



[Manuals.plus](#) /

> [Malahit](#) /

> Malahit ATU-10 QRP Automatic Antenna Tuner User Manual

Malahit ATU-10

Malahit ATU-10 QRP Automatic Antenna Tuner User Manual

Model: ATU-10 | Firmware Version: 1.6

1. INTRODUCTION

The Malahit ATU-10 QRP Automatic Antenna Tuner is a compact and efficient device designed for matching antennas with low power (QRP) transceivers. This tuner features automatic tuning capabilities, a clear OLED display, and a built-in rechargeable battery, making it ideal for portable operations. This manual will guide you through the proper setup, operation, and maintenance of your ATU-10 tuner.

2. SAFETY INFORMATION

- Do not exceed the maximum input power of 15W. Exceeding this limit can damage the tuner.
- Ensure proper grounding connections to prevent electrical hazards and improve performance.
- Use only the provided or a compatible USB Type-C cable for charging the internal battery.
- Avoid exposing the device to extreme temperatures, moisture, or direct sunlight.
- Do not attempt to disassemble or modify the tuner, as this will void the warranty and may cause damage.

3. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1 x Malahit ATU-10 QRP Automatic Antenna Tuner (Assembled with shell and battery)
- 1 x USB Type-C Charging Cable (*Note: Use this cable for optimal charging*)

4. PRODUCT OVERVIEW

The ATU-10 tuner is housed in a durable aluminum alloy shell with front and rear panels precisely cut by CNC. It features a compact design for portability.

4.1 Front Panel

The front panel includes the control button, a 0.91-inch OLED display, and a USB Type-C connector.

ATU-10 QRP Front:



Image: Front view of the ATU-10 tuner, showing the 'TUNE' button, OLED display, and USB Type-C port. The display shows 'PWR' and 'SWR' readings.

ATU-10 QRP

Automatic Antenna Tuner



By N7DDC

Image: Close-up of the ATU-10 front panel, highlighting the 'TUNE' button, OLED screen, and USB port. The screen displays 'DESIGNED BY N7DDC' and 'FW VERSION 1.6'.

4.2 Rear Panel

The rear panel provides RF BNC connectors for antenna input and output, a ground clamp, and an external control interface connector.

ATU-10 QRP Back:



Image: Rear view of the ATU-10 tuner, showing the 'OUT' BNC connector, 'GND' terminal, 'EXT' port, and 'IN' BNC connector.

5. SETUP

5.1 Charging the Battery

The ATU-10 includes a built-in Lithium Ion battery. Before first use, or when the battery indicator on the OLED display is low, charge the tuner using the provided USB Type-C cable.

- Connect the USB Type-C cable to the tuner's USB port on the front panel.
- Connect the other end of the cable to a standard USB power source (e.g., computer, wall adapter).
- A red LED inside the case indicates charging. The OLED display may show battery status.
- *Important: Some generic USB-C chargers may not be compatible. Always use the cable that came with the tuner or a known compatible one.*

5.2 Connecting the Tuner

Ensure the transceiver is off before making connections.

- Connect your transceiver's antenna output to the **IN** BNC connector on the rear panel of the ATU-10.
- Connect your antenna to the **OUT** BNC connector on the rear panel of the ATU-10.
- Connect a ground wire from your station's ground to the **GND** clamp on the rear panel.
- For enhanced control with compatible transceivers (e.g., Icom IC-705), connect a control cable from your transceiver to the **EXT** interface connector on the rear panel. This allows the tuner to respond to transceiver commands for automatic tuning.

6. OPERATION

The ATU-10 features a single control button on the front panel for all primary functions.

6.1 Control Button Functions

- **Short Press:** Resets the tuner. All reactive elements are disabled, and the tuner enters a bypass state, not affecting the signal flow.
- **Long Press (approx. 1-4 seconds):** Initiates the tuning mode. The tuner will automatically adjust to find the best match for the current frequency and antenna.
- **Very Long Press (more than 5 seconds):** Displays the current firmware version on the OLED screen.

6.2 Tuning Process

To tune your antenna:

1. Ensure your transceiver is set to a low power output (typically 5-10W for tuning).
2. Transmit a continuous carrier (e.g., using CW mode or a tune function on your radio).
3. Perform a **Long Press** on the ATU-10's control button. The tuner will begin its automatic matching sequence.
4. The OLED display will show the current power (PWR) and Standing Wave Ratio (SWR) during and after the tuning process. Aim for an SWR close to 1.0:1.
5. Once tuning is complete, the tuner's relays will retain their state without consuming significant power.

The tuner is built with IM41 bistable latching relays, meaning power is only consumed during the brief tuning process. In rest mode, the relays hold their state without drawing current.

7. MAINTENANCE

7.1 Battery Care

The internal Lithium Ion battery provides power for portable operation. To maximize battery life:

- Avoid fully discharging the battery frequently.
- Store the tuner with a partial charge (around 50%) if not used for extended periods.
- If the battery's performance degrades over time, it may require replacement. Contact Malahit support for service options.

7.2 Cleaning

Use a soft, dry cloth to clean the exterior of the tuner. Do not use liquid cleaners or solvents, as they may damage the finish or internal components.

8. TROUBLESHOOTING

- **Tuner not charging:** Ensure you are using the correct USB Type-C cable and a functional power source. Some generic cables or chargers may not be compatible.
- **High SWR after tuning:** Verify all connections are secure. Check your antenna system for faults. Ensure the input power is within the 1W-15W range. Try a short press to reset the tuner, then a long press to re-tune.
- **Display not working:** Ensure the battery is charged. If the issue persists, contact support.
- **Firmware update:** The USB Type-C port can be used to connect to a computer for firmware updates. Refer to the official Malahit website for specific instructions and available firmware.

9. SPECIFICATIONS

Input Power	Minimum 1W, Maximum 15W
Dimensions (L*W*H)	100 x 75 x 26 mm (3.94 x 2.95 x 1.02 inches)
Weight	300g (10.5 ounces)
Display	0.91" OLED (128 x 32 pixels)
Connectors	RF BNC (Input/Output), USB Type-C (Charging/Firmware), Ground Clamp, External Control Interface
Relays	IM41 Bistable Latching Relays
Battery	2 x Lithium Ion (included)
PCB Material	Immersion Gold Circuit Board (UL certified)
Capacitors	NPO materials, 500V voltage resistance
Magnetic Rings	BASF6000 micron iron powder (super low loss/heat)
Shell Material	Aluminum Alloy

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer directly. Keep your proof of purchase for warranty claims.