



PIC16F877A Dual Channel HF/VHF SWR Meter Calibration Procedure

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HF/VHF 100W to 1KW LCD DUAL Channel SWR / POWER Meter:



FD-HFB2 HF SWR/Wattmeter Calibration Procedure

1. Complete Assembly and any preliminary tests before proceeding with this calibration Procedure.
2. Attach a dummy load to the “Ant” SO-239 connector on the RF sensor board. Try to keep this connection as short as possible (ie: double male UHF adapter if possible). The better the quality dummy load the more accurate your calibration will be.
3. Connect the “TX IN” SO-239 to your radio with a coax jumper.
4. Apply power (+12vdc) to the wattmeter.
5. Connect the supplied DB9-DB9 cable between the FD-HFB2 sensor board, and the “A” DB9 on the LCD display unit.
6. Connect a DVM between the junction of C4 & R6 (TP1) and ground on the sensor circuit board.

7. **Adjust RV1 on the RF Sensor board for a DVM reading of 0.65vdc. (Diode Bias)**
8. **Using the available 2ChWattMeter Software and a standard serial port cable, set the High & Low power Scales for both “A” & “B” Scales. For this calibration I have selected the 200W & 2kW Scales.**
9. **Exit the software, and disconnect the serial port cable. More information regarding the 2ChWattMeter Software is available [here.....](#)**
10. **Press and hold the left SCALE/WATTMETER push button on the LCD display unit for 3 seconds, then release, to enter the “SCALE MODE”.**
11. **While in the “SCALE MODE” momentarily pressing the right button will change the “A” Scale power setting between Low, High, and AUTO, and the left button will change the “B” Scale power setting between Low, High, and Auto.**
12. **A Green LED indicates you are in the “A” scale High Power Setting, and a Red LED indicates you are in the “B” Scale High Power Setting.**
13. **Set the “A” Low Power scale to 200W. (No LEDS should be lit if you are in the LOW Power Scale).**
14. **Similarly, set the High Power scale to 2KW. (The Green LED should be lit).**
15. **Press and hold the Left (SCALE/WATTMETER) button for 3 seconds, then release, to return to the “Wattmeter” Mode. .**
16. **Set your transceiver to 10 Meters (28.400 MHz).**
17. **Key your transmitter and apply a 100W carrier to the sensor board, and adjust RV3 for a LCD display reading of 100W. This sets the low power forward scale.**
18. **Return to the “Scale Mode” Step 10, and select the 2KW High Power Setting for the “A” Scale...**
19. **Key your transmitter (~100W Carrier), and adjust RV3 for a LCD display reading of 100W. This sets the high power forward scale.**
20. **Reverse coax connections on RF Sensor board. Connect the transmitter to the “ANT” SO-239, and connect the dummy load to the “TX IN” SO-239.**
21. **Press and hold the left button for 3 seconds, on the LCD display unit, to enter the “SCALE” mode, and verify you are on the 200W Scale (Low Power) Steps 10 & 11 above.**
22. **Return to “WATTMETER” mode by pressing and holding the left button for 3 seconds, then release..**
23. **Press the right “Mode Select”, button on the LCD display, until the FW – RF – PWR OUT “A” screen displays.**

- 24. Apply a 100W Carrier to the RF Sensor board, and adjust RV4 for a (REFLECTED) RF power reading of 100W**
- 25. Press and hold the left button for 3 seconds, on the LCD display unit, to again enter the “SCALE” mode, and select the 2KW Scale (High Power) Steps 10 & 11 above.**
- 26. Press and hold the left Scale/Wattmeter Mode button for 3 seconds, then release, to return to the WATTMETER Mode.**
- 27. Apply a 100W Carrier to the RF Sensor board, and adjust RV5 for a (REFLECTED) RF power reading of 100W.**
- 28. You may now go back to the SCALE Mode, and select “AUTO” which will let the Wattmeter “Auto range” between the high and low power scales.**
- 29. These instructions are meant to be a basic guide for calibrating the dual channel wattmeter. You may wish to select different high and low power ranges by using the 2ChWattmeter software. For the Auto ranging feature to work, you need to properly select a Low and High power scale.**
- 30. A second dual mode sensor can be used on the “B” Scale, and can be calibrated by following this guide.**
- 31. Please refer to the 2ChWattmeter software guide for further information.**
- 32. You may wish to go over these steps a second time to make sure no interaction has occurred.**
- 33. Congratulations! You’re Done! Have Fun...**

73s

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For more details, please visit Project Page: <http://www.foxdelta.com>