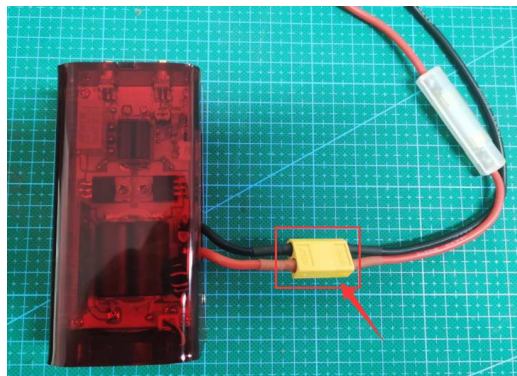
Accessories:

Power cable A with 3 20A Fuses	Input & Output feeder B	PTT Trigger Cable C
		
Product		



Installation Guidance (Only for Xiegu G90/X5105)

1. Connect the power cable to the power connector of the G90. (supply voltage: 12V-16V, 100W/15.8V; 70W/13.8V. 100 W is maximum output. The average CW is 95W, the average SSB is 85W.) Your supply voltage will directly affect the maximum output level.



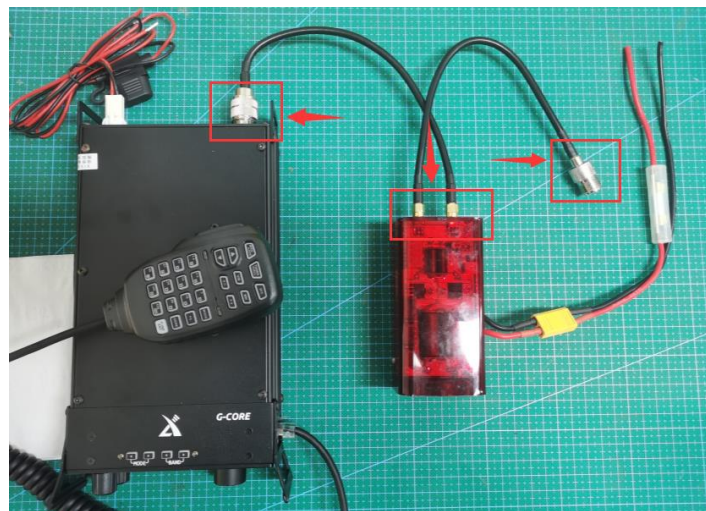
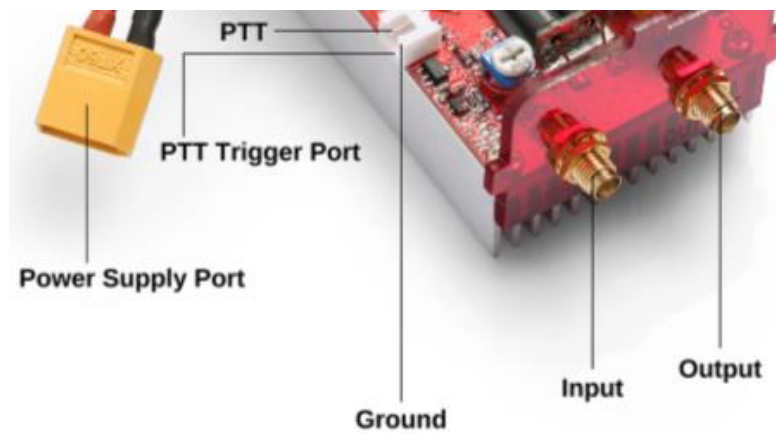
2. Connect to the DC power supply: 13.8V/20A

If you are using a DC power supply, you can adjust it for up to 15.8V to achieve maximum power. 13.8V will provide around 70W out.

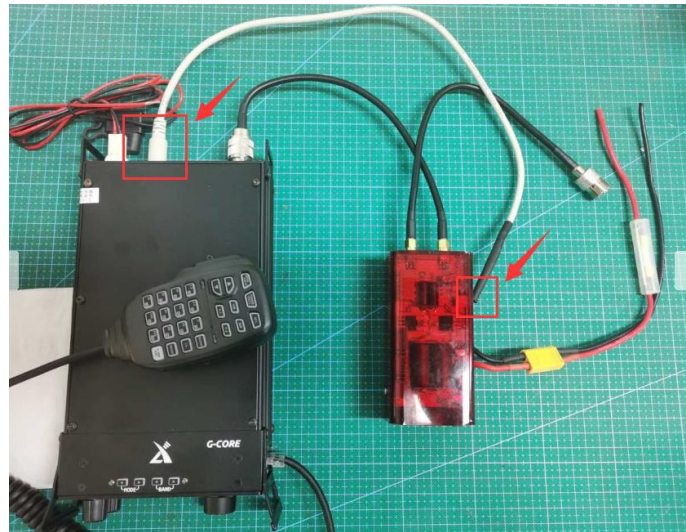
Pay attention to the positive and negative poles.



