

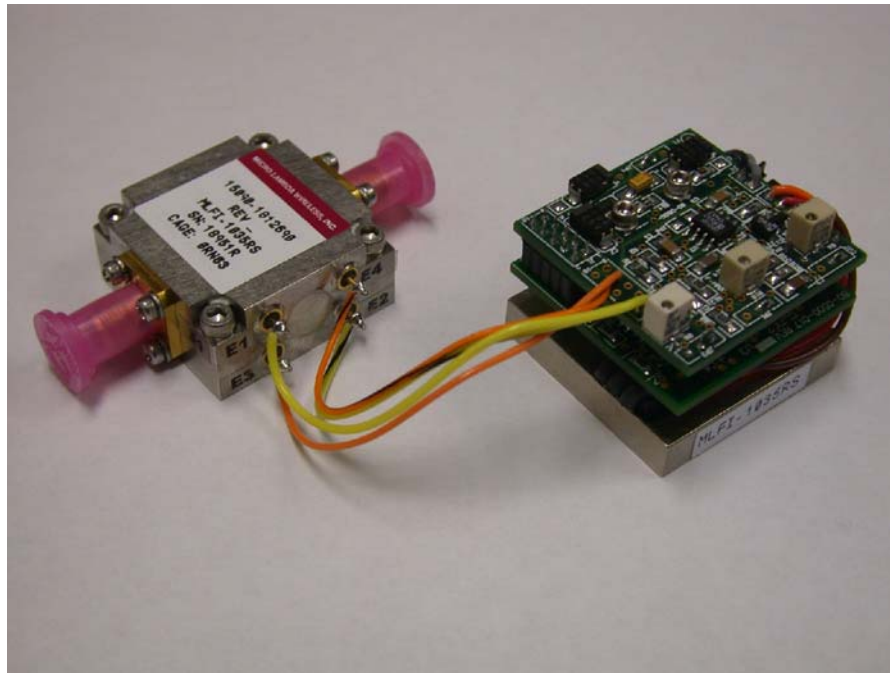
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-	Initial release	R. Leier	08-12-08

**DRIVER SET-UP & CALIBRATION PROCEDURE**  
**FOR**  
**YIG COMPONENTS WITH REMOTE DRIVERS**



**MICRO LAMBDA WIRELESS, Inc.**  
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**DRIVER SET-UP & CALIBRATION PROCEDURE  
for  
YIG COMPONENTS WITH REMOTE DRIVERS**



**Note: Before you turn on this precision microwave product, be sure you have connected the power supplies correctly (confirm J1 pin connection per product outline drawing) and have mounted the YIG device and remote driver on an adequate heat sink. Frequency calibration is required prior to system use ! See installation instructions before proceeding with any calibration !**

Description: This procedure has been developed to help the user set-up and calibrate the frequency end points (limits) on YIG devices with remote driver products. The need for this procedure shall be determined by the user depending on heat sink requirements (where the device will be mounted), the power supply wire sizes and length of wires used in any wire harness that will be connected to the input DC connector of the YIG device in question.

In most cases mechanical attachment will be the single most frequency determining item due to the differences in how the YIG devices are mounted at the factory during testing and the actual way the units will be used in any potential system. The YIG device and driver need to be mounted using all the provided mounting holes for both the YIG component and the remote driver. Once mounted there will be a frequency offset that will need to be calibrated before actual system use.

From time to time, differences in ground potential between the final test station and where the product is to be used, will generate a slight offset in the frequency end points for a given YIG device from the factory settings. Every effort has been made to minimize these effects, but should the need arise for the user to compensate for any differences, this procedure will be required.

The recommended wire sizes to be used in any wire harness that will mate with the input DC connector for all Micro Lambda Wireless drivers are:

- 1) DC supply wires : 20-22 gauge
- 2) Ground wires : 20-22 gauge
- 3) All other wires : 24-26 gauge

**Remote Analog Driver (0 to +10 Volts)**  
(option RA)

: Adjustments made via trim pots on the single single PC Board. Driver uses a 10 pin dual row 2mm DC connector, Figure 1.

