

**LDG M-1000  
External Meter for  
AT1000ProII**



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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.

Congratulations on selecting the LDG Electronics M-1000 External Meter for AT1000ProII. The M-1000 provides accurate and precise metering for forward and reflected power, as well as SWR readings when connected to an AT1000ProII tuner. Peak and average readings are available, and the M-1000 may be set to display a different parameter from the one displayed on the AT1000ProII's built-in LED bargraph meters.

The M-1000 plugs into the External Meter jack on the rear of the AT1000ProII, and is powered from the AT1000ProII. An adjustable brightness backlight is provided.

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

Ok, but at least read this one section before operating the M-1000:

1. Turn off your AT1000ProII.
2. Connect the supplied 4-pin mini-DIN cable to the jack marked “**Ext. Meter**” on the rear of the AT1000ProII.
3. Connect the other end of the 4-pin mini-DIN cable to the jack marked “**Tuner**” on the rear of the M-1000.
4. Turn on the AT1000ProII.
5. The M-1000 now displays the parameter selected by the “**Meter**” pushbutton on the front panel of the M-1000.

## SPECIFICATIONS

- Giant, 4.75” (diagonal) analog meter movement.
- Frequency-compensated Forward Power, Reflected Power, and SWR meter scales.
- Peak Hold or Average Power display modes.
- 0-100W and 0-1kW meter scales.
- Cool blue backlight with adjustable brightness.
- Power requirements: 11 to 16 VDC @ 1A max.
- Dimensions: 11” x 10.5” x 3” Weight 5 pounds.

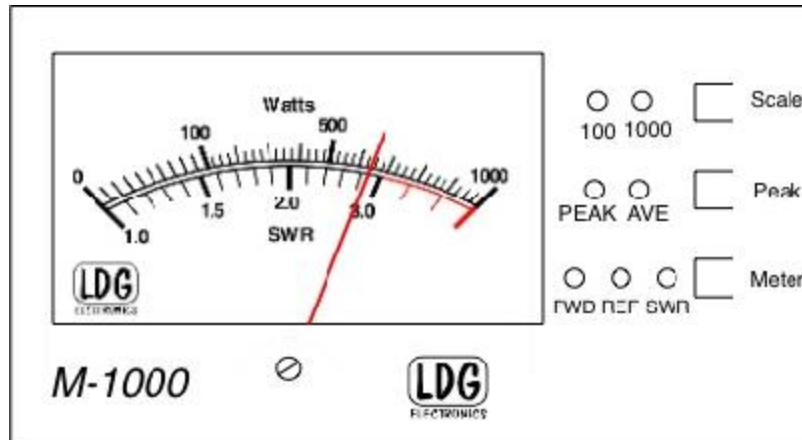
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## GETTING TO KNOW YOUR M-1000

Your M-1000 is a quality, precision instrument that will give you many years of outstanding service; take a few minutes to get to know it.

### *Front Panel*

The front panel of the M-1000 features three pushbuttons, seven indicator LEDs, and a 4.75" diagonal analog meter movement. Under the meter movement is a small screw for adjusting zero.

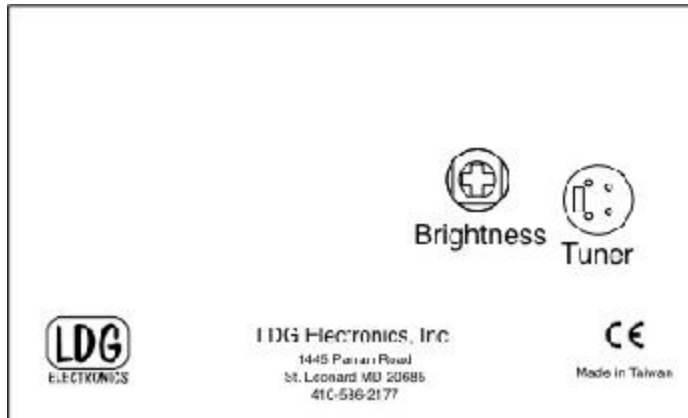


- **Scale button:** Selects 0-100 watts or 0-1000 watts scale.
- **Peak button:** Selects whether meter reads Peak or Average power.
- **Meter button:** Selects quantity to be displayed; Forward or Reflected Power, or SWR

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### *Back Panel*

The rear panel of the M-1000 has one jack and a potentiometer.



- **Brightness:** Adjust this potentiometer with a Philips (cross-point) screwdriver, to set the brightness of the meter backlight.
- **Tuner jack:** Connect the supplied 4-pin mini-DIN cable here, and connect to the AT1000ProII.