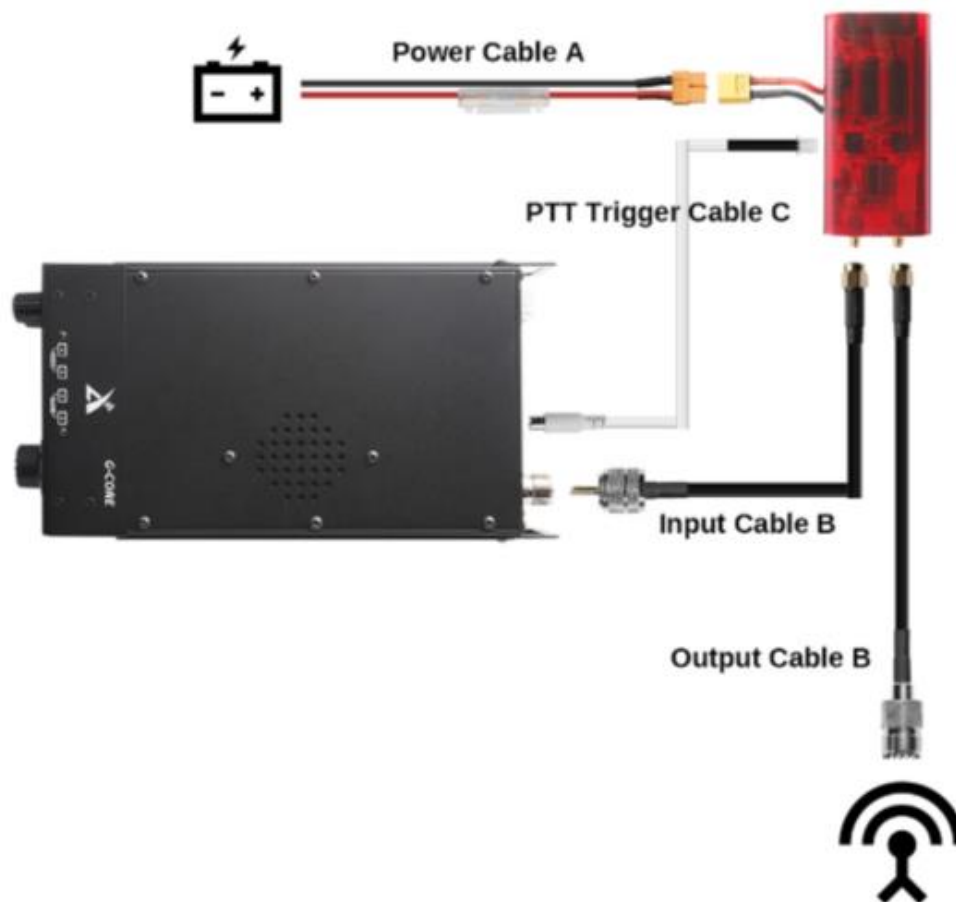
3. Connect the input & output coax jumpers. B. One for connecting G90 to the amplifier, the other for antenna and the amplifier. Look for the In and Out text next to the connectors on the amp's circuit board. See Pix below.



4. Connect the PTT trigger cable C



Overall Installation



Power Test Results



Signal Test:

40 meters @ 13.8V	Drive Level In	1	2	5	7	10
Output Watts		62	72	93	95	97
@ 10W Input drive P.S. Voltage	12.6	13.2	13.8	14.4	15	15.6
20 Meters Output W	85	95	101	110	117	125

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 ($\pm 10\%$)

Through Loss: less than 0.5dB

Power Gain: greater than 15dB (± 2 dB) (varies per band)

Maximum Input Power: 10W

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 °C

Storage Temperature: -20-70 °C

Storage Humidity: less than 55%

PTT Trigger Level: + VCC-2V (low trigger), GND + 5V (high trigger)

PTT Trigger Current: 2ma