

LDG Electronics

Z-100A Antenna Tuner

For 100W HF Transceivers

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Introducing the Z-100A Automatic Tuner

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 safe operation and long life of the Z-100A. With proper care this tuner will provide many hours of enjoyable operation.

Welcome Notes

Welcome to the LDG Electronics family of amateur radio equipment! Starting in 1995 and based in St. Leonard, Maryland, LDG defines state of the art equipment for the Amateur ("Ham") radio community.

In addition to offering established equipment we're continuing to grow our product line. Check our web site (<https://www.ldgelectronics.com>) often to learn about new developments! We also offer complete product support through our web site, and we're here for you for any questions that you might have. All of our products are supported with a two-year transferrable warranty. When you sell your LDG product provide the new owner with 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 our products. Your product receipt establishes eligibility for warranty service; save that receipt! Send your receipt copy with the product when you ship your product to us 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

We will gladly provide service any time a product fails after the warranty. Send the product to us for repair. We will determine what needs to be done, and, based on your prior instruction, either contact you with an estimate or fix it and contact you with a request to pay any repair charges. Please contact LDG with 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, and there is no need to contact LDG to return your product. Visit the Customer Support Center on our web site and download the LDG Product Repair Form. On the Repair Form tell us exactly what happened (or didn't happen) and why you believe the product needs servicing. The technician will attempt to duplicate the problem(s) you had based on how well you describe it so please be accurate and complete.

Ask your shipper for a tracking number or delivery verification. Please include your email address so our shipper can alert you when your product is being returned to you. Be assured that our staff makes every effort to complete repairs ahead of our published wait time. Your patience is appreciated.

Repairs can take four to eight weeks, but are usually faster. The most recent information is found at the LDG Customer Support Center. Send your carefully packaged unit 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 think of your LDG product. In a card, letter, or email (preferred) tell us how you use the product and how well it worked in your application. Send along a photo or even a schematic or drawing to illustrate your narrative. We like to share your comments with our staff, our dealers, and even other customers at the LDG website.

Connecting the Z-100A tuner

The Z-100A tuner is designed for indoor operation only; it is not weather proof / water resistant. If you use it outdoors (Field Day, for example), ensure it is properly protected from rain, dust, etc.

The Z-100A is designed for use with coax-fed antennas. If operating with long-wire or ladder-line-fed antennas, an external balun is required. The LDG RBA-4:1 or RBA-1:1 is ideal, depending on the antenna and transmission line used.

1. Make sure your radio is turned off.
2. Connect the HF/50 MHz antenna jack on the transceiver to the “RADIO” jack on the Z-100A, using a 50Ω jumper.
3. Connect a 50Ω coax antenna feedline to the “ANT” jack on the Z-100A.
4. Connect one end of the supplied radio interface cable to the tuner port on the back of your radio.
5. Connect the other end of the supplied radio interface cable to the “INTERFACE” jack on the rear of the Z-100A.
6. Turn on the radio.
7. Select the desired operating frequency and mode.
8. Key and hold the radio in CW or FM mode, then press and release the TUNE button on the front of the tuner.
9. The transceiver will transmit with a minimal amount of power as the Z-100A begins. You may hear the relays chatter as the tuner searches for a match. At the end of the tuning cycle, the SWR has been lowered.
10. You are now ready to operate!

Specifications & Ratings

To ensure proper operation and to avoid equipment failure, the following specifications and ratings must be observed:

Frequency Range: 1.8 to 54 MHz

Maximum Input Power: 125W PEP (CW / SSB), 30W (Digital / RTTY/ FM)

Input Impedance: 50 Ω

Tuning Range: 10:1 SWR, 20uH, 1300pF.

Memories: 2000

Retune Time: < 1.0 sec.

Voltage: 13.8 VDC \pm 15%

Current Draw: 250 mA tuning, 20 mA idle

Size: 6.3"x6.3"x1.5" (160x160x40mm)

Weight: 1.5 lbs (680 g)

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.

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. Also be aware of and follow electrical and safety codes of your municipality.

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. | Tuner has completed a tuning cycle; a good SWR match was found. |
| STATUS LED goes out, SWR LED blinks 5 times. | Tuning cycle is complete, tuning match is between 1.5:1 and 3.0:1 SWR. |
| STATUS LED goes out, no SWR LED. | Tuning cycle is complete, tuning match is greater than 3.0:1 SWR. |
| STATUS LED blinks 4 times. | Tuning cycle failed, no RF was detected. |
| STATUS LED blinks 5 times. | Tuning cycle failed, RF was lost in the middle of the tune. |

Your Z-100A tuner

Front Panel

On the front panel there is 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 Connectors



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.

Operating Hints

Transceiver Tuner Status Indication

Different models of ICOM transceivers indicate the status of the external tuner with slight variation. Most will show a graphical or textual icon on the screen to indicate that the tuner is active and has properly tuned. For example, the IC-7000 displays a blinking **TUNE** icon while tuning, and a solid **TUNE** icon when tuning is complete. This icon disappears when the tuner is bypassed, and blinks if a tuning cycle failed to find a good match. Other ICOM transceivers behave similarly. Consult your transceiver operating manual's external tuner section for more information. When in doubt key the radio in AM and press the Tune button on the LDG tuner.

Radio Interface Cables

There are a variety of three foot interface cables available.

- Press Button on Tuner or Radio
 - IC-100 ICOM AH-3 or AH-4 Compatible
- Press Button on Tuner
 - IC-105 ALINCO EDX-2 Compatible, DX-70, DX-77
 - IC-108 YAESU FT-100, 857, 897, 891, 991
 - IC-109 YAESU FT-450, 950, 1200, FTdx10
 - IC-115 YAESU FTdx101, 3000
- Key Radio and Press Button on Tuner
 - IC-105 ALINCO SR8T, SR9T
 - IC-106 KENWOOD AT-300 Compatible
- Power Only
 - IC-104 Power, Ground, Key, Start

6-pin DIN male connector, looking into the pins.

Mouser Part Number
806-KMDAX-6P

