

 **SIGNETMARINE**

# BAITWATCH

Livewell Bait Pump Alarm



## No Dead Bait.

The SIGNETMARINE BaitWatch System alerts you to a livewell pump problem before your fishing trip turns into one. The loud alarm and dual-color status light immediately let you know if there is a pump malfunction or insufficient water flowing to your tank.



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## Instruction Manual

 **SIGNETMARINE**

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## Instructions for Installation and Operation of the BaitWatch Alarm System.

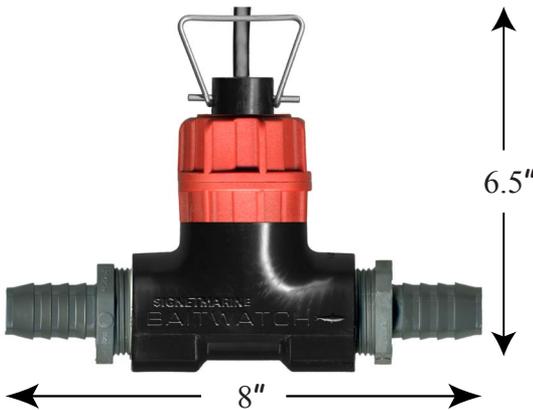
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### 1. Description

The SignetMarine BaitWatch Livewell Bait Pump Alarm System is composed of 3 main components: the Flow Sensor Unit with integrated paddlewheel sensor, the Electronics Module with audible alarm, and the Indicator Panel with its bi-color LED status light.

The BaitWatch Alarm System provides reliable, continuous monitoring of the flow of water to a livewell. It is ideal for monitoring bait tanks and mackerel or tuna tubes. The system detects water blockage, low flow, pump malfunction or electrical failure to the pump.

### 2. Installation Clearance



The sensor housing measures 6.5"H x 8"L x 2.5"W. An additional 3.5" of vertical clearance is needed to extract the paddlewheel sensor.

### 3. Necessary Tools and Items

1. Small 1/8 inch flat bladed screwdriver
2. Small Phillips screwdriver
3. Drill with 1/4 inch drill bit
4. Contact cement or silicon glue
5. 2 Stainless Steel hose clamps (not provided)
6. Power switch and 1 amp fuse + fuse holder (not provided)
7. Bait pump with 250 gal/hr actual flow to tank.

## 4. Installation of BaitWatch PVC Sensor Housing

The Sensor Housing with its integrated paddlewheel sensor is completely waterproof and can be mounted anywhere between the pump and livewell. The supplied 25 foot cable can be extended up to 100 feet. If splicing the cable, the bare shield wire must be spliced as well. The unit can be mounted either vertically, with the water flowing upward, or horizontally.

Since the sensor is bidirectional, it can measure water flowing through it from either direction. Do not tilt the sensor more than 45 degrees if mounted horizontally. Avoid mounting upside-down to prevent clogging by debris.

## 5. Plumbing

The sensor housing is supplied with two, 1" hose insert fittings. Different size hose can also be used by replacing the screw in fittings. The sensor should be installed between the pump and bait tank. Do not use any lubricant on the barbs or inside the hose. If it is a tight fit, use water. Install stainless steel hose clamps (not included) around the hose and tighten securely.

## 6. Electronics Module Mounting Location

Find a suitable location but do not mount the Module yet. Run the sensor cable back to where you want the Electronics Module to be located. The Module with its audible alarm can be mounted in any protected location. Mounting it behind or near a dashboard is ideal. Keep it protected from spray, rain or dew. The location should allow the alarm to be heard over the sound of your engine.

Test-connect the module to 12vdc (see page 3) without the sensor attached, in your desired location, to verify the loudness of the alarm. The standard mounting recommendation is to place 2 rubber grommets beneath the flanges to allow a 1/4" gap for the sound to be heard.

