

# FluidWatch<sup>®</sup>

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Leak Detection System

## Installation and Operation Manual

FW 25-50

FW 25-75

FW 25-100

**PERMALERT**

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Environmental Specialty Products



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Please check the PermAlert website, [www.permalert.com](http://www.permalert.com), for the latest revision of this manual.

The manual is typically revised at least once a year. The revision date is on the back cover.

The following instructions describe the installation and operating procedures for FluidWatch Models FW 25-50, FW 25-75 and FW 25-100 Leak Detection Monitoring Systems. Custom length systems are also available.

## Introduction

The FluidWatch system consists of a solid-state electronic monitoring unit connected by jumper cable to a sensor cable.

The following general precautions should be observed:

1. Read this manual carefully before beginning installation. Do not use substitute materials or short cut recommended procedures. Understanding and following these instructions is essential to avoid installation problems.
2. Check packing list quantities with received items. Any shortages or damage to materials received should be reported immediately to the delivering carrier.
3. Care must be taken to store all FluidWatch components in a dry and protected area at all times. Electronic monitoring units should be wrapped and sealed with plastic.
4. Electrical work should be performed by a qualified electrician and conform to all local electrical codes.

## Theory of Operation

The FluidWatch Leak Detection Monitoring System has been engineered to monitor small areas for water and water-based liquids. Typical applications include unmanned equipment rooms, small raised floor areas and small tanks. The system continuously monitors the capacitance of the sensor cable and detects changes from the initial value. Just seconds after the coaxial sensor cable contacts water, the unit turns on a red LED, switches two relays and sounds a horn. The sensor cable quickly dries in place after the leak is cleaned up and the system can be put back on-line.

## Monitoring Unit Installation

Mount the monitoring unit indoors where it will not be exposed to vibration, shock, high temperatures or humidity. The four mounting holes for the unit are located directly underneath the four cover screws. Refer to the **Power Requirement** section of this manual for wiring instructions.

**DO NOT connect power to the monitoring unit yet.**

## Cable Installation

Each FluidWatch system is a complete kit that includes 25 feet of jumper cable, a length of sensor cable, cable clips and cable tags. The lengths of sensor and jumper cables should not be shortened, even if there is excess cable for an installation. The excess cable should be positioned out of the way so it will not be damaged. The adhesive backed cable clips are provided to attach the jumper and sensor cables to the floor. Approximately one clip per five feet of cable is provided. Cable identification tags are also provided to attach to the cable and identify it as a leak detection cable.

The sensor cable is typically placed around the perimeter of a room or around a piece of equipment that is to be monitored for leaks. The cable should be protected from people walking on it or equipment being placed on it. Connect the jumper cable from the external UHF connector on the monitoring unit to the sensor cable. The UHF connector between the sensor and jumper cables should be tightened **gently** with pliers.

## System Configuration

There are several user selectable options for configuring the FluidWatch Leak Detection System. Refer to Figure 1 to locate different jumpers and terminal strips that are referenced in the following descriptions. Jumpers are rectangular plugs, which connect two pins together on the circuit board. **Power to the unit should be turned off before making any internal adjustments to the monitoring unit.**

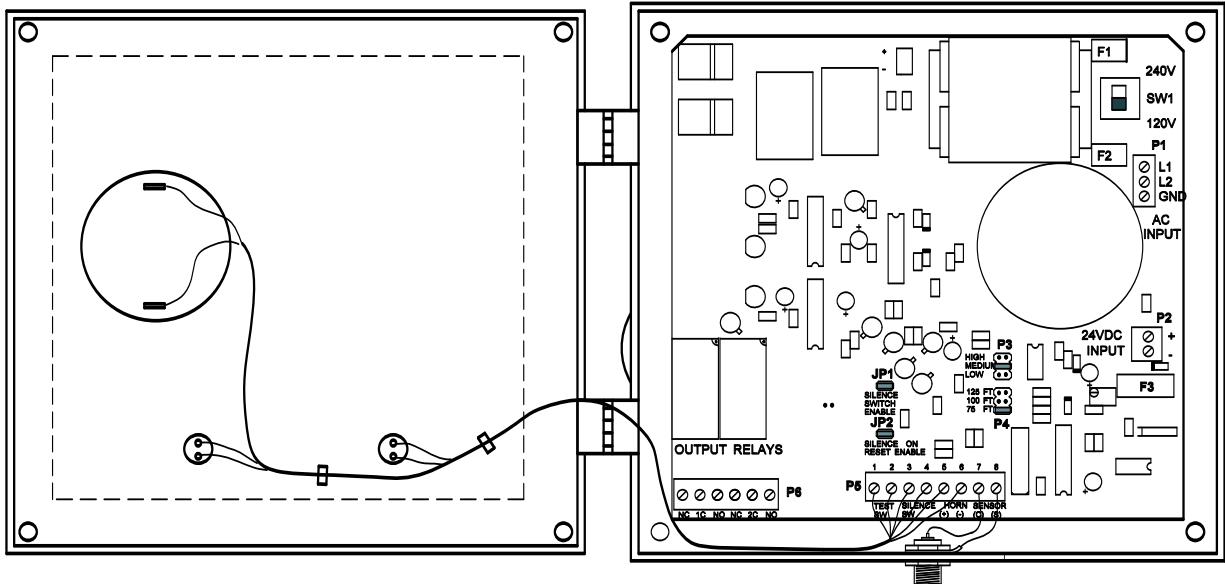


Figure 1  
FluidWatch Configuration

### Cable Length

A jumper at P4 is used to select the total amount of cable in the system. The FW25-50 has 25 feet of jumper cable and 50 feet of sensor cable for a total cable length of 75 feet and would use the 75-foot setting, for example. **DO NOT cut off any excess cable.** Contact PermAlert if custom length cables are needed.

