Walfront AT 100M Pro

Walfront AT 100M Pro Automatic Antenna Tuner and Power Standing Wavemeter User Manual

Model: AT 100M Pro

1. Introduction

The Walfront AT 100M Pro is a versatile automatic antenna tuner and power standing wavemeter designed for amateur radio enthusiasts. It supports a wide frequency range from 1.8 MHz to 30 MHz and is compatible with various radio stations and antenna types. Featuring both manual and automatic tuning modes, an OLED display, and a built-in 3300mAh lithium battery, this compact and portable device is ideal for both fixed and portable operations.

2. Safety Information

- Ensure proper grounding of the device and antenna system to prevent electrical hazards.
- Do not exceed the specified power limits for the device at different frequencies and modes to avoid damage. Refer to the specifications section for details.
- Keep the device away from water, moisture, and extreme temperatures.
- Use only the provided USB Type-C cable for charging.
- Do not attempt to disassemble or modify the device, as this will void the warranty and may cause damage or injury.

3. Package Contents

Verify that all items are present in the package:

- 1 x Antenna Tuner Power Standing Wavemeter (AT 100M Pro)
- 1 x L Wrench
- 1 x USB Cable (Type-C)
- 1 x Foot Pad Set
- 1 x User Manual

Figure 3.1: Walfront AT 100M Pro Antenna Tuner and included accessories.

4. Product Overview

4.1 Physical Features

The AT 100M Pro features a compact and portable design with an aluminum alloy shell, ensuring durability. Its dimensions are approximately 154mm x 74mm x 29mm, making it easy to carry for outdoor and portable operations.

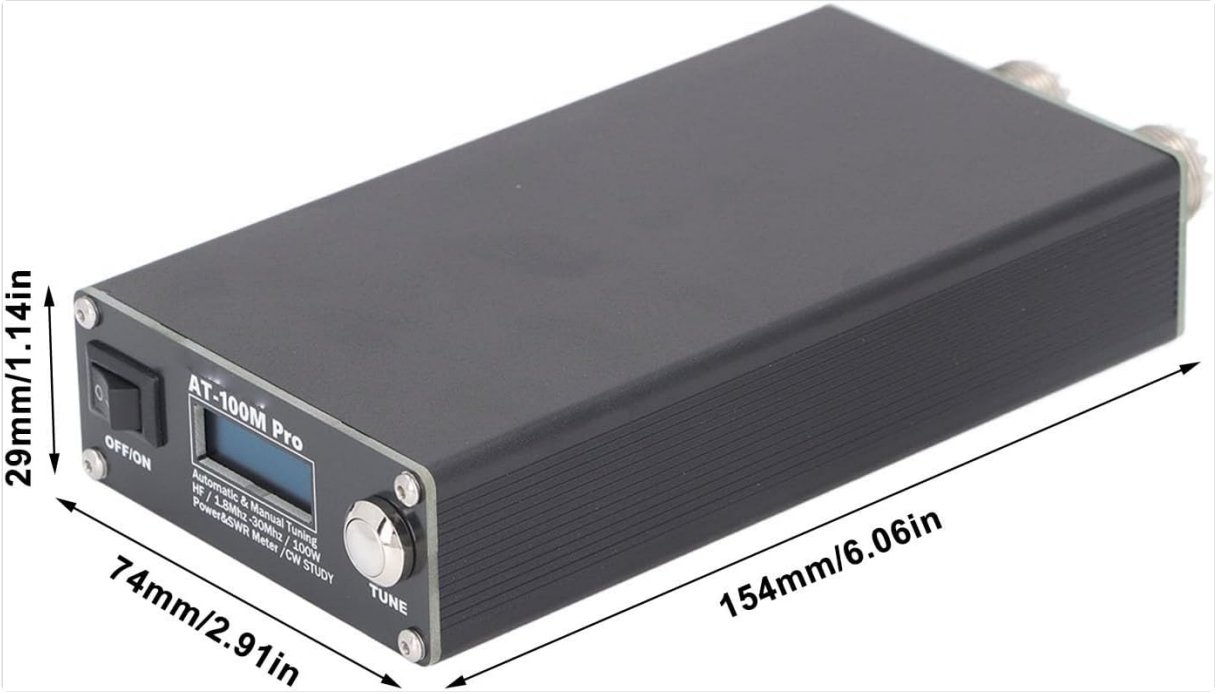


Figure 4.1: Compact dimensions of the AT 100M Pro tuner.

