The Microprocessor Supplied in Your Kit

Depending on availability, you may be supplied with one of two types of 16F873 microprocessor. One type runs at 20MHz and uses a 20MHz quartz crystal as a clock generator, while the other type runs at 4MHz and uses a blue ceramic resonator which substitutes directly for the quartz crystal. Both processors are blindingly fast when compared with the rate at which voltage samples are taken from the measurement head, and deliver exactly the same overall performance from the kit.

Differences between the basic 250 watt kit and high power kits (500 and 1200 watts PEP)

There are 3 differences between the 250 watt kit and the others…..

(a) The software in the microprocessor is different. The start up splash screen will identify which unit you have.

(b) The numbers of turns used on the FT50-43 sense head toroids. The 250 watt version uses 16 turns, the 500 watt version uses 22 turns, and the 1200 watt unit has 30 turns. This keeps the dc output voltages from the sense head approximately constant, but more importantly keeps the core flux densities approximately constant preventing core saturation and consequent overheating.

(c) The values used in the resistive prescalers R9 /R10, and R11/R12. These values are respectively

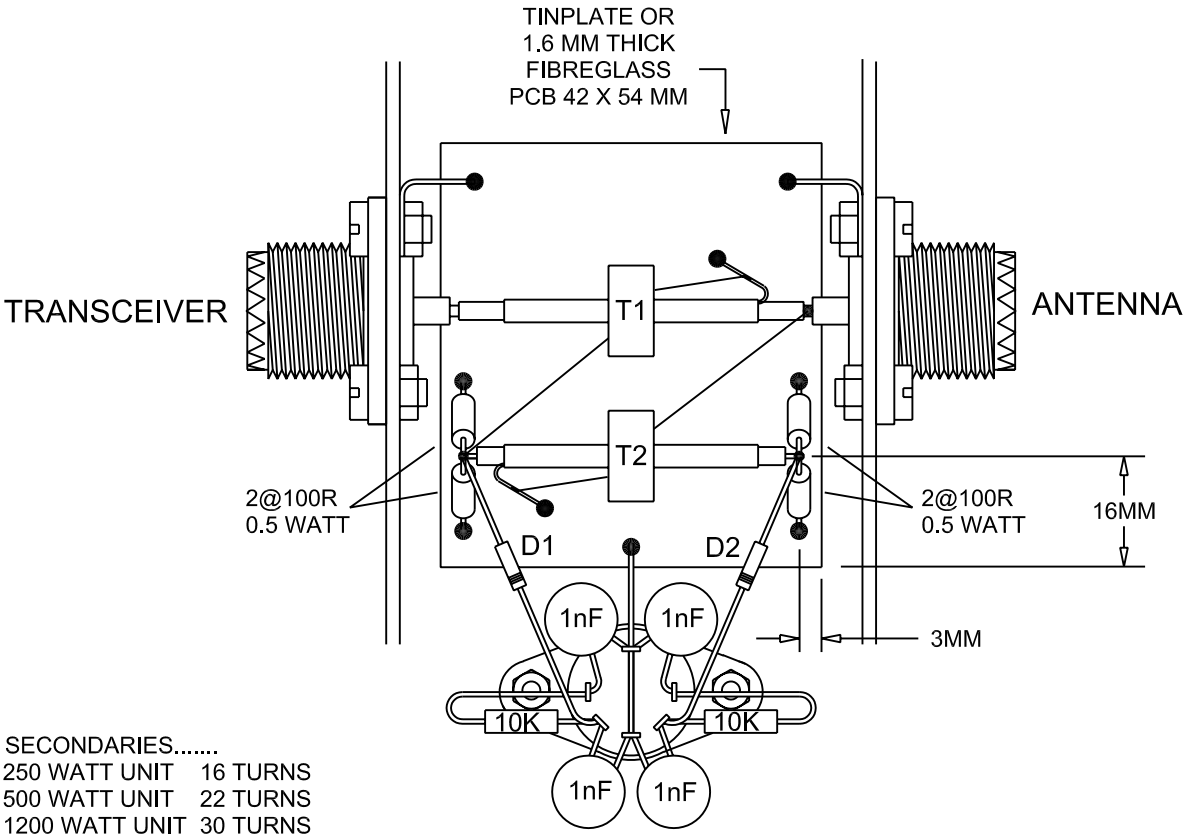
	250 watt	500watt	1200watt
R9/R10	150K	200K	240K
R11/R12	390K	470K	390K

All kits are prepared as 250 watt kits and will contain the resistor values in the table. Higher power kits will also contain additional resistors to replace the 250 watt values.

(d) The plastic box used to enclose the sense head circuitry is both cheap and effective with very little rf leakage. However, if you wish to replace this with a sealed diecast box to prevent all leakage, it is recommended that you follow the alternative construction method shown overleaf. Note that multiple sense heads can be incorporated in the feeds to various antennas, with switching provided back to the display unit to allow monitoring.