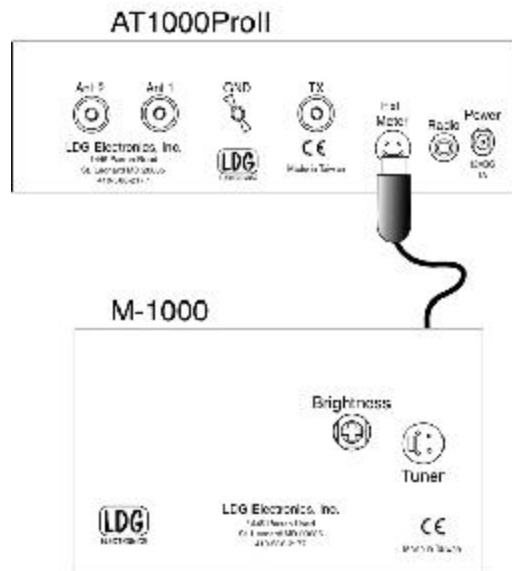
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## INSTALLATION

The M-1000 is intended for indoor use only; it is not water-resistant. If you use it outdoors, (Field Day, for example) you must protect it from rain.

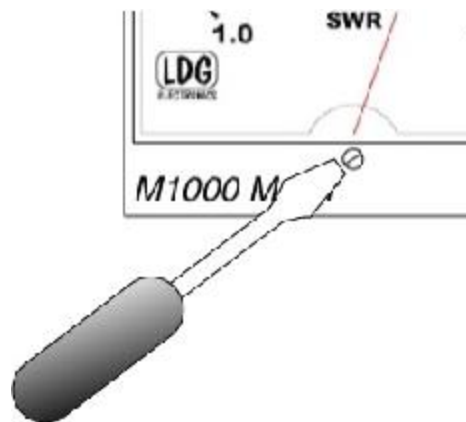
Place the M-1000 in a convenient location near the tuner. Always turn your tuner off before plugging or unplugging anything.

Connect the supplied 4-pin mini-DIN cable to the jack marked **Tuner** on the rear of the M-1000. Connect the other end to the jack marked **Ext. Meter** on the rear of the AT1000ProII.



### *Zero Calibration*

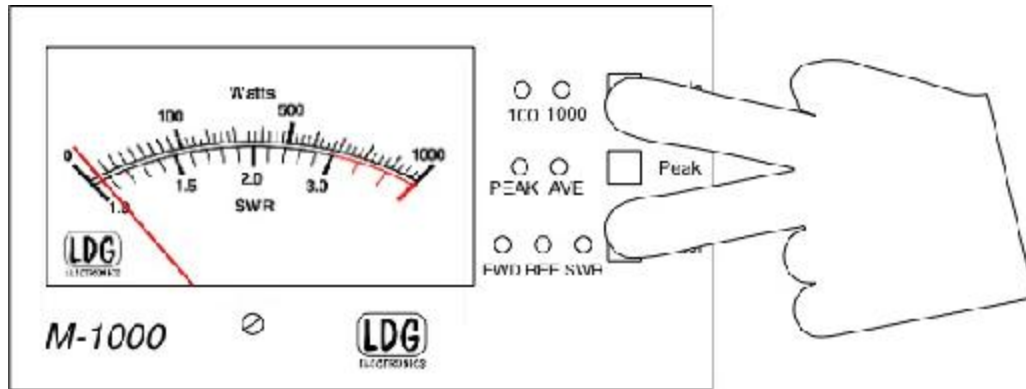
If the meter needle does not rest on zero, adjust the zero by using a flat blade screwdriver to turn the adjustment screw on the front of the unit just below the meter movement.



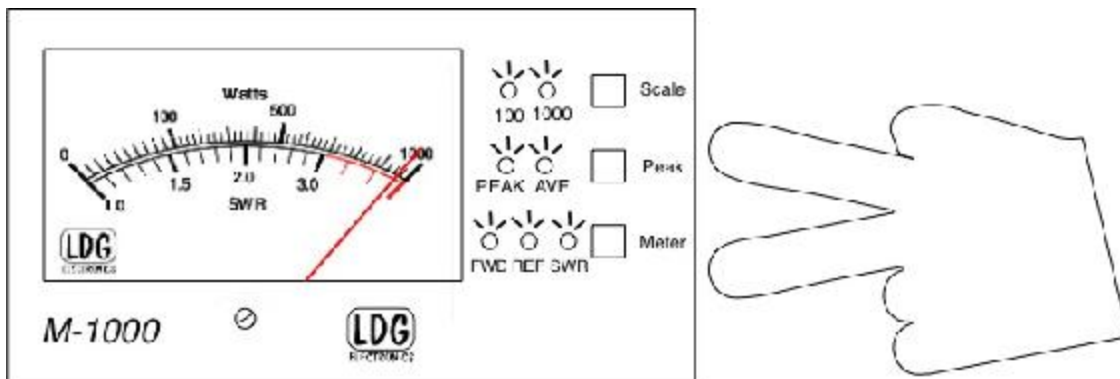
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### Full-Scale Calibration

Prior to the first use of the M-1000, it is important to calibrate the full-scale meter deflection of the meter movement also. To do this, first, turn off the AT1000ProII. Now, hold the **Scale** and **Meter** buttons on the M-1000.