4.2 Interface and Display

The device is equipped with an OLED display that provides clear information on various operating parameters. It supports six status interfaces for comprehensive monitoring:

- **User Storage Interface:** For saving and recalling settings.
- **Bar Power Standing Meter Interface:** Real-time display of current power and standing wave meter, supporting up to 150W.
- **Large Font Interface:** Provides a clearer view of standing wave and power meter values.
- **Standing Curve Interface:** Displays the changing trend of the standing wave in real-time during transmission.
- **Power Chart Interface:** Shows the output power change trend in real-time during transmission.
- **Relay and Battery Voltage Status Interface:** Displays the current relay status of capacitance and inductance, and allows manual adjustment.

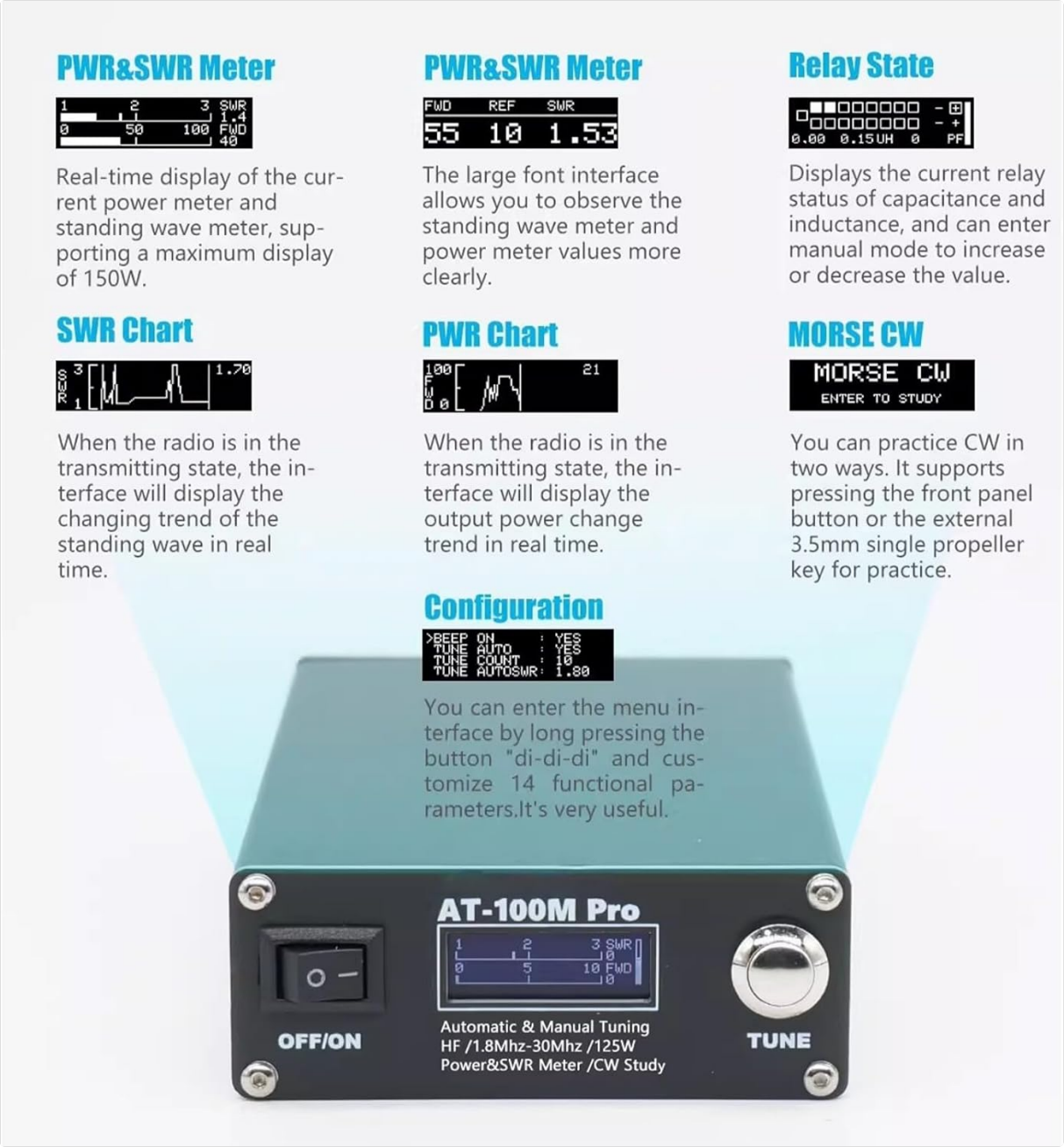


Figure 4.2: OLED display showing multiple status interfaces.

4.3 Connectivity

The device features standard RF connectors for antenna and radio input, a ground terminal, a 3.5mm jack for a CW key, and a USB Type-C port for charging.

Figure 4.3: Rear panel connections including ANT, IN, GND, CW Key, and USB-C.

5. Setup

5.1 Initial Charging

Before first use, fully charge the built-in 3300mAh lithium battery using the provided USB Type-C cable and a 5V 1A power source. The charging LED will be red during charging and turn green when fully charged. A full charge takes approximately 4 hours.

5.2 Connecting to Radio and Antenna

1. Connect your radio's antenna output to the **IN** connector on the AT 100M Pro.
2. Connect your antenna to the **ANT** connector on the AT 100M Pro.
3. Ensure a proper ground connection by connecting the **GND** terminal to your station's ground system.
4. No professional data cable is needed for operation.

Figure 5.1: The AT 100M Pro connected to a radio for operation.

6. Operating Instructions

6.1 Power On/Off

Use the **OFF/ON** switch located on the front panel to power the device on or off.

6.2 Tuning Modes

The AT 100M Pro supports two tuning modes: Manual Tuning and Auto Tuning.

- **Auto Tuning:** Press the **AUTO** button to initiate automatic tuning. The device will automatically adjust the capacitance and inductance to achieve the lowest SWR.
- **Manual Tuning:** Use the **TUNE** button to enter manual tuning mode. You can then adjust the capacitance and inductance values as needed to optimize SWR.

Video 6.1: Demonstration of an automatic antenna tuner (ATU-130) in operation, showing SWR reduction and display feedback. This video illustrates the tuning process similar to the AT 100M Pro.

Video 6.2: Another example of an automatic antenna tuner in use, demonstrating the tuning sequence and power output. This provides further visual context for the AT 100M Pro's functionality.

6.3 Understanding the Display Interfaces

The OLED display offers various views to monitor your antenna system's performance:

- **PWR&SWR Meter:** Shows real-time forward power (FWD), reflected power (REF), and Standing Wave Ratio (SWR).
- **Large Font Interface:** Provides an enlarged display of key SWR and power values for easy reading.
- **SWR Chart:** Visualizes the SWR trend over time during transmission.
- **PWR Chart:** Visualizes the output power trend over time during transmission.
- **Relay State:** Displays the current state of internal relays, indicating capacitance and inductance values. These can be adjusted manually.
- **Configuration Menu:** Long-press the 'Tune' button to access the menu and customize up to 14 functional parameters, such as BEEP ON/OFF, TUNE AUTO/MANUAL, TUNE COUNT, and AUTO SWR threshold.

Figure 6.3: Configuration menu on the OLED display.

6.4 Morse CW Practice Mode

The AT 100M Pro includes a Morse CW practice mode. You can practice Morse code using the single paddle electric key function by operating the buttons on the front panel or by connecting an external 3.5mm single propeller key to the dedicated jack.

Figure 6.4: Morse CW practice mode displayed on the tuner.

Figure 6.5: The AT 100M Pro connected to an external Morse code key.

7. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Avoid using harsh chemicals or abrasive materials.
- **Battery Care:** To prolong battery life, avoid fully discharging the battery frequently. If storing the device for an extended period, charge it to approximately 50-70% capacity.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.

