

**LDG DM-990
Dual Meter for
Kenwood TS-990**



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Introduction

Congratulations on selecting the LDG DM-990. The DM-990 provides dual external meters for the Kenwood TS-990.

Jumpstart, or “Real hams don’t read manuals!”

Ok, but at least read this one section before you transmit:

1. Connect the DM-990’s cable to the Meter jack on the back of the TS-990.
2. For backlighting, connect the provided 12V DC input jack to a 12 volt power supply that can provide 500 mA or more.
3. Operate your transceiver normally.

Specifications

Power requirement: 12 volts, 500 ma (for meter illumination only)

Input: Single cable, plugs into External Meter jack of TS-990

Meters: 4.5”, 7 scales

Meter illumination: blue-white LED backlight, adjustable brightness



Getting to know your DM-990

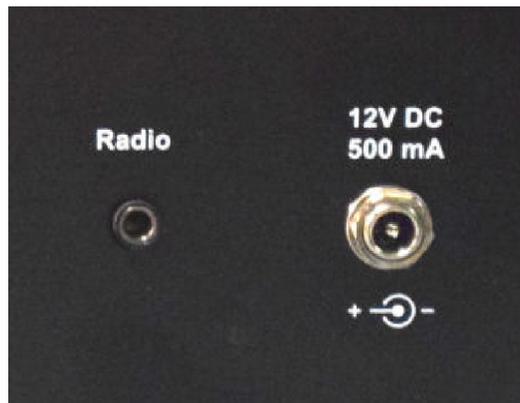
Your DM-990 is a quality, precision instrument that will give you many years of outstanding service; take a few minutes to get to know it.

The DM-990 provides two identical 4 ½” meters to compliment the “virtual” meters on the TS-990’s LCD panel. One meter is dedicated to the Main receiver, one to the Sub receiver. Each can show S-Meter reading, final amplifier voltage and current, power output, SWR, compression level and ALC level. The front panel also provides zero-set adjustments, should the meters ever need to be zeroed.

Both meters are illuminated by high-visibility blue-white LEDs from behind. This backlighting is very attractive, easy on the eyes during long operating sessions, and makes it easy to read the meters precisely.



On the back of the DM-990, there are two connections: the input cable from radio, and the DC input jack (matching 5.5 x 2.5mm power cable provided, center positive).



There are three screwdriver adjustments on the back: meter illumination brightness (controls brightness of both meters together), and separate full-scale calibration settings for the Main and Sub meters.



Note that the DM-990 is designed specifically for the TS-990 transceiver; it will not work correctly with any other radio.

Installation

The DM-990 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.

Turn your radio off before starting the installation. Position your TS-990 in a convenient spot on your operating desk, anywhere within reach of its rear interface and power cables

Next, connect the stereo 1/8" plug from the meter to the stereo 1/8" Meter jack on the back of the radio. Your meter is now ready for use. The backlight LEDs on the meter will come on when the radio is turned on. Position the radio and meter for normal use.

To power the DM-990 backlighting, a DC power cable is provided. This cable has a 5.5 x 2.5mm power plug on one end and stripped and tinned wires on the other end. The red wire would go to +12 volts DC and the black wire would go to ground. Use a suitable power supply that can provide 500 mA or more.

Setup

Zero setting

Your DM-990's meters were set to zero at the factory, but it's possible to become un-calibrated during shipping. Place the DM-990 on a level surface and carefully examine the meter needles with the radio powered off.

Both needles should rest on the zero setting. If they do not, use a small flat-blade screwdriver to gently adjust the zero-set screw on the front panel beneath each meter until the needle is exactly zeroed. Only very small movements of the adjustment screws are required.

Full Scale setting

Your DM-990's meters were calibrated to full scale at the factory. Under normal circumstances, it will never need to be recalibrated. If it does, a calibrated 500 uA source will be required. Apply the source to the meter input and adjust the potentiometer for each meter to read full scale. You can also use the TS-990 radio by adjusting the RF gain to zero on each receiver. This will send a full scale signal to the meter.

Meter Brightness

Using a small screwdriver, carefully adjust the Brightness control to set the meter backlight to the desired brightness. The brighter you set the backlight, the more current the backlight consumes.

Operation

To operate your DM-990 you just, well, operate. The DM-990 has no operating controls and requires no input from you. Use your TS-990 normally; the DM-990 will continuously display the selected parameters.

Application Notes

Your DM-990 can go practically anywhere on your operating desk. Some obvious choices are on top of the radio, beside your computer monitor, or on your operating desk.

Care and Maintenance

Your DM-990 is maintenance-free. The outer case may be cleaned as needed with a soft cloth slightly dampened in a mild household cleaning solution.

As with any modern electronic device, your DM-990 can be damaged by temperature extremes, water, impact or static discharge.

Technical Support

We are happy to help you with your product. E-mail support is available at support@ldgelectronics.com.

Warranty and Service

Your product is warranted against defects in parts or workmanship for two years from purchase. The warranty does not cover damage due to abuse or exceeding specifications. All returns must be shipped to us pre-paid; we will not accept units with postage due. A return form is provided on our web site for your convenience.

If you need to return your product to us for service, package it carefully, keeping in mind that we will re-use your packaging to return the unit to you. Download the return form from our web site (www.ldgelectronics.com), fill it out and return it with your meter and cables. Include a full description of the problem, along with your name, address and a phone number and e-mail address where we can reach you with any questions. Repairs average about 3 to 6 weeks.

We will be glad to service your LDG product after the warranty period has ended. We will notify you of repair charges by phone or e-mail, and bill you after repairs are completed.

Visit LDG's web site for support, sales and for information on exciting new products from LDG. You can find us on the web at www.ldgelectronics.com.

