

Malahit ATU1KW

Malahit ATU-1000 ATU1000W Automatic Antenna Tuner Instruction Manual

MODEL: ATU1KW

Brand: Malahit

1. INTRODUCTION

This manual provides detailed instructions for the assembly, setup, and operation of your Malahit ATU-1000 ATU1000W Automatic Antenna Tuner DIY Kit. The ATU-1000 is a 7x7 automatic antenna tuner designed for up to 1000 Watts, based on the PIC 16F1938 microcontroller and featuring a 1602 LCD display. Please read this manual thoroughly before beginning assembly or operation.

What's in the Box:

- PCB for ATU-1000W 7x7 HF autotuner
- Toroids: T200-2 (6 pcs), FT50-43 (4 pcs)
- PIC16F1938 (1 pc) with pre-programmed firmware (latest version)
- 7 PCS SMD capacitors (NPO material, withstand voltage 3KV-4KV)
- All other SMD parts (pre-welded by machine)
- Relay 12VDC-SL-1C (SCHRACK relays) (15 pcs)
- 1602 LCD screen (larger size)
- Assembly Manual
- Power lead with barrel connector and flying leads

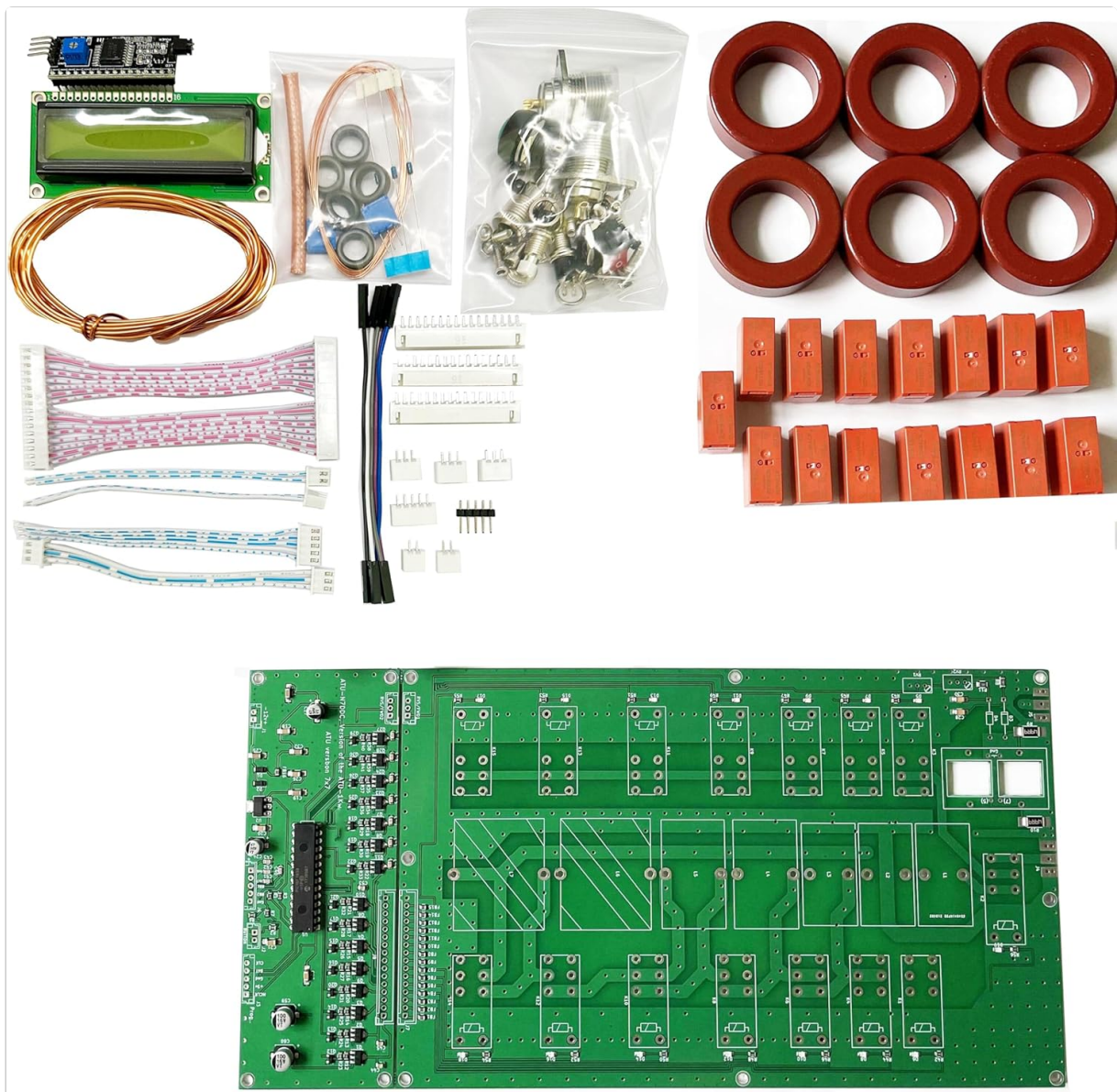


Figure 1: Overview of the ATU-1000 ATU1000W DIY kit components. This image displays the main printed circuit board, various toroids, the 1602 LCD screen, and other small electronic parts required for assembly.

2. SETUP

2.1 Assembly (DIY Kit)

The ATU-1000 ATU1000W is provided as a DIY kit. Basic soldering ability is required for assembly. Note that SMT chip resistors have been pre-soldered by machine, simplifying the assembly process. The firmware program has been pre-flashed with the latest version (3.2).

2.2 Power Connection

The tuner requires a 12V DC power supply. A power lead with a barrel connector on one end and flying leads on the other is included. You will need to attach appropriate connectors to the flying leads to match your 12V DC power source (e.g., power supply or battery). The power input socket is located on the rear panel of the tuner.

2.3 Antenna Connection

The rear panel features two SO-239 jacks for connecting your transceiver and antenna, labeled 'TX' and 'ANT' respectively. Additionally, two wire terminals (red and black) are provided for connecting a long wire

antenna. The antenna wire should connect to the red terminal, and the black terminal should be connected to ground.

ATU-1000W Back:

