

RATINGS

Voltage:	100-130 VAC
Max. Current:	15-Amps Peak Run Current
Locked Rotor:	40-Amps
Starting Current	40-Amps
Battery:	9-Volt Alkaline
Alarm:	80db @ 1m Alternating
Run Timer:	2-60 Seconds
Patent:	6,820,483 others pending
Dimensions;	4.2 x 2.3 x 1.5 inches case size
Weight;	8.1-oz
Sensing Wire;	20 gage stranded copper, .062"-dia supplied
Sensing Length;	10-ft supplied, up to 1,000-ft may be added
Enclosure	Dust proof, Flame Retardant ABS, UL94V0

Limited Warranty

One year from the date of purchase MIC will repair or replace any units found upon examination to be defective in materials or workmanship. Transportation charges to MIC will be paid by the customer. Ground transportation from MIC to the customer, of units found to be defective in materials or workmanship, will be paid for by MIC. This warranty does not cover units that have been damaged as a result of accident, abuse, neglect, improper installation, or exceeding the units rating. If the unit is dropped into water, is wet, or contains water damage this warrantee does not cover its replacement.

Any and all indirect, consequential damages, property loss, or loss of income are excluded. To exercise this warranty you must send a copy of the receipt along with the unit to;

Mechanical Ingenuity Corp
61 Riordan Place
Shrewsbury, NJ 07702
732-842-8889

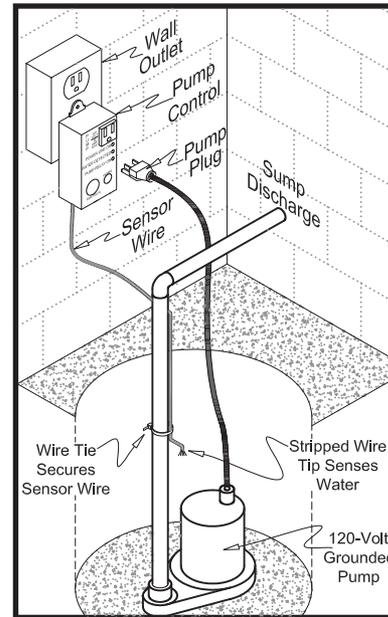
ELECTRONIC SUMP PUMP CONTROL & ALARM

OPERATION

The Floodfree control uses patented electronic surface transfer (EST) to detect the presence of water. Sensing is not affected by oil, soaps, turbulence or the waters resistance and is intrinsically safe.

When water touches the tip of Floodfree's sensing wire, a relay closes turning on your pump. Patent pending Zcross technology closes the relay contact at zero volts and opens it at zero current. This stops relay arcing, extending relay life, stopping power-line flicker, and making pump startups smoother.

A settable "Run Timer" allows you to change the pumping depth without opening the sump pump pit. This timer allows any quantity of water to be pumped out of the sump and can even pump it completely dry without running the pump too long.



If the water level does not fall below the tip of the wire while the pump is running an alarm sounds indicating a pump failure or clogged discharge line. Two lights alternately flash, warning you of a problem before your basement floods. A standard 9-volt battery operates the alarm during a loss of power at the wall outlet. The battery maintains the sensor and alarm for two days without power. Circuitry maintains the battery voltage extending its shelf life to 7-years.

Use Floodfree to convert your manual pump to automatic or to replace a defective float switch. Floodfree requires a grounded pump plug or, alternatively, a grounded connection to the sump. It will not apply 120-volts to the pump motor without proper grounding.

Instructions

- 1) Plug Floodfree into a 120-volt wall outlet.
- 2) Insert the battery jumper.
- 3) Plug grounded pump into Floodfree outlet
- 4) Run the sensor wire to the sump and fasten using wire ties. Its tip should be at the level where you want the pump to begin operating.



Insert the battery jumper

Setting The Run Timer

The run timer sets the pumping depth and how much water you prefer to pump out of the pit. It does not start timing until the water level drops below the sensor wire. The moment the water drops below the sensing wire the run timer starts limiting the pumps run time. Initially set the time to 5-seconds and increase the time until the water is at the level you prefer or you hear the pump sucking in air. Sucking in air does not affect the pump but it should be minimized. If the pump has a bottom inlet then a check valve or trapped water inside the discharge pipe can prevent air from leaving the pump causing air-lock. Air-lock can be avoided if the water level stays above the pumps inlet. However if the sump naturally dries up then remove the check valve and insure that the discharge pipe is pitched such that it does not trap water. Water trapped in the discharge pipe will freeze in the winter because it is open to outside air temperatures at one end. Allow discharge pipe water to drain back into the warmer sump to prevent discharge pipe freezing.