## 7. Display Panel with LED Installation

Find a suitable location for the BaitWatch Indicator Panel. It is best installed with a little silicon glue, contact cement or similar. Try to find a location out of direct spray or dew. The LED status light's 14" leads can be extended if needed.

1. Drill the hole in your mounting location with a ¼" drill bit.
2. Feed the LED wires through your drilled hole.
3. Glue Indicator Panel with the LED to the surface.

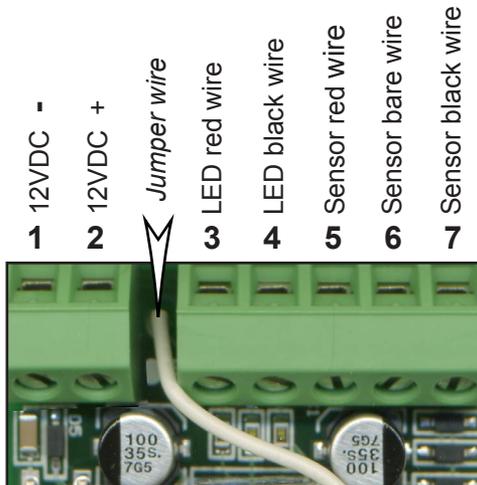
## 8. Electronics Module Wiring

Install the 3 wires from the flow sensor cable and the 2 LED wires to the Module terminal blocks according to the diagram below.

The bare shield wire in the sensor cable must be connected to terminal 6. Insert the wires into the slots and tighten the screws on the opposite side. It helps to slightly bend the wires before inserting them in the terminals.

Do not connect the module to 12 volts just yet. If the power is connected to it without water flowing through the sensor, the alarm will sound.

Option: The white jumper wire in the module can be connected to terminal 1 to have the alarm trigger at a 50% higher flow rate than the default setting. This allows the sensor to alert you to a developing flow problem. After all the wires have been connected, apply a small amount of anti-corrosion spray to the contacts.



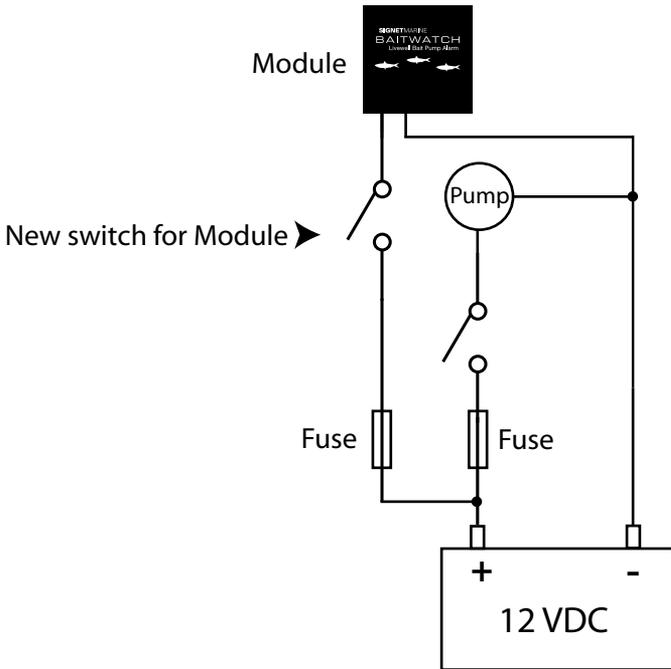
## 9. Module Power Hookup

It is recommended to install a separate power switch (with a 1 amp fuse) for the BaitWatch Module. This will allow you to turn off the alarm independently of the pump. There are two methods of providing power to the Module. For a fail-safe installation it is recommended to wire the Module as outlined in figure 1.

### Figure 1. Wiring the Module with a power switch independent of the pump circuit.

Benefit: The alarm will sound from any pump malfunction including a power outage to the pump or a water blockage.

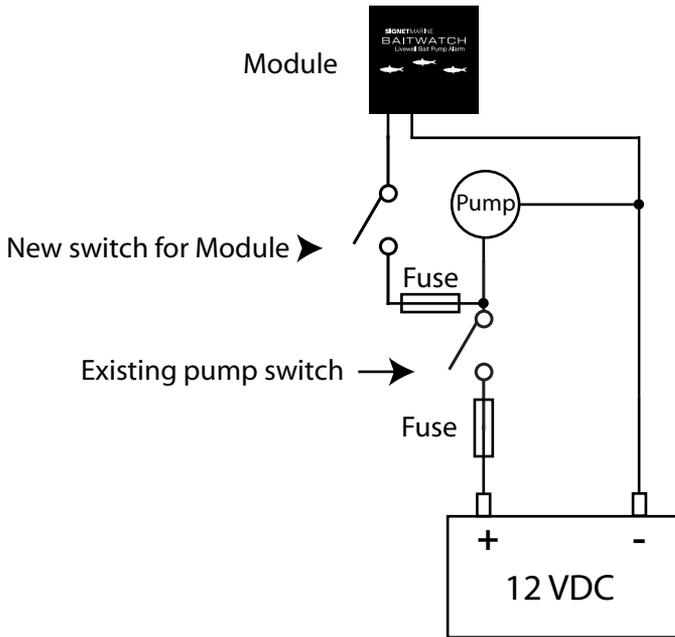
Drawback: You have to remember to turn the Module on when you turn on the bait pump.



## Figure 2. Wiring the Module with its power switch in line with your pump switch.

Benefit: One switch turns both the pump and sensor on at the whole time.

Drawback: If the power fails to the pump or its fuse blows, the alarm will not alert you because it won't have power either.



After the switch is installed, turn it off and connect the power wires to the module on terminal 1 and 2 as shown in the diagram on page 3.

## 10. Module Mounting

Mount the Module flange-side down with 2 rubber grommets beneath the flanges to provide a gap so that the alarm can be heard.

If mounting the Module on a ceiling, mount it with the top in contact with the ceiling (flange side down) and use longer screws or bolts to attach it. Do not mount the Module with the open side facing up on a ceiling if there is any chance of moisture getting into the unit.

Be sure that the wires leading out of the Module are secured with zip-ties and can't be inadvertently yanked loose.

## 11. System Check

1. Turn on your bait pump. Check for possible leaks at the Sensor and around the fittings.
2. Apply power to the BaitWatch Module. The status LED light on the indicator panel should shine a steady green. The alarm should be silent.
3. Turn off your bait pump. You should hear the alarm and the green light will turn red on the indicator panel.
4. Turn your bait pump back on. The alarm should shut off and the red light turn back to green.

You can also try kinking the hose near your bait tank and note the flow rate when the alarm is activated.

The electronics measure the voltage generated from the self-powered paddlewheel transducer. The faster the rotor spins, the higher the voltage it generates. The alarm trigger point is set at approximately 80 gal/hr. (120 with the white jumper wire attached) with a reset point at approximately 180 gal/hr. There is also a programmed short time delay between sensing the low voltage (low flow) and triggering the alarm. The reset point is set higher to ensure that the alarm does not cycle on and off.

## 12. Troubleshooting

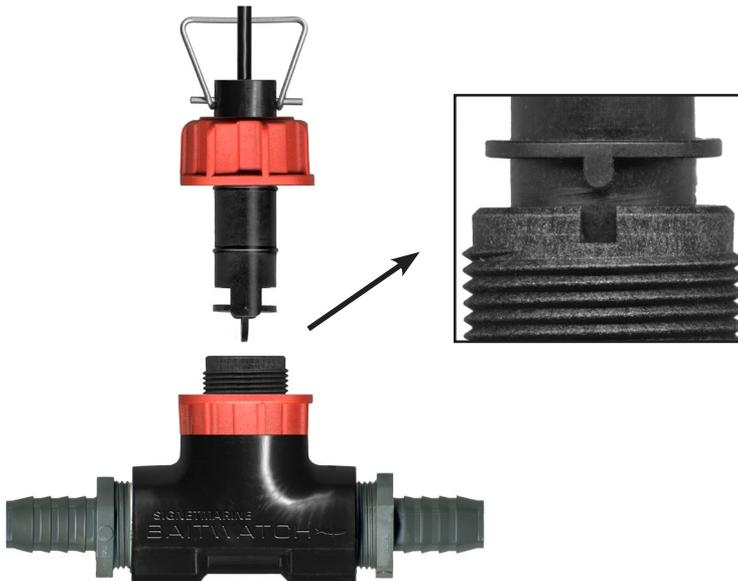
SYMPTOM	CAUSES	REMEDIES
LED on Panel not lit. No alarm when flow is stopped.	Module not getting power. Wires not securely fastened. Module not wired correctly.	Check wiring and voltage to Module.
Audible alarm works but LED does not light up.	LED wires not securely fastened. Dead LED.	Check wiring to LEDs. Disconnect LED leads and test by connecting leads briefly to 3vdc. Switching leads should switch red to green. Replace LED.
Alarm sounds and Panel Light is red but water is still flowing OK to the bait tank.	Rotor jamb in housing or white wire is connected to terminal 1 in Module. 2. Malfunctioning paddlwheel sensor	Clear rotor or disconnect white wire from terminal 1 in Module. 2. Verify there is AC voltage generated from sensor output with voltmeter > 1VAC.
Alarm not very loud.	Module mounted incorrectly.	Increase gap between Module and mounting surface.

### 13. Paddlewheel Sensor Cleaning

The paddlewheel sensor can be extracted from the Sensor Housing to be cleaned if necessary. To inspect the paddlewheel rotor follow the steps below:

1. Shut off the thru-hull water inlet valve to your bait pump.
2. Make accommodations for possible back-flow from the bait tank when the sensor is removed.
2. Unscrew the top red cap on the sensor housing until it is no longer engaged in the threads.
3. Unscrew the bottom red ring to press out the top red cap and sensor.
4. Pull out the sensor with the wire bail.
5. Inspect and clean the rotor and housing. Do not apply any lubricant on the rotor pin or the rotor.

Re-install the sensor in the reverse order above, lubricating the O-rings with silicon grease. Be sure that the tabs in the top of the sensor line up with the notches in the sensor housing. The sensor can be installed in either direction so long as the tabs and notches line up and the paddlewheel rotor shaft is perpendicular to the flow of water. Tighten the red cap by hand. Do not use tools.



## 14. Specifications

Bait Pump Recommendations:	500 to 1100 gal/hr. (4000 gph modified)
Min. Flow Rate Requirement:	250 gal/hr. actual flow to tank
Alarm Trigger Point:	Approx. 80 gal/hr.
Alarm Reset Point:	Approx. 180 gal/hr.
Alarm Trigger Point 2:	Approx. 120 gal/hr.
Buzzer:	Stainless Steel Diaphragm. 103db
Supplied Hose Fitting:	1 inch
Hose Size Range:	1/2 to 1-1/4 in. (with optional fittings)
BaitWatch Housing:	Schedule 80 PVC
Electronics Module:	ABS (Polyurethane Encapsulated PCB)
Cable Length:	25 feet supplied. 100 feet max.
Cable Type:	2 conductor 22AWG shielded
Fuse Recommendation:	1 Amp
Power Requirements:	12VDC 30mA standby
Shipping Weight Complete:	3 lbs.

## 15. Parts List

M1531	Rotor Repair Kit.
1-2200.100-3	Paddlewheel Sensor with cable
M1556-1	PVC Housing Tee with Core (standard)
M1556	PVC Housing for > 1100 GPH pump
1-3501-E	BaitWatch Electronics Module
1-3501.512	Display Panel
6810-0005	LED (Red/Green)

Contact the factory for sensor housings designed for high output pumps.  
Larger housings available.