

LDG Z-100A 100W Automatic Antenna Tuner



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INTRODUCTION

LDG pioneered the automatic, wide-range switched-L tuner in 1995. From its laboratories in St. Leonard, Maryland, LDG continues to define the state of the art in this field with innovative automatic tuners and related products for every amateur need.

The Z-100A 100 watt automatic HF antenna tuner is similar to other LDG tuners you may already be familiar with; it is a precision instrument that will provide many years of quality service.

What makes this tuner different is that it is specifically designed for modern 100 watt transceivers. With ease-of-operation in mind, this tuner is powered directly by the interface on the back of the radio; no need to worry about any additional power connections. Also, a single push button switch is usually all that's needed to complete the tuning process!

The Z-100A also features low power consumption since it uses latching relays which require no power once it's tuned.

Be sure to read the entire manual to ensure the safe operation and long life of the Z-100A. With proper care this tuner will provide many hours of enjoyable operation.

JUMPSTART, OR “REAL HAMS DON'T READ MANUALS!”

Ok, but at least read this one section before operating the Z-100A:

1. Connect a 50 ohm coax jumper cable from the antenna jack on the transceiver to the **RADIO** jack on the rear of the Z-100A.
2. Connect the 50 ohm coax antenna feedline to the **ANT** jack on the rear of the Z-100A.
3. Connect one end of the supplied radio interface cable to the tuner port on the back of your radio, and the other end to the **INTERFACE** jack on the rear of the Z-100A.
4. Power up the transceiver and select the desired operating frequency and mode.
5. Key and hold to transmit a carrier¹.
6. While transmitting, press and hold the **TUNE** button on the front of the Z-100A for one second (until the **STATUS** LED comes on), then release.
7. Wait for the tuning cycle to end. The **Status** LED goes out and the **SWR** LED comes on solid and then un-key.
8. You're ready to operate!

¹ You can tune while transmitting up to 125 watts if your transceiver has a “roll-back” circuit to protect it from high SWR. If it does not have a roll-back circuit, limit power when tuning to 10 watts.

SPECIFICATIONS

- Transmit Power Limits: SSB: 0.1 to 125 watts; CW: 100 watts; FT-8: 75 watts; PSK and Other Digital Modes: 50 watts; 6 Meters: 50 watts.
- Latching relays for ultra-low power operation.
- 2,000 memories for instantaneous frequency and band changing.
- Tuning Range: 10:1 SWR, 20uH, 1300PF.
- Voltage: 13.8 Volts DC (+/- 15%).
- Current Draw: 250 mA tuning; 20 mA when idle.
- A variety of interface cables included.
- For Dipoles, Verticals, Vees, Beams or any Coax Fed Antenna.
- Optional external Baluns allow tuning of random length, long wire or ladder line fed antennas. Optional interface cables available. See the web site for details.
- Dimensions: 7.0"L x 6.25"W x 1.75"H.
- Weight: 1 Pound, 8 Ounces

AN IMPORTANT WORD ABOUT POWER LEVELS

The Z-100A is rated at 125 watts maximum power input at most. Many ham transmitters and transceivers, and virtually all amplifiers, output well over 125 watts. Power levels that significantly exceed specifications will definitely damage or destroy your Z-100A. If your tuner fails during overload, it could also damage your transmitter or transceiver. Be sure to observe the specified power limitations.

IMPORTANT SAFETY WARNING

Never install antennas or transmission lines over or near power lines. You can be seriously injured or killed if any part of the antenna, support or transmission line touches a power line. Always follow this antenna safety rule: the distance to the nearest power line should be at least twice the length of the longest antenna, transmission line or support dimension.

MOBILE OPERATION

The Z-100A is also perfectly suited to mobile operation. It can be installed under the dashboard along with the transceiver or mounted remotely. The only requirement is that the tuner remain dry.

MARS/CAP Coverage

The Z-100A provides continuous coverage over its specified range; not just in the ham bands. This makes it useful for MARS or CAP operation, or any other legal HF operation.

OPERATION

To start a full tuning cycle press and hold the **TUNE** button on the front panel of the Z-100A until the red **STATUS LED** lights up and continue holding until the **STATUS LED** goes out. The **TUNE** button can be released once the **STATUS LED** has gone out. A full tuning cycle will begin. Most of the time the Z-100A's memory tuning will allow a good match to be found quickly if transmitting on the same frequency as a previously stored match. Under certain circumstances, especially when using a different antenna, the memory tuning will recall a previous match which is acceptable but isn't the best match possible for this situation. In this case, forcing a full tune will cause the Z-100A to seek a better match than the match already stored in memory.

The **SWR LED** and **STATUS LED** are used to indicate both operating modes, tuning status, and error codes.

LED Indication	Meaning
STATUS LED on.	Tuner is tuning.
STATUS LED goes out, SWR LED comes on solid.	The tuning cycle is complete. A good SWR match was found.
STATUS LED goes out, SWR LED blinks 5 times.	The tuning cycle is complete. The match is between 1.5:1 and 3.0:1 SWR.
STATUS LED goes out, no SWR LED.	The tuning cycle is complete. The match is greater than 3.0:1 SWR.
STATUS LED blinks 4 times.	The tuning cycle failed. No RF was detected.
STATUS LED blinks 5 times.	The tuning cycle failed. RF was lost during the tuning cycle.

Z-100A Tuner

Front Panel:

The front panel of the Z-100A features one pushbutton and two LED indicator lights.



TUNE Button: Initiates either a memory tune or a full tune, and also toggles the tuner between “active” and “bypass” modes.

SWR LED: Lights or blinks to indicate SWR condition.

STATUS LED: Lights to give feedback on button activation; lights during tuning; provides tuning status at the end of a tuning cycle.

Rear Panel:

The rear panel of the Z-100A features four connectors.



ANT: Connect the 50 Ω coax antenna feedline to the standard SO-239 connector.

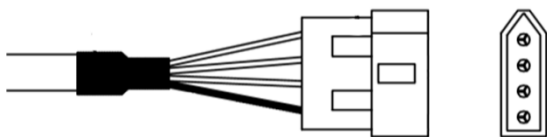
GND (wing nut): Connect to antenna system ground if needed.

RADIO: Connect the 50 Ω coax jumper cable from this standard SO-239 connector to the Antenna jack on the rear of the transceiver.

INTERFACE: This 6-pin mini-DIN connector connects to the radio interface cable. DC power is also supplied via this connector. Be sure to turn off the transceiver before connecting or removing cables.

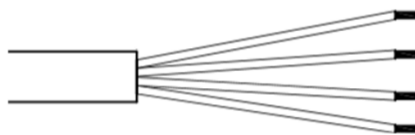
Z-100A Cable Guide

IC-100



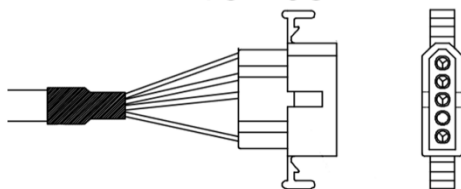
Icom
AH3/AH4 Compatible Radios
Press tune button on radio or tuner.

IC-104



Flexradio, Elecraft
And Other 100W Radios
Key radio and press tune button on tuner.

IC-105



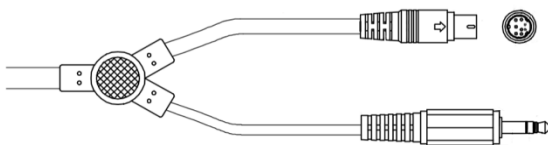
Alinco
DX70, DX77 Press tune button on tuner.
SR8, SR9 Key radio and press tune button on tuner.

IC-106



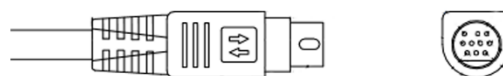
Kenwood
AT-300 Compatible Radios
Key radio and press tune button on tuner.

IC-108



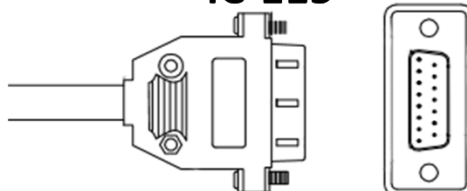
Yaesu
FT-100, 857, 897, 891, 991
Press tune button on tuner.

IC-109



Yaesu
FT-450, 950, 1200, DX10
Press tune button on tuner.

IC-115



Yaesu
DX101, 3000
Press tune button on tuner.

Always turn your radio off before plugging or unplugging anything. The radio may be damaged if cables are connected or disconnected while the power is on.