8. Troubleshooting

- **High SWR after tuning:**
  - Ensure all antenna connections are secure and correct.
  - Calibrate the SWR value of the device when using it for the first time or after changing the radio. Refer to the instruction manual for detailed calibration steps.
  - Check if the antenna is suitable for the operating frequency.
- **Device not powering on:**
  - Ensure the battery is sufficiently charged. Connect the USB Type-C cable to charge.

- Verify the power switch is in the 'ON' position.

- **Inconsistent tuning results:**
  - Ensure the device is placed on a stable, non-conductive surface.
  - Check for any nearby metallic objects that might interfere with antenna performance.

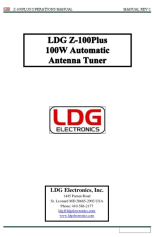
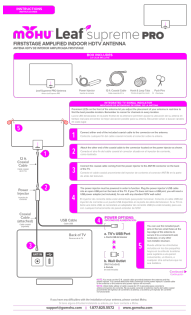
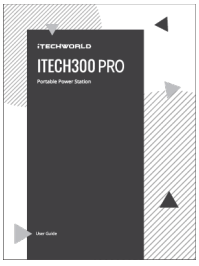
9. Specifications

Feature	Description
Model	AT 100M Pro
Material	Aluminum Alloy
Supported Radio	Any Radio
Supported Antenna	Any Antenna
Frequency Range	1.8 - 30 MHz
Power Range (1-18MHz, SSB, CW)	0.1W - 100W (Maximum 150W)
Power Range (18-30MHz, SSB, CW)	0.1W - 50W
Power Range (1-30MHz, FM, AM, FT8)	0.1W - 50W
Maximum Capacitance	3869pF
Maximum Inductance	17.21uH
CW Key Jack	3.5mm
Charging Port	Type-C USB 5V 1A (Supports Overcharge and Overdischarge Protection)
Battery	Rechargeable Lithium Battery 3300mAh (Built-in)
Shutdown Current	Approx. 15uA
Standby Current (No Tuning)	Approx. 13mA, Approx. 150-200 Hours Standby
Standby Current (Tuning)	130-330mA (depending on relays), Approx. 10-25 Hours Standby
Charging Time	Approx. 4 hours for full charge
Product Dimensions	6.06"L x 2.91"W x 1.14"H (154mm x 74mm x 29mm)
Item Weight	1.08 pounds
Manufacturer	WALFRONT
Item Model Number	WALFRONTzy7g81d0he

10. Warranty and Support

Specific warranty information for the Walfront AT 100M Pro is not provided in this manual. For warranty claims, technical support, or service inquiries, please contact the retailer or manufacturer directly. Keep your purchase receipt as proof of purchase.

Related Documents - AT 100M Pro

	LDG Z-100Plus 100W Automatic Antenna Tuner Operations Manual Comprehensive operations manual for the LDG Z-100Plus 100W Automatic Antenna Tuner. Covers specifications, installation, operation, theory, troubleshooting, and warranty.
	Fox Delta PA-100M HF Power Amplifier System: Technical Specifications and Components Comprehensive technical document detailing the Fox Delta PA-100M HF Power Amplifier system, including the CPU (SWR Meter), Power Amplifier, Low Pass Filter, Power Supply, and Back Panel boards. Features schematics, parts lists, and operational descriptions.
	Mohu Leaf Supreme PRO Amplified Indoor HDTV Antenna Instructions Step-by-step instructions for setting up the Mohu Leaf Supreme PRO amplified indoor HDTV antenna, including box contents, connection guide, power options, and troubleshooting tips.
	Korg Sledgehammer Pro Clip-on Tuner Owner's Manual This manual provides detailed instructions for the Korg Sledgehammer Pro clip-on tuner, covering its features, setup, operation, tuning modes, calibration, specifications, and important safety precautions. It is designed for musicians seeking accurate and convenient instrument tuning.
	iTechworld PS3600 PRO Portable Power Station User Guide Comprehensive user guide for the iTechworld PS3600 PRO Portable Power Station, covering product overview, charging methods, fault resolution, specifications, and safety precautions.
	iTECH300 PRO Portable Power Station User Guide User guide for the iTECH300 PRO Portable Power Station, detailing its features, operation, charging methods, protections, storage, and maintenance.