### Sensitivity

There are three sensitivity settings for the system at jumper location P3. FluidWatch is factory set for medium sensitivity. High sensitivity requires about (1) one foot of wet cable to go into alarm. Medium sensitivity requires (3) three feet of wet cable and low sensitivity requires approximately (10) ten feet. Select the appropriate sensitivity for the application.

### Output Relays

There are two SPDT output relays that are normally energized on the system. The relays de-energize when the FluidWatch system goes into alarm, either leak or break, and they energize again when the system is reset. The relays are rated at 10 A, 250 VAC and are wired to terminal strip P6. The terminal NC, 1C and NO refer to the normally closed, common and normally open contacts for relay 1 in the normal operating condition.

### Silence Switch Enable

Jumper JP1 is normally installed to enable the alarm to be silenced from the switch on the front panel. To disable the silence switch so it cannot silence the alarm, remove jumper JP1 from the board. Place it back on **one** of the two pins at connector JP1 so it will be available later if the configuration needs to be changed.

## Silence on Reset Enable

Jumper JP2 is normally installed to allow the system to automatically silence the alarm if the cable dries. To disable this feature and require the system to be manually silenced by pressing the "silence" button, remove jumper JP2 and place it back on **one** of the two pins at connector JP2.

## Power Requirement

The FluidWatch Leak Detection System requires 120/240 VAC 50/60 Hz 6 VA or 24 VDC 6W.

If AC voltage is used, switch SW1 must be positioned correctly. It is labeled on the circuit board 120V or 240V. **Switch SW1 is not a power on/off switch. The power must be disconnected when switch SW1 is moved.** After SW1 is set, the fused incoming power can be connected to L1 and L2 on terminal strip P1.

If the system is configured for DC voltage, connect the fused power leads to terminal strip P2. **Note the board is labeled + and - for the polarity of the 24 VDC leads.**

## Operating

The FluidWatch system uses an LED "traffic light" display to indicate status: **GREEN for normal, YELLOW for a wire break and RED for a wet cable.** The alarm unit activates an audible alarm and two relays when either a break or a leak occurs.

When power is supplied to the unit, the green LED should turn on after a second. If the yellow LED is on, there is a cable break. If the red LED is on, water is in contact with the sensor cable. Take action to verify this and notify responsible personnel. Once the water has been cleaned up the sensor cable will dry quickly and the green LED will turn on.

If the cable is dry and the red LED is still lit, check the cable for a short. Equipment may have been placed on the cable and damaged the cable. An ohmmeter can be used to make sure the center conductor of the cable is not in contact with the cable shield. Disconnect the UHF connector at the panel and connect the ohmmeter leads to the center pin and the housing of the cable connector. The reading should show an open circuit (O.L).

If the cable is dry and in the normal operating condition, the relays are energized and contacts NC-1C and NC-2C are closed. In an alarm condition, relay contacts NO-1C and NO-2C are closed.

There are only two operator buttons: one is used to periodically test the system and the other to silence the alarm. The silence button can be disabled via an internal switch to prevent unauthorized alarm silencing.

## Test

Push the test button to verify that the system is operating properly. The test button should activate the yellow LED, audible alarm and output relays. When the test button is released, the unit will reset after 3 or 4 seconds. If FluidWatch fails to respond as expected, recheck all connections and jumpers on the monitoring unit. Check the wires connected to terminal strip P5. The test switch leads connect to terminals 1 and 2 and the silence switch leads connect to 3 and 4. The horn leads go to 5 (red) and 6 (black). The UHF connector has the center wire connected to terminal 7 and the shield wire connected to terminal 8. If further assistance is needed, contact PermAlert ESP.

## **Warranty**

Seller warrants that the FluidWatch™ Leak Detection System (the "System") will be free from defects in materials and workmanship for a period of one year from the date of shipment by Seller to Buyer. Seller is not responsible for damage to the System occurring in transit or arising from the installation, alteration or repair of the System by persons other than Seller's employees, or from any abnormal or improper use of, negligence with respect to or accident affecting the System. Expendable service parts, such as probes, are not warranted by Seller. Seller's sole obligation and liability, and Buyer's sole remedy, under this warranty shall be the repair or replacement, at Seller's election, by Seller of any defective materials or workmanship covered by this warranty, without the charge to Buyer. Repaired or replacement materials shall be delivered to Buyer f.o.b. Seller's plant or f.o.b. such other location as Seller shall designate. Seller shall not be responsible for any product returned to Seller without Seller's prior express consent. No claim shall be permitted under the warranty contained herein unless Buyer notifies Seller in writing within ten (10) days after Buyer first hears of facts giving rise to any such claim and unless notice is given within the one-year term of this warranty. In order to be valid, any notice sent to Seller in connection with said claim under this warranty must reasonably specify the defect, which is the subject of such claim. Buyer shall be responsible for testing and inspecting the System promptly after receipt and thereafter at such intervals as are reasonably prudent so as to inform Buyer of any defects which exist in the System. Notwithstanding the filing of a claim hereunder, this warranty shall expire after one year from the original date of shipment of the System in respect to materials and workmanship, which are not then the subject of a proper claim.

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