

CG Antenna

CG-5000 AUTOMATIC ANTENNA TUNER USER MANUAL



INTRODUCTION

CG-5000 automatic antenna tuner (ATU) can cover whole HF bands from 1.8 to 30 MHz. The CG-5000 is the high power version of the state-of-art CG-3000. It uses new microprocessor and more big non-volatile memory. The CG-5000 is independent to any exciters. It detects RF frequency, VSWR and other information from RF signal. So it can work with any exciters without the special data connection. The multi signal processing circuit switches the inductance and capacitance to make perfect matching between your radio and antenna system. Fast tuning, less than 6 seconds for first initialize matching. 800 memory channels store the minimum SWR value to make further tuning. The solid waterproof case works on the most extreme environments. The mounting kit is built by stainless metal to ensure no rust.

The CG-5000 is designed with Pi matching network. It provides more wide tuning range and covers whole HF band. Using 8 solid inductors, the total inductance ranges from 0 to 32 uH. They can give 128 combinations with a resolution of 0.25 uH. 5 capacitors are used at the input side, the total capacitance ranges from 0 to 6400 pF with 64 combinations. Other 5 capacitors are used at the output side, the total capacitance ranges from 0 to 400 pF with 32 combinations. So totally they give more than 250,000 tuning combinations.

SPECIFICATION

Working frequency:	1.8 - 30 MHz
Input impedance:	45-55 ohm
Max. input power:	800W PEP 250W continuous
Min. input power:	10W
Power supply:	13.8V +/- 10%
Current drain:	< 1.5A
Auto tuning time:	Approx. 6 sec. (first time tuning) < 0.2 sec (return to memorized frequency)
Memory channels:	800
Usable wire length:	6 – 30 MHz > 2.4 meters 1.8 – 30 MHz > 8 meters

** All specifications are subject to change without notice or obligation*

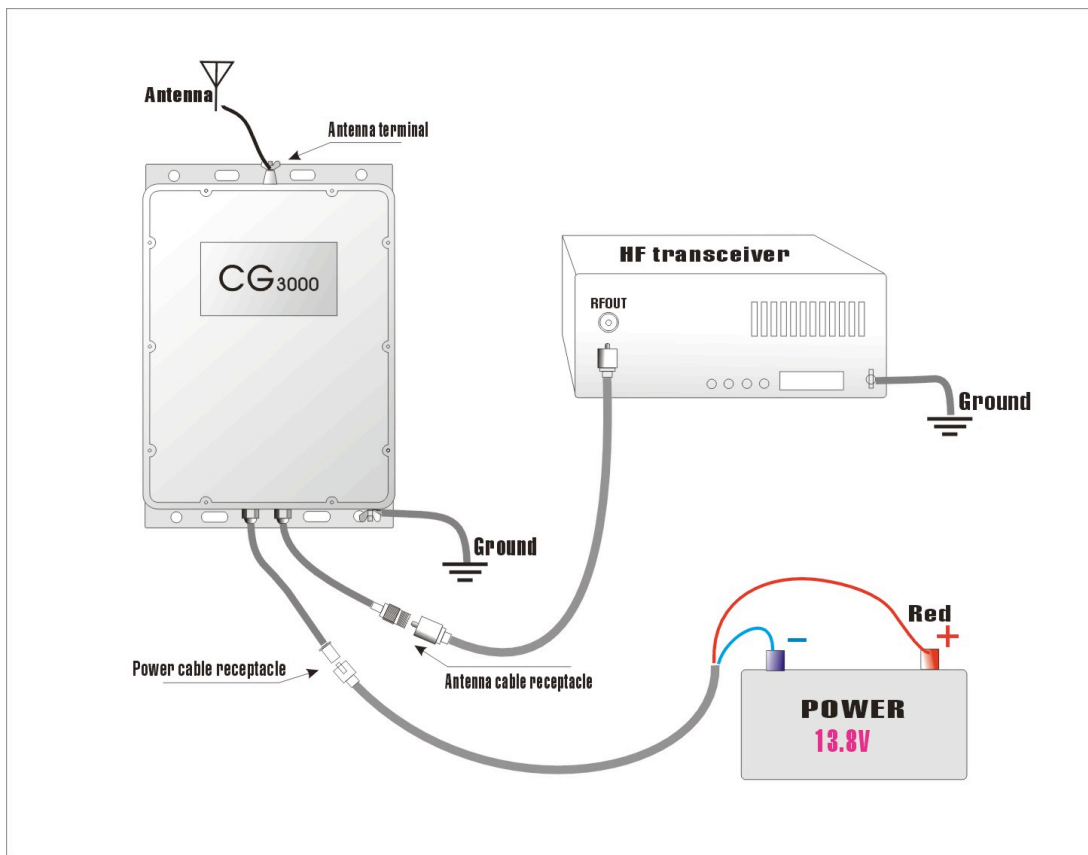
USING CG-5000

Installation

1. Connect an antenna.
2. Connect the ground wire.
3. Connect the transmission cable to transceiver.
4. Connect the control cable
5. Mount the CG-5000 to desired location.