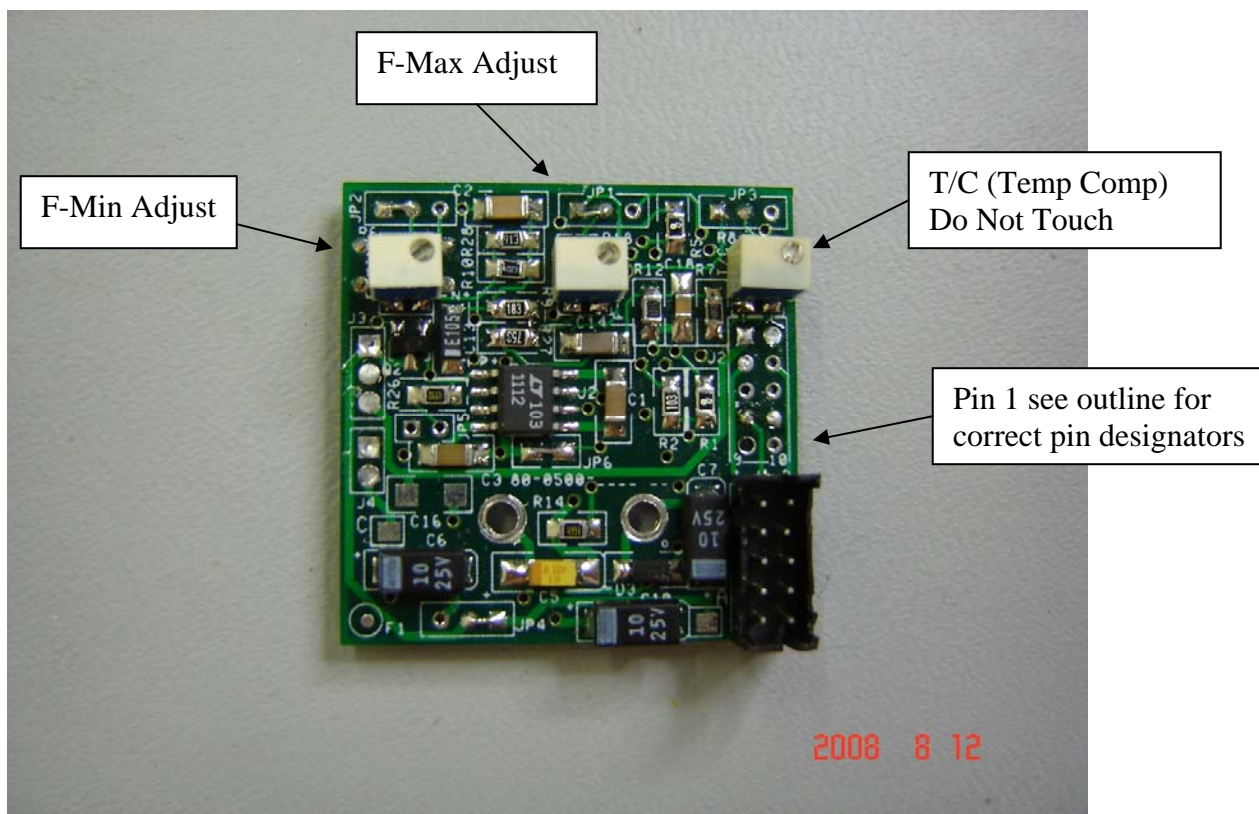


Figure 1

**Remote Digital Driver (12 bit TTL)**  
(option RD)

: Adjustments made via trim pots found on the top PC Board, Figure 2. Driver uses a 20 pin dual row 2 mm DC connector, Figure 3.

