

Sentry

LIQUID LEVEL ALARM MODEL 100

OPERATING MANUAL



Aquatic Sentry

CONTROLS

www.aquaticsentry.com

TABLE OF CONTENTS

1. SAFETY PRECAUTIONS.....	3
2. APPLICATION	3
2.1 HIGH Liquid Level Alarm	
2.2 LOW Liquid Level Alarm	
3. INSTALLATION	4
3.1 Mount Indoor Alarm Display	
3.1.1. Setting HIGH or LOW Level Function	
3.2 Suspend the Probe	
3.3 Test the Alarm	
3.3.1 HIGH Alarm	
3.3.2. LOW Alarm	
3.4 Optional Relay Output	
4. OPERATION and TROUBLESHOOTING.....	9
4.1 State Table and Troubleshooting	
4.2 Manual Test	
4.3 Probe Response Time	
5. SPECIFICATIONS	11
5.1 Indoor Alarm Display	
5.2 Probe	
6. WARRANTY	12

Printed in Canada

Rev Oct 2015

1. SAFETY PRECAUTIONS

The potential for electrical shock exists whenever water is present near conductive electrical equipment. Check for sources of electricity from other nearby devices before working on this equipment. There is no possibility of serious shock from the energy levels used by this alarm. The low voltage DC and transformer isolation provide safety when handling or opening the enclosures or the probe. Best practice, however, is to disconnect power when working on this equipment.

2. APPLICATION

The Sentry liquid level alarm continuously monitors a water level, rising (high level) or falling (low level), that may cause an alarm condition. Application examples are pump chambers, cisterns, holding tanks, sumps, floor drains, irrigation channels or truck tanks. The alarm also performs self-diagnostics, continuously testing that all components are operating correctly. The indoor alarm display will flash an LED and sound audible alarm. Audio can be muted with the pushbutton. When the alarm condition is corrected the audio will reset.

- Green indicates power on and monitoring
- Red flashing and audio pulsing indicates an alarm condition
- Yellow indicates an error in the probe circuit

See the State Table in Section 4.1 for the complete detail of the conditions which may be displayed and the self-diagnostics.

2.1 HIGH Liquid Level Alarm

HIGH LEVEL alarm condition will occur when the liquid level rises to partially cover the pins on the bottom of the probe. An example of rising water causing an alarm condition is a septic tank.

2.2 LOW Liquid Level Alarm

LOW LEVEL alarm condition will occur when the liquid level falls close to the middle of the pins of the probe. An example of falling water level causing an alarm condition is a cistern that requires filling.

3. INSTALLATION

3.1 Mount Indoor Alarm Display

Mount the Sentry indoor alarm display at a convenient viewing location. Select an eye level location that is frequented, near a 120VAC receptacle. Power to the receptacle should be supplied from a circuit separate from any pump that is being monitored by this alarm. Install the supplied screws, 3" apart vertically and projecting ¼" from the wall, to mount the display. Install the AC adapter and plug into the alarm display. The LED will be flashing red and yellow, indicating that the probe is disconnected. See the State Table in Section 4.1 for the complete detail of the conditions which may be displayed and the self-diagnostics. The supplied labels may be used to identify the indoor alarm display's function, ie HIGH LEVEL in the SUMP.

3.1.1. Setting HIGH or LOW Level Function

The jumper position inside the indoor alarm display determines the HIGH LEVEL or LOW LEVEL function to suit your application. See FIG 1 next page. Using needle nosed pliers, install the jumper, shorting the two terminals for a HIGH LEVEL function. For a LOW LEVEL function the jumper is installed on one terminal.

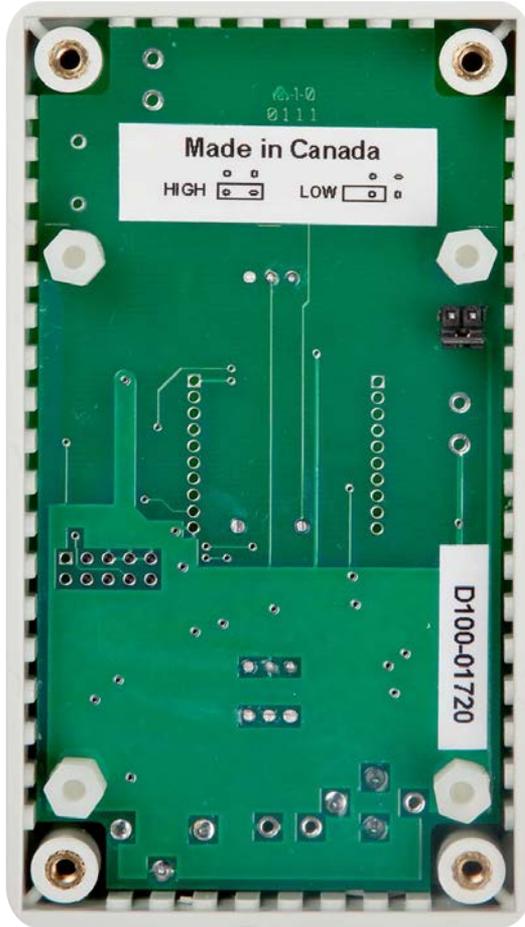


FIG 1
Indoor Display Rear Interior



*FIG 2
Probe with Suspension Clip*

3.2 Suspend the Probe

Suspend the probe at the depth the alarm is required. Tape the cable to a riser with electrical tape or use the supplied clip to grip the probe cord. See FIG 2 above. Use wire that will not corrode, such as insulated building wire, bent into an “S” hook, to suspend the probe from a projection in or off the rim of the neck of the tank. The probes alarm point occurs when the pins are partially covered by water. Once the probe has been installed at the correct location plug it into the indoor alarm display.

