LEIT 2 Handset
Operational Description

The following document is a brief description of the circuit functions of the LEIT 2 Handset.

The LEIT 2 Handset is the only means of controlling the LEIT 2 controller. It is a two way communication device. The controller can program data and well as request data. Examples of features are: set an irrigation watering schedule, manual open/close valves, retrieve run time history for this/last month, view the power status, etc.

RF modulation is FSK, modulated in position/phase, intended for data transmission.

The following is a breakdown of the circuits. Please refer to the LEIT 2 Handset schematics for reference.

Microcontroller schematic:
The MSP430F147 microcontroller is used to control the device. All logic function takes place here. The basic functions are to process inputs (do something when a button is pressed), write to the LCD display, communicate via a radio, and monitor battery status.

Radio schematic:
The Chipcon CC1100 chipset is used for the radio. A few external components are needed (decoupling caps, and balancing). The microcontroller sets up the radio to work at the desired frequency and power, and enables/disables communication.

Power schematic:
The Handset is powered by a rechargeable Ni-MH battery. If external power is applied, a constant current circuit charges the battery. The microcontroller will monitor the status of the battery and cut power if necessary. A linear regulator regulates to power from the battery to 3.3V.

LCD, EEPROM & Input schematic
5 buttons control the device: up, down, left, right, and select. The LCD is connected via a ribbon cable to a connector on the board.