(e) Relative to the standard construction method which uses a pcb, this form of construction has lower stray capacitance, shorter leads, and more ability to get rid of heat developed in the 50 ohm bridge loads. **This bridge construction is absolutely recommended if you are building a 1200 watt unit**. **Use 1 watt 100 ohm metal film resistors**. The Tandem match with its asymmetric construction is also better at 6 metres. Of course the sense head pcb supplied can also be used in the diecast box ☺.

(f) Note that it is quite important that the transformer winding which taps off the upper coaxial cable, does so at the ANTENNA end of this line. Arrange the bridge dc connections to the main pcb so that this occurs. Such a connection forces additional current through the current transformer primary (the inner of the upper coax. cable) helping to compensate for the falling efficiency of the current transformer beyond 28 MHz.



STOCKTON BRIDGE

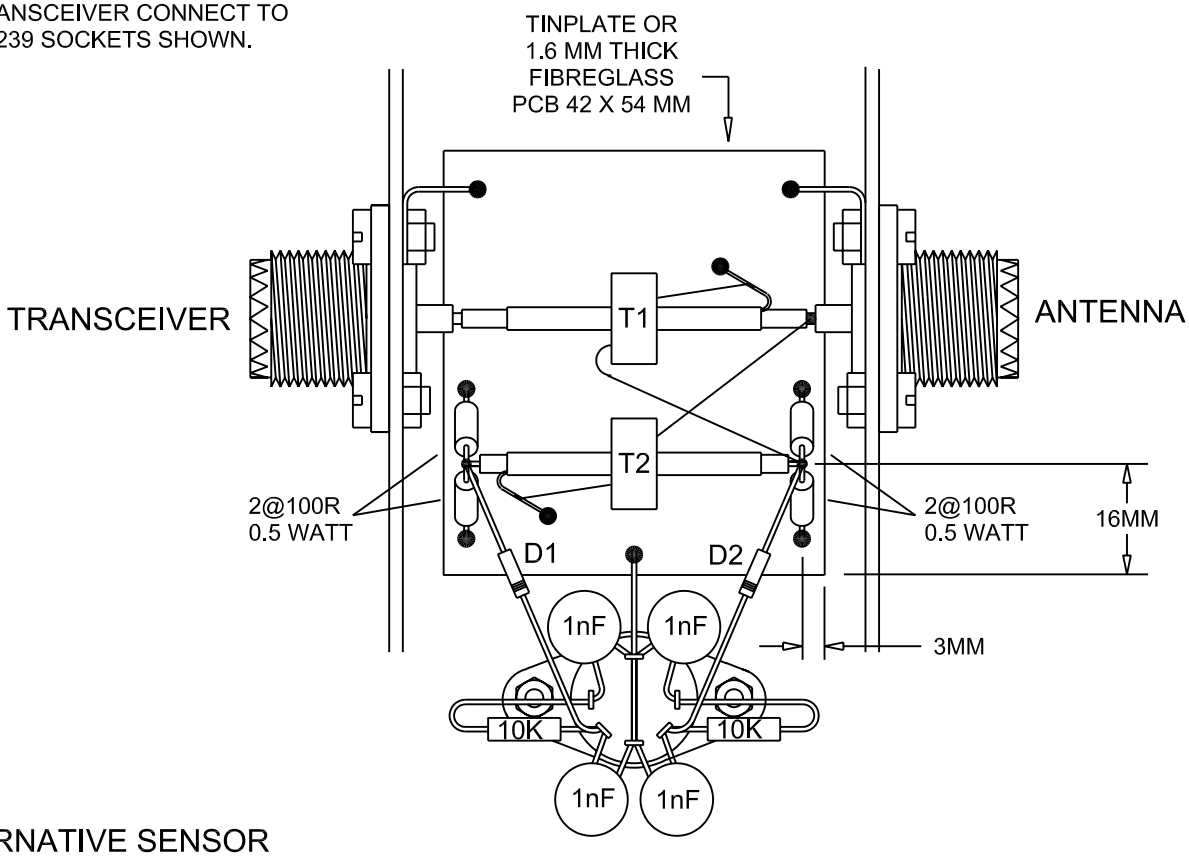
EXCELLENT RESULTS 1.6- 30 MHz

T1/T2 SECONDARIES.....
250 WATT UNIT 16 TURNS
500 WATT UNIT 22 TURNS
1200 WATT UNIT 30 TURNS
OF 0.4MM DIA. ENAMELLED
COPPER WIRE ON FT50-43
CORE

D1/D2 1N5711

NOTES

CONNECT DC BRIDGE OUTPUTS
TO MAIN PCB SO THAT ANTENNA
AND TRANSCEIVER CONNECT TO
THE SO239 SOCKETS SHOWN.



TANDEM MATCH

GOOD RESULTS 1.6 - 50 MHz

ALTERNATIVE SENSOR HEAD CONSTRUCTION