While holding these two buttons, turn on the AT1000ProII. Release the two buttons.



The front panel LEDs will all begin to blink, and the meter needle will move to the far right. It should rest exactly on the 1000W mark. If it does not, press the **Scale** button to move the needle to the right, or press the **Meter** button to move the needle to the left. When the needle rests exactly on the 1000W mark, press the **Peak** button to save the setting.

The AT1000ProII and M-1000 are now ready to use.

### BASIC OPERATION

All operations of the M-1000 are controlled via the front panel buttons.

#### Meter Mode Selection

Pressing the **Meter** button repeatedly cycles the M-1000 through three display modes: Forward power, Reflected power, and SWR. Forward and reflected power are both displayed on the upper **Watts** scale, and SWR is shown on the lower scale.

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### *Peak/Average Reading Selection*

The M-1000 meter can display either average power or peak forward power, in watts. Average mode is suitable for 100% duty cycle modes such as FM, RTTY, or PSK. Peak mode is more useful on modes with varying duty cycle such as SSB or AM. The factory default is average mode. Peak SWR values are also displayed, when the meter mode is set to SWR and Peak is selected.

Press the **Peak** button to toggle between Peak Hold and Average modes. In Peak Hold mode, the highest value reported will be held on the meter for a moment.

### *Meter Scale Selection*

The M-1000 can display zero to 1000 watts on its forward and reflected power scale, or, for better detail of lower power readings, a zero to 100 watt scale can be selected. Press the **Scale** button to toggle between the 100W and the 1000W scales. When in 100W mode, the meter shows 10x the actual value.

### *Dual Watch Capability*

Because the reading that is selected for display on the M-1000 meter is independent of the meter quantity being shown on the AT1000ProII's built-in bargraph display, it is possible to watch more than one parameter at once. For example, the M-1000 can be set to display peak forward power, while the AT1000ProII is displaying average power. Because the AT1000ProII has two LED bargraphs, it is possible to watch FWD power and SWR on the AT1000ProII's bargraphs, while watching reflected power on the M-1000, so all three can be viewed simultaneously!

## **REMOTE CONTROL OF AT1000PROII**

While not directly supported by LDG Electronics, it is possible to use the **Ext. Meter** jack on the AT1000ProII to remotely control the AT1000ProII. See the document *LDG AT1000ProII External Meter Serial Communications Protocol Specification* on the LDG website for details.

## **CARE AND MAINTENANCE**

The M-1000 tuner is essentially maintenance-free. 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 M-1000 can be damaged by temperature extremes, water, impact, or static discharge. LDG strongly recommends the use of a good quality, properly installed lightning arrester in the antenna lead.



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## **TECHNICAL SUPPORT**

The LDG customer support staff is ready to answer your product question by telephone and by e-mail. We know that you will enjoy your product even more knowing LDG is ready to answer your questions as the need arises.

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 warranted 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 goes with the new owner.

There is no need to complete a warranty card or to register an LDG product. Your product receipt establishes eligibility for warranty service, so save that receipt. Send your 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**

If a product fails after the warranty period, LDG wants to help you get it fixed. Send the product to us for repair any time you like. We will determine what needs to be done and based on your instructions, either contact you with an estimate or fix it and contact you with a request to pay any repair charges.

## **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 LDG web site and download the LDG Product Repair Form. On the Repair Form tell the LDG technicians exactly what happened or didn't happen and why you believe the product needs servicing. The technician attempts to duplicate the problem(s) you had based on how well you describe it so take the time to be accurate and complete.

Ask your shipper for a tracking number or a delivery verification receipt. This way you know the product arrived safely at LDG. Be sure to give us your email address so our shipper can alert

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you online when your product is en-route back to you. Please be assured that our staff makes every effort to complete repairs ahead of our published wait time. Your patience is appreciated.

Repairs can take six to eight weeks, but are usually faster. The most recent information on returning products for service is found on the LDG website under Support, then Tech Support. 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 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 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:

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