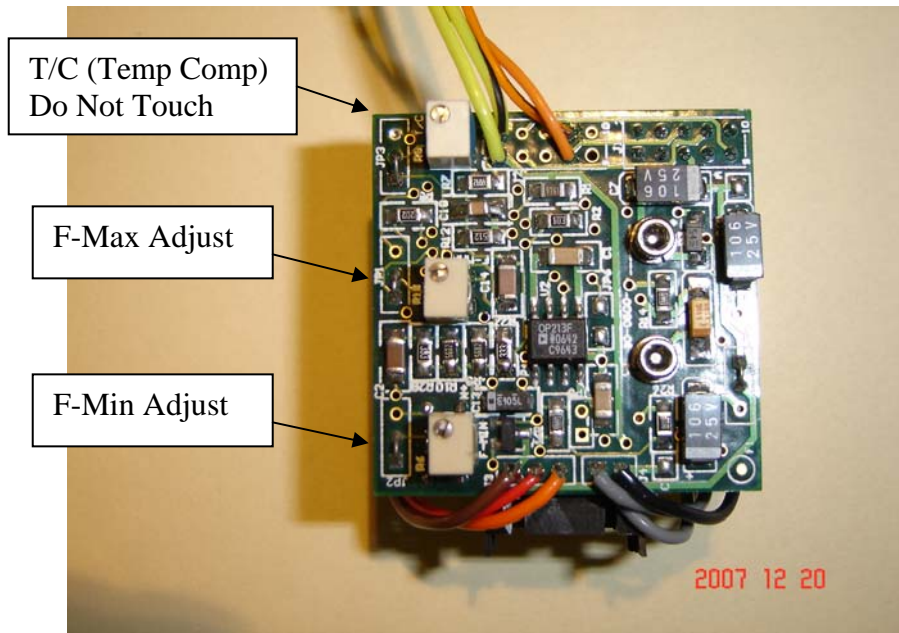


Figure 2

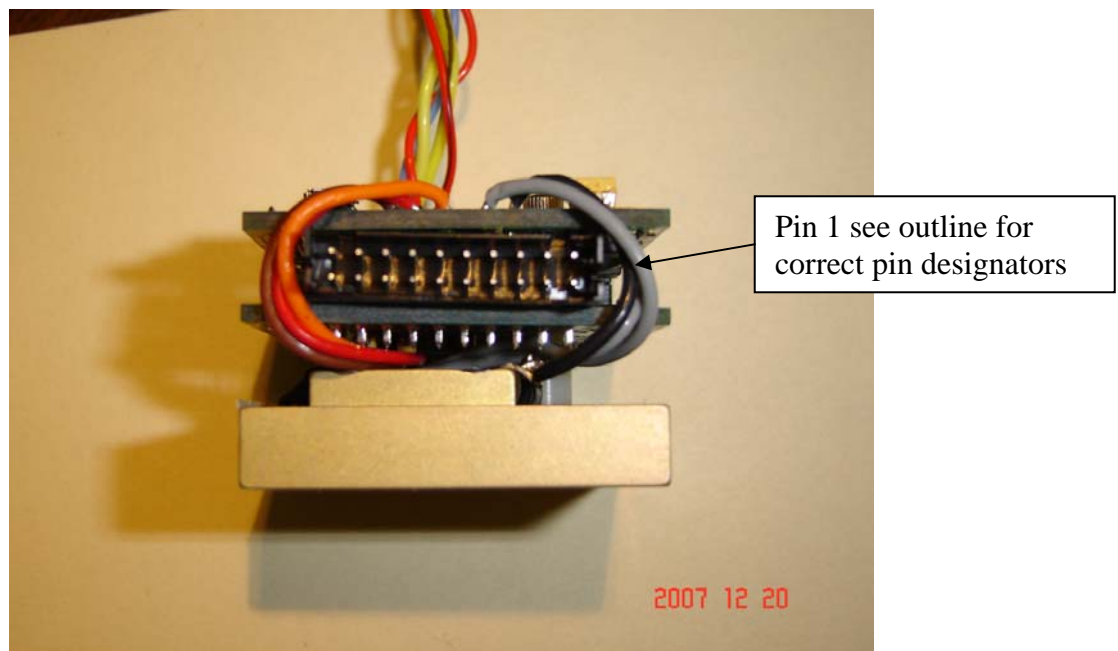


Figure 3

**Remote Digital Driver (16 bit Serial)**  
(option RS)

: Adjustment made via trim pots found on the top PC Board, Figure 4. Drivers uses a 12 pin dual row 2 mm DC connector, Figure 5.