- Never use the system without reliable ground connection.
- Never transmit or tune without an antenna. It will damage your tuner.
- High voltage! Do not touch the antenna when it's transmitting or tuning.

Fig. 1



* There is an optional control cable available.

* 2 wires power cable is provided

Red wire: +12VDC

Operation

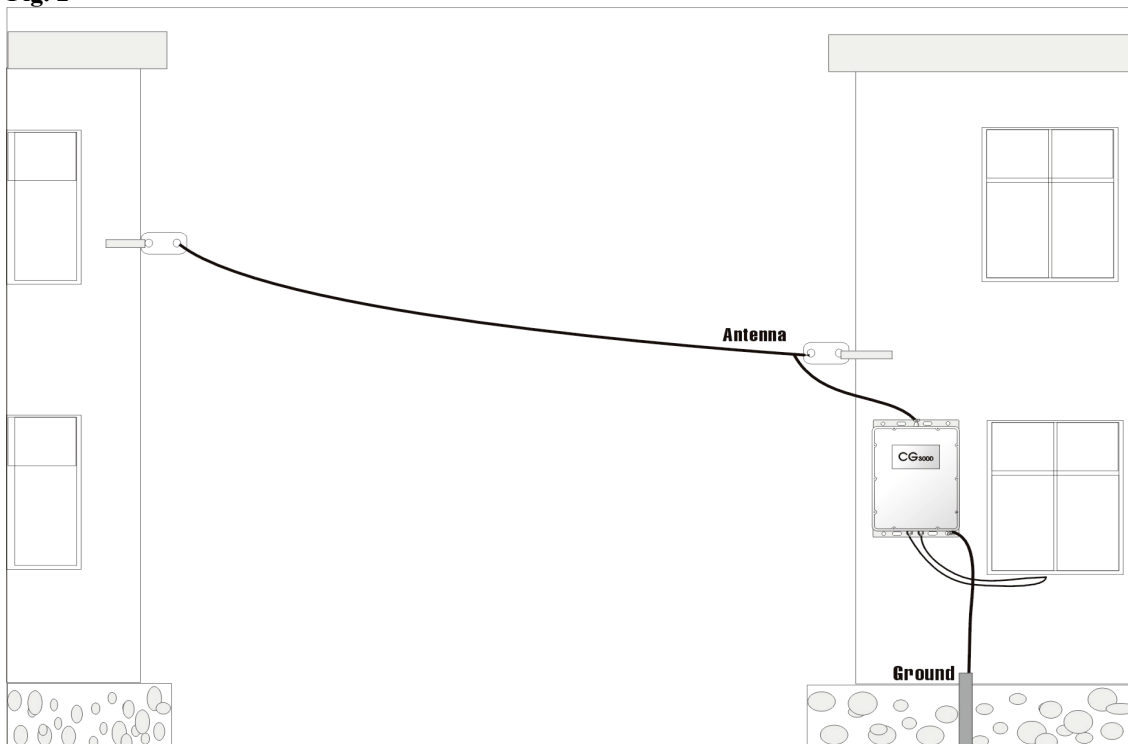
After verify all the connection, choose your desired frequency and switch the transmit mode to AM, PACKET or any other continuous mode. First try low power to tune. E.g., 20 watts. Press PTT key, CG-5000 will automatically tune. You will hear some “click click” noisy, it means CG-5000 is tuning. Once the tuner gets the lowest VSWR, then tuning will finish and tuner will store all the parameters to memory. Also you can check the tuning status from the optional control unit. If the green ‘Tuned’ light is on, it means tuning finish.

***** WARNING: Tuning with high power will damage the tuner!**
***** Please respect the maximal output power limit. Otherwise the tuner will be damaged!**

When you go back to the frequency which is tuned before, CG-5000 will pickup the existing L/C combination from memory setting and match the system.

To reset the tuner, just simply disconnect the power or use optional control box.

Fig. 2



Ground system

The CG-5000 must be connected to a good electrical ground. Good ground prevents shocks, interference and others.

Use heaviest gauge wire or metal strap available to connect to as large as possible metal object.

Install a quarter wave length of working frequency wire as counterpoise.

Attention

1. Check the supply power to tune. If the power voltage is too low, CG-5000 will not work. And DO NOT reverse the polarity of the input power.
2. To ensure the proper tuning, the antenna must have enough length.
3. Do not install BALUN, it will cause difficult tuning.
4. Reduce the transmission coaxial cable as short as possible.

Calculation of undesirable antenna lengths

Length of half wave = $300 / \text{operating frequency (MHz)} \times \frac{1}{2}$

Please avoid using the antenna length that is close to a half wave or multiple of a half wave in length

Warranty

CG antenna warrants all products against defects in material for a period of 1 year unless otherwise indicated.

The warranty does not cover damage, improper use, abuse, or conditions beyond our control (i.e. lightning).

Repairs

If you have any problem of your CG product. Please contact your local sales directly. Then we can arrange the repair service.

If return for repair is needed, please wrap and pack your unit well to protect damage during transportation or handling. Include a note with your name, address, phone number, email and brief description of the problem.

**CG antenna and our distributors can not be responsible for unit lost or damage in shipping.*