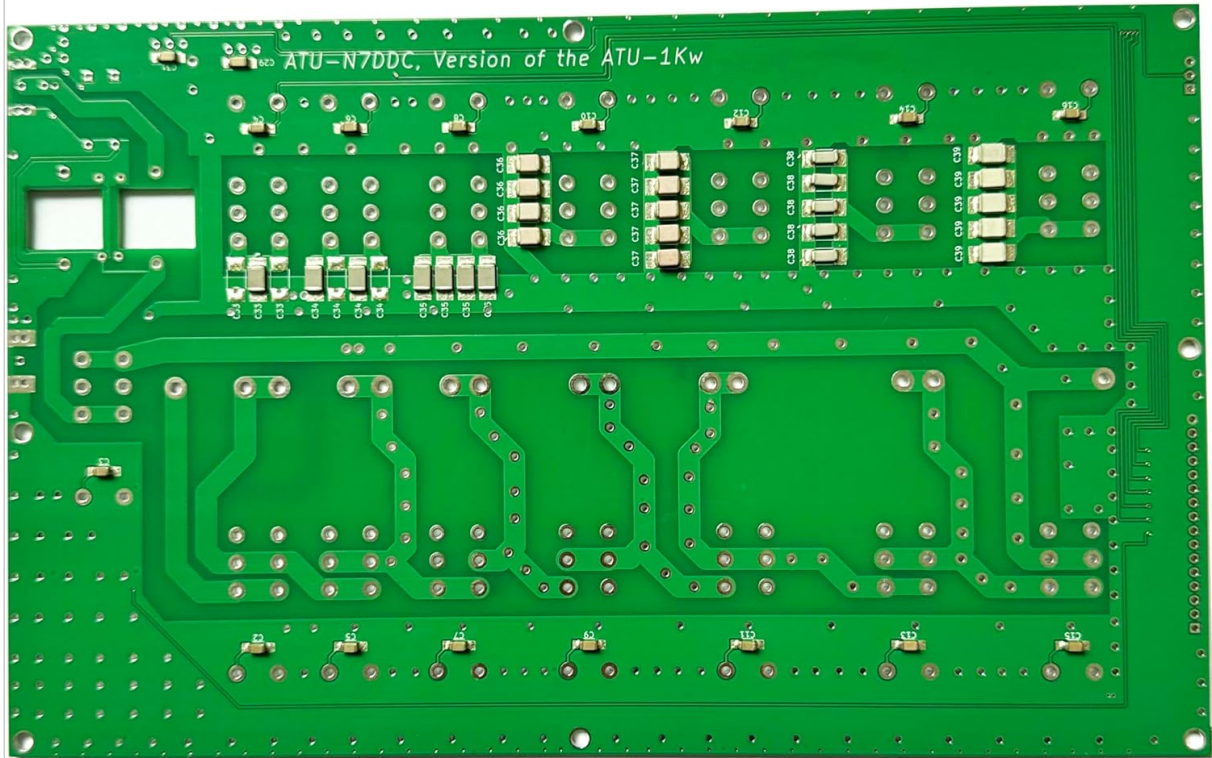


Figure 2: Rear panel connections of the ATU-1000 ATU1000W. This image highlights the SO-239 connectors for transceiver (TX) and antenna (ANT), the 12V DC power input, and the wire terminals for long wire antenna connections.

3. OPERATING INSTRUCTIONS

3.1 Front Panel Controls

- **Power Switch:** Toggles the tuner on/off.
- **Reset Tune Button:** Initiates the tuning process or resets the current tune.
- **1602 LCD Display:** Shows power, SWR, and efficiency readings during operation.

3.2 Basic Tuning Process

1. Ensure the tuner is properly connected to your transceiver and antenna.
2. Turn on the tuner using the Power switch. The LCD display will show boot-up information.
3. Set your transceiver to the desired frequency and a low power output (e.g., 10-15 watts in AM mode for a carrier).
4. Key up your transceiver. The tuner will automatically begin its tuning sequence, indicated by audible clicks and changes on the LCD display.
5. Observe the SWR, power, and efficiency readings on the tuner's LCD. The tuner aims to achieve an SWR close to 1.0:1.

3.3 Bypass Mode

When the tuner is powered off, it operates in a bypass mode, allowing the signal to pass through without

tuning. While this can be convenient for pre-tuned antennas, it may introduce some insertion loss. For optimal performance, it is generally recommended to remove the tuner from the line if not needed.

3.4 Resetting the Tune

To reset the current tune and initiate a new tuning cycle, press the 'Reset Tune' button on the front panel. This is useful if you change bands or if the antenna conditions change significantly.

3.5 Band Coverage

The ATU-1000 ATU1000W is designed to operate within the frequency range of 1.8 MHz to 30 MHz.

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Video 1: Demonstration of the ATU-100 HF Auto Tuner's operation. This video shows the tuner being connected to a radio, powered on, and performing an automatic tune on various bands, displaying SWR and power readings.

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Video 2: Detailed comparison of ATU-100 tuner models, highlighting differences between battery-equipped and external power models. This video also demonstrates the tuning process and display information.

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Video 3: Overview of the ATU-130 HF Automatic Antenna Tuner, demonstrating its compact size, OLED display, wide 1.8-50MHz coverage, and reliable performance without needing a control line.

4. SPECIFICATIONS

Package Dimensions	9.96 x 6.69 x 2.87 inches
Item Weight	2.2 pounds
Manufacturer	Malahit Tech
Item Model Number	ATU1KW
Antenna Type	Radio
Color	Green
Number of Channels	2
Impedance	50 Ohms
Maximum Range	10000 Meters
Product Dimensions	10.7"L x 5.4"W x 3.2"H
Number of Items	5

5. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the contact details provided by your retailer or the manufacturer, Malahit Tech. An assembly manual is included in the package for detailed guidance.