3.3 Test the Alarm

3.3.1 HIGH Alarm

For a HIGH ALARM the LED will be green and on steady with the probe out of the liquid. When the probe is lowered into the liquid, the LED will turn flashing red and the audible alarm will pulse. Silence the audible alarm. Raise the probe out of the liquid to stop the red LED flashing and to reset the audible alarm. Repeat this sequence to prove operation. For any other conditions see the State Table in section 4.1.

3.3.2. LOW Alarm

For a LOW ALARM the LED should be green and on steady with the probe in the liquid. When the probe is raised above the water, the LED will turn flashing red and the audible alarm will pulse. Silence the audible alarm. When the probe is lowered into the liquid the LED will turn steady green indicating alarm is monitoring. Repeat this sequence to prove the operation. For any other conditions see the State Table in section 4.1.

3.4 Optional Relay Output

The relay output may be used to switch an external circuit to operate remote alarms, security systems, autodialers or other control applications. The spring clamp terminal block on the indoor display accepts 26-14 gauge solid or stranded wire. See Fig 3 below. Depress the orange lever and insert the stripped wire into the terminal block.



FIG 3
Relay Option

4. OPERATION and TROUBLESHOOTING

4.1 State Table and Troubleshooting

State Table and Troubleshooting for the Indoor Alarm Display

LED	AUDIO	HIGH LEVEL (i.e. Septic tank)	LOW LEVEL (i.e. Cistern)	CORRECTIVE ACTION
OFF	OFF	No Power		Check breaker Check Transformer Check plug-in into display
GREEN STEADY	OFF	PROBE DRY	PROBE WET	OK
RED FLASHING	PULSING	ALARM - PROBE WET	ALARM - PROBE DRY	OK
RED FLASHING	SILENCED	ALARM - PROBE WET	ALARM - PROBE DRY	OK
YELLOW FLASHING	PULSING	MANUAL TEST		OK
GREEN / YELLOW FLASHING	CONTINUOUS	PROBE ERROR		Replace probe
RED STEADY	CONTINUOUS	PROBE SHORT		Check polarity of the probe conductors Check probe wire for damage; make a waterproof repair
RED / YELLOW FLASHING	CONTINUOUS	PROBE DISCONNECTED		Check probe wire for damage Connect probe wires

4.2 Manual Test

A manual test function is incorporated into the indoor alarm display. Pressing down and holding the Audio button will test the software and hardware and return a yellow flashing LED and a pulsing alarm sound.

4.3 Probe Response Time

The indoor alarm display will respond within 3 seconds to a change in alarm state from the probe.



FIG 4
Indoor Alarm Display Rear Label

5. SPECIFICATIONS

5.1 Indoor Alarm Display

Power Supply - 120VAC, 60 Hz input, 9VDC 200 mA output, UL listed, CSA certified, indoor unit, power consumption typically .05 watts, 0.9 watts maximum during alarm condition
--

Enclosure - flame retardant ABS

High level, Low level function selectable

LED - tricolor

Audible alarm - solid state transducer, 85db @ 10cm

Optional relay output—dry contacts normally open, 2A @30 VDC, 0.4A @ 125 VAC rating

5.2 Probe

Digital RF proximity probe, stainless steel, type 304 or 316, 24.4mm diameter x 100mm long, cable

Suspension clip – HDPE, UV resistant

Cable - 18ga, 2 conductor, CSA CMG FT4, 15m (50 feet) length standard

6. WARRANTY

Aquatic Sentry Controls Inc. warrants that this product is free from defects in materials and workmanship under normal use and service for a period of **three years** from the date of purchase by the initial owner. Aquatic Sentry shall be responsible only for actual loss or damage suffered and then only to the extent of Aquatic Sentry's invoiced price. Within the warranty period we shall repair, refurbish or replace, at our option, such products or components, which are returned to us with shipping charges prepaid, and which are determined by us to be defective. This warranty will not apply to any product or part thereof which has been subject to misuse, negligence, or accident; or misapplied; or modified; or repaired by unauthorized persons; or improperly installed. The provisions of the above warranty are our sole obligation and exclude all other remedies or warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to the customer, or to any person, for injury to person, damage to, or loss of property or value caused by any product, regardless of whether the defect is warrantable or whether the product has been subjected to misuse, negligence, accident; or modified or repaired by unauthorized persons; or improperly installed.

Under no circumstances shall the company be liable for any incidental, consequential or special damages, loss or expenses arising from the use of this product, or in connection with the use of, or inability to use, our product for any other purpose whatsoever.

Aquatic Sentry products or parts thereof assumed to be defective by the purchaser within the stipulated warranty period should be returned to the seller or local distributor for evaluation and service. If deemed necessary, the seller or distributor shall contact Aquatic Sentry Controls Inc. for a Returned Materials Authorization and then return the item for direct factory evaluation, service or replacement. No material may be returned to Aquatic Sentry Controls Inc without proper factory authorization.

NOTES

NOTES

NOTES



Aquatic Sentry

CONTROLS

www.aquaticsentry.com