Radio Interface Cables

IC-100 Cable: ICOM AH-3 or AH-4 Compatible; Press Button on Tuner or Radio

IC-105HG Cable: ALINCO EDX-2 Compatible, DX-70, DX-77; Press Button on Tuner

IC-105HG Cable: ALINCO SR8T, SR9T; Key Radio and Press Button on Tuner

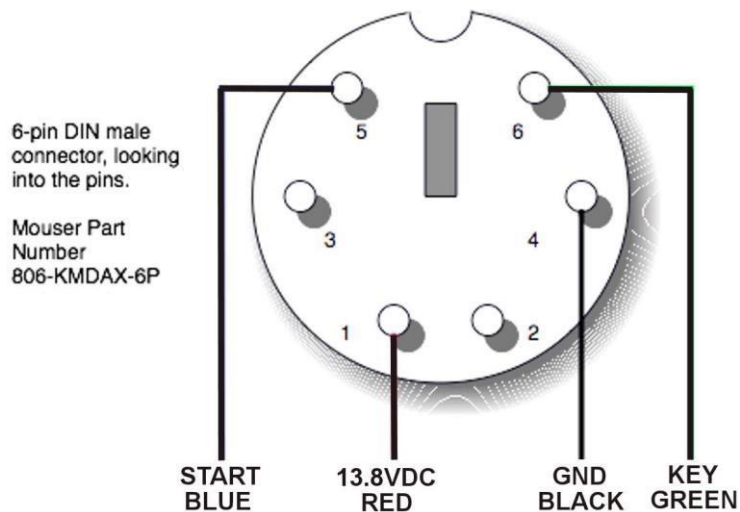
IC-106HG Cable: KENWOOD AT-300 Compatible; Key Radio and Press Button on Tuner

IC-108HG Cable: YAESU FT-100, 857, 897, 891, 991; Press Button on Tuner

IC-109HG Cable: YAESU FT-450, 950, 1200, FTdx10; Press Button on Tuner

IC-115HG Cable: YAESU FTdx101, 3000; Press Button on Tuner

IC-104HG Cable: Power Only; Power, Ground, Key, Start



A WORD ABOUT TUNING ETIQUETTE

Be sure to use a vacant frequency when tuning. With today's crowded ham bands, this is often difficult. However, causing interference to other hams should be avoided as much as possible. The Z-100A's very short tuning cycle, as little as a fraction of a second, minimizes the impact of tuning transmissions.

CARE AND MAINTENANCE

The Z-100A tuner is essentially maintenance-free. Power limits in this manual should be strictly adhered to. The outer case may be cleaned as needed with a soft cloth slightly dampened with household cleaning solution. As with any modern electronic device, the Z-100A can be damaged by temperature extremes, water, impact, or static discharge. LDG strongly recommends the use of a good quality, properly installed lightning arrestor in the antenna lead.

TECHNICAL SUPPORT

The LDG Customer Support Center staff is ready to answer your product question by telephone and over the Internet. We know that you will enjoy your product even more knowing LDG is ready to answer your questions as the need arises.

Visit the Support Center at: ldgelectronics.com/support

Our website links you to the on-line Customer Support Center where you can send us a question, do your own research in the LDG Product Knowledge Books, and read through lists of frequently asked product questions. LDG regularly updates on-line information, so the best on-line support information is available all day and every day.

The LDG website provides links to product manuals, just in case you lose this one! When you are thinking about the purchase of other LDG products our website also has complete product specifications and photographs you can use to help make your purchase decision. Don't forget the links to all of the quality LDG Dealers also ready to help you make that purchase decision.

TWO-YEAR TRANSFERRABLE WARRANTY

Your product is warrantied against manufacturer defects in parts and labor for two full years from the date of purchase. This two-year warranty is also transferable. When you sell or give away your LDG product, give the new owner a copy of the original sales receipt and the two-year warranty transfers to the new owner.

There is no need to complete a warranty card or to register an LDG product. Your product purchase receipt establishes eligibility for warranty service, so save the receipt. Send a photocopy of the receipt with the product whenever you send your product to LDG for repair. Products sent to LDG without a receipt are considered requests for out-of-warranty repair.

LDG does not warranty against product damage or abuse. This means that a product failure, as determined by LDG, to be caused by the customer or by other natural calamity (e.g. lightning) is not covered under the two-year warranty. Damage can be caused by failure to heed the product's published limitations and specifications or by not following good Amateur practice.

OUT OF WARRANTY SERVICE

Any time a product fails after the warranty, LDG wants to help you get it fixed. Send the product to us for repair and we will determine what needs to be done. We will contact you with an estimate. Please contact LDG if you have any questions before you send us an out-of-warranty product for repair.

RETURNING YOUR PRODUCT FOR SERVICE

Returning a product to LDG is easy. We do not require a return merchandise authorization. Visit the Customer Support Center: www.ldgelectronics.com/support

Download the LDG Product Repair Form. List all contact information including email address and all details of problems you are experiencing. For warranty service, please include a copy of your purchase receipt. After the unit is received and logged into our service department system, an email will be sent confirming your unit is in process.

Repairs can take three to four weeks but are usually faster. The most recent information on returning products for service is found at the LDG Customer Support Center.

Ship your carefully packaged repair with the Repair Form to:

LDG Electronics, Inc.
Attn: Repair Department
1445 Parran Rd
St. Leonard, MD 20685

PRODUCT FEEDBACK

We encourage product feedback! Tell us what you really think of your LDG product. In a card, letter, or email (preferred) tell us how you used the product and how well it worked in your application. Send along a photo, schematic or drawing to illustrate your narrative. We like to share your comments with our staff, our dealers, and other customers at the LDG website.

<http://www.ldgelectronics.com/>