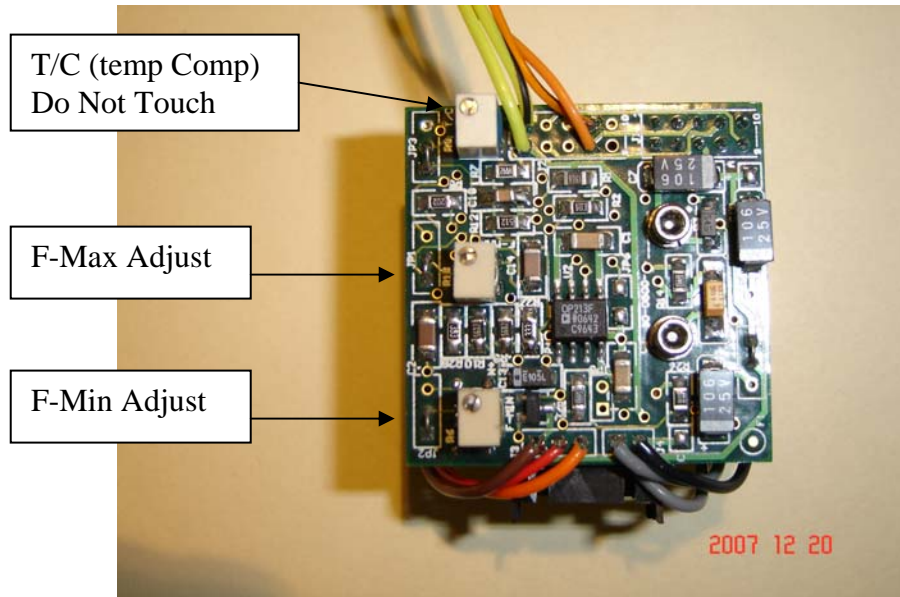


Figure 4

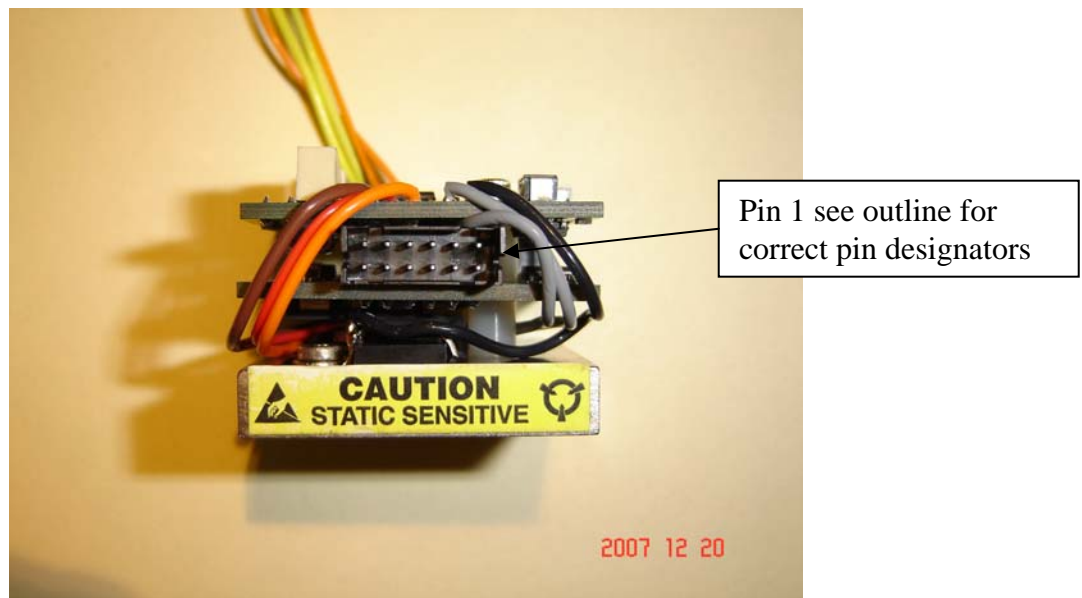


Figure 5

Set-Up and Calibration Procedure (all remote drivers):

- A) It is assumed that the user has the necessary microwave test station and or test equipment to make the necessary RF microwave measurements.
- B) Turn on the DC power supplies to the driver and heater as required by the particular YIG device specification. These values are given on the test data sheet report shipped with every item. Make sure you have provided for the maximum amount of DC current that is required for the particular YIG device. Verify that the current levels (mA) are within specification limits before continuing.
- C) Test the YIG device and remote driver over the frequency range of operation at 25 degrees C and verify the frequency readings with the test data sheet supplied with the unit. At this point, if there is a frequency offset of more than +/- 10 MHz from the factory readings, a re-calibration of the frequencies will be required. If the off-set is more than +/- 100 MHz, contact your Micro Lambda Wireless Representative or the Factory immediately for further support.
- D) Set the frequency of the YIG device to the low end of the tuning range.
  - For Digital drivers set the unit at all 0's.
  - For Analog drivers set the unit to 0.000 volts.
- E) See the appropriate figure for your driver type and find the two adjustment locations. NOTE ! There is a third adjustment pot which sets the temperature compensation of the driver circuit. Figure 1, 3 and 5 indicate T/C. This pot should never be adjusted by the customer or user at any time. Failure to comply will void the warranty on the YIG device and driver.
- F) Monitor the frequency output (Low Frequency) of the unit under test and adjust the F-Min pot for the lowest operating frequency +/- 2 MHz. This is best accomplished with a frequency counter for oscillators and a scalar network analyzer for filters to insure a good accuracy measurement.
- G) Set the frequency of the YIG device to the high end of the tuning range.
  - For Digital drivers set the unit to all 1's.
  - For Analog drivers set the voltage to +10.000 volts.
- H) Monitor the frequency output (High Frequency) of the unit under test and adjust the F-Max pot for the highest operating frequency +/- 2 MHz.
- I) Repeating steps E and G may have to be done a couple of times due to the interaction of the internal driver circuits. Once a stable set of output frequencies is obtained at both the Low and High frequency points you are finished.
- J) Adjustment is now complete. This procedure should yield precise frequencies as required for normal operation, taken into account the users wire sizes, length of wire and or ground effects.