

Theory of Operation

With the Model 418, Ten-Tec has created a 100-watt solid state silicon MOSFET amplifier combining automatic and manual control for ease of operation in the 160 through 6 meter ham band.

Refer to the Block Diagram for the following discussion.

Receive signals are routed through the antenna connector to the antenna relays on to the T/R relay switching on the Lowpass Filter Board. From here the receive signals are passed on to the Radio connector. Transmit signals are applied at the Radio connector and routed to the T/R relay switching on the Lowpass Filter Board and then on to the input attenuator, input power bridge and frequency counter. The transmit signal is then applied to the 100-watt MOSFET amplifier and passed back to a lowpass filter to be applied to the correct filter and then on to the antenna relays, and finally, to the antenna connector.

The PIC processor in the CPU module executes the firmware to perform certain functions. Those functions include:

1. checking input power and frequency
2. enabling bias to the MOSFET amplifier
3. checking SWR
4. checking current
5. checking output power
6. checking temperature

The PIC performs these functions based on input from the front panel buttons, key in jack or data from the ACC 1 connector.

Cooling is achieved with the two internal fans that are also controlled by the CPU.