

Water Sentinel Operational Description

RF POD Description

The Rf transmitter pods comprise of the following blocks.

CPU section, micro based risc processor with flash memory,

RF Section, rf transmitter operating at 916.5 mhz frequency.

Saw filter built in for accurate freq and band pass.

Battery Lithium, 3.6 Volt Battery AA , soldered to board.

Battery shelf life , 15-20 Years. But degrade to Ten Years

To allow for monthly test by user.

Theory of operation

Unit remains powerless until water comes into contact

With probes, then it sends a unique 32 bit code , 3 times every

.250 seconds, then goes into sleep mode , consuming very little

power, after 2 seconds unit will wake up and transmit again

3 burst , power during transmit is less than 9 ma for .1 second.

Water Sentinel Receiver Unit

Water Sentinel Sections consist of the following.

CPU section, same as transmitter pod.

Rf Section, contains a saw filter receiver section. And an antenna

Antenna consist of a rigid magnet wire 82mm $\frac{1}{4}$ Wave Antenna

Relay Section, contains a Double pole Double Throw relay

10 Amps/DC/AC 125V (CSA/UL) , one pole is used

to activate valve, the other pole is provided with Normally Closed

and Normally Open Contacts and Common in order for

customer to be able to switch any kind of load required.

Theory of operation

Upon power relay is energized, causing valve to remain open,

If power is interrupted, relay will shut off and valve will close.

Unit remains in standby, until one of it's codes is received.

Upon reception of proper matching code,(one of four) unit will

Close valve, and start alarm circuit, unit will beep every second

And valve will remain close, until transmitter no longer detects

Water.

Theory of operation (continued)

it will continue to close valve and beep until ten seconds

After transmitter stops sending. Light on unit will indicate

Which of the transmitters is sending.

In order to provide a way to detect different transmitters

And prevent wrong units(from other homes near by) to activate

Water Sentinel, a teach mode as been provided to give this feature.

Pressing button on front panel will turn on led (one of four) by pressing

Again, other indicators will turn on, in this way up to four

Coded transmitters can be used, once the proper one is selected

Transmitter is activated by placing in water, light will go off and

Normal alarm mode will activate, pressing button will shut alarm

Mode off and turn valve back on. From then on the unit will respond

To that transmitter also.

The Rf Pods are coded to 32 bits or 4 billion combinations.

If the unit is placed in teach mode by the user accidentally, unit

Will revert to normal operating mode in 30 seconds.

An extra feature of this valve is the ability to turn on and off

Valve when required to prevent valve from sticking in a

Position, this is done at the present every 24 hours, valve will

Shut off for .5 seconds and reactivate back to normal.

Theory of operation (continued)

OPTIONAL AUTO DIALER

An extra feature of this unit is the optional auto dialer , which when water Detector is activated, will call a preset number in memory, and Send a unique tone sequence to alert operator of water leakage, Unit will Wait for operator to respond to this call by pressing # 1 key on telephone Keypad, then unit knows operator as the message. Otherwise unit will Try up to three separate numbers, and continue this till it gets an answer from operator. This system could be answered by a computer and automatically dispatch personel for service.

Theory of operation (continued)

OPTIONAL TEMPERATURE CONTROL

This option provides protection from floods and water damage

Caused by freezing of pipes.

The Kit contains a electric valve connected to Detector spare

Terminals, located inside. This valve is normally closed to

Prevent water from escaping.

When the temperature falls below 33 degrees F , the

Detector unit will shut main valve to prevent water

From entering home, also the spare valve will open

And release water from pipes into drain.

SYSTEM FEATURES

- **VISIBLE INDICATORS SHOWING UNIT #**
- **RELAY TO CLOSE WATER VALVE**
- **SEPARATE SET OF CONTACTS FOR USER**
- **SEPARATE INPUT FOR WIRE OPERATED
PROBE**
- **SLAVE INPUT TO ATTACH TO OTHER UNITS.**
- **BUZZER FOR AUDIBLE INDICATOR.**
- **TEACHING BUTTON FOR LEARNING
SENSOR SERIAL NUMBERS UP TO 6 UNITS.**
- **SENSORS HAVE UP TO 32 BIT CODED SERIAL
NUMBER.**
- **OPTIONAL AUTO DIALER FOR EMERGENCY
CALL DISPATCHING.**
- **OPTIONAL TEMPERATURE SENSOR**
- **OPTIONAL DRAIN VALVE WITH VACUUM
BLEEDER.**