Battery

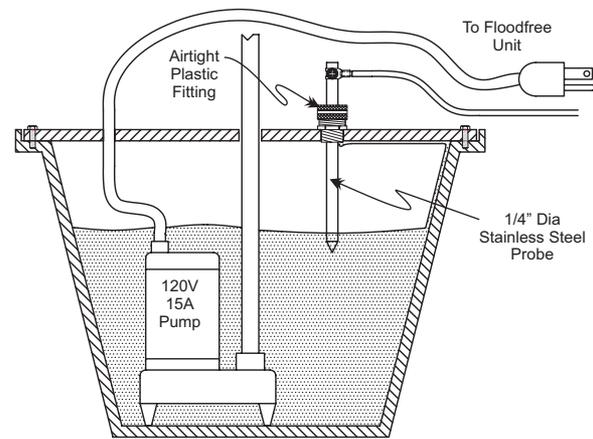
The jumper on the cover connects the battery to the circuitry. If the unit loses power the battery runs the alarm and sensor. It should be replaced every year or when a power loss occurs for over two days.

Purchase a 9-volt alkaline battery. Unplug the pump from the unit and unplug the unit from the wall outlet. Remove the battery jumper. Remove the 4-screws holding the cover. Remove the cover from the base by using a rocking motion to free the receptacle from its slide on tabs. Unsnap the old battery and snap in the new one. Replace the cover making sure to press hard on the receptacle to slide it fully onto its 3-tabs. Replace the 4-screws holding the cover. Plug the unit into the wall outlet and the pump into the unit. Replace the battery jumper.



Water Sensing

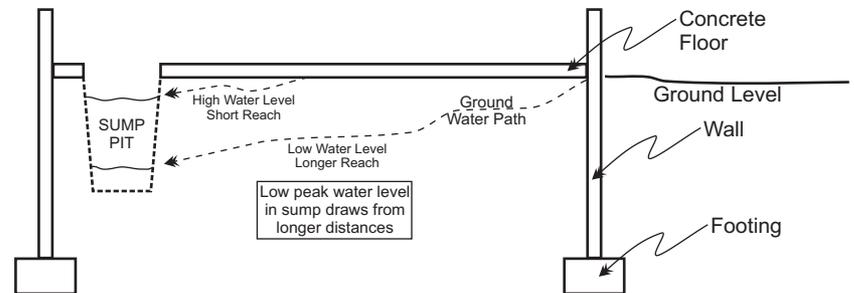
EST measures the surface area of liquid contacting two metals. Since the sump is grounded for safety reasons, something metal in the sump must be grounded. This might be the pump case, the sump itself, or on a plastic pump, it's motor shaft. The sensing wire is the other metal. EST senses the square inches of contact between the two metals and their distance. The purpose is to ignore thin water films that might coat the surface of a wire or pipe and only detect the main body of water. It does not detect resistance and touching the sensing wire to ground does not activate it. If the sensing wire is small in diameter it must be inserted deeper into the water to have enough square inches of liquid contact to trip the unit. The sensor itself can be conductive materials such as carbon, gold, silver, copper, brass, steel, or stainless steel. Sensor metals that will not work are aluminum, magnesium, tin or their alloys. A copper wire is supplied but you may connect a larger piece of metal to the sensing wire as long as it does not also connect to ground.



corrosive sewage most of the time. It just touches the sewage, runs the pump lowering the level. In sewer applications with a check valve and a bottom pump inlet the timer should be set not to suck in air.

Oil Films

EST is able to break apart oil films that might coat its sensing probe. Oil films float on the surface of water adhering to the surface of metals preventing them from making electrical contact with the water. EST's tiny fast moving electronic pulses move non-conductive liquids away from the probe, busting them apart if they manage to coat it.



Water Level

Water seeks its own level but compacted soil causes it to deviate to the path of least resistance. As a result ground water will not rise at a uniform level across your entire basement. A sump pump pit must not only be deep enough, but more importantly maintain a low enough water level to insure that the path of least resistance remains underground and not across the top of your basement floor. An empty sump draws more groundwater from surrounding areas than a full one. Experience shows this to be roughly a 4:1 ratio; a 1-foot below grade peak water level draws from only a 4-foot radius while a 3-foot below grade peak water level extends this out to 12-feet. A common error is setting the water level as high as possible to minimize pump cycling and later noticing that water surfaces some distance away. Zcross technology in Floodfree allows you to set the water level as low as practical without worrying about high cycle operation.

Sewer Applications

Floodfree can be used in sewer applications with a rigid probe and an air tight fitting. A stