Technical Description

The product configuration tested consisted of a WM12-x Weathermate irrigation controller, 433.92 MHz receiver printed circuit board, and a handheld 433.92 MHz transmitter. The WM-RR receiver printed circuit board is mounted inside the Weathermate irrigation controller as shown in Figure **Error! Reference source not found.**. The WM-RT transmitter is a handheld device, which consists of a small printed circuit board moundted inside a plastic enclosure with a 9" wire antenna (22 AWG).

The Weathermate irrigation controller is a digital device, which hosted the receiver. The transmitter is used in conjunction with these devices.

General

Weathermate is an irrigation controller. It controls sprinklers. It's a microprocessor based system that can be programmed to water automatically (see Weathermate user manual).

The controller has a rain sensor contact input that may be used to prevent the controller from watering when it's raining.

The input power to the system is 110VAC for US models and 220/240VAC for export models. The US version has two transformers, one for indoor use and one for outdoor use. Both of these transformers were tested. The controller's transformer steps down the input power to 24VAC. The 24VAC is then rectified and regulated to 5VDC to power the controller's control logic. The 24VAC is also used to power the controller outputs. The output load is a group of wires connected to solenoids in the field. They are wired to the controller via the output terminal block. All the solenoids are wired together on the other end and connected to the common position at the output terminal block. The solenoids are 24VAC powered via triacs controlled by the system processor. When powered, the solenoid drives an actuator that opens the valve to water. The controller is also capable of solenoid short/over current detection. In case of an overcurrent the controller will skip the shorted station and activates the next one. The normal stations are numbered 1 to 12. A special station numbered MV for Master Valve and it's designed to control a pump if needed. This station has a longer short detection delay to mask the inrush current surges.

The remote control consists of a transmitter and a receiver. The receiver is connected to the main board and mounted in the same housing. It receives commands from the transmitter and sends them to the processor. The transmitter is a hand held device with two buttons. One button to turn ON and OFF a station. The second button to advance to the next station after a station was turned ON by the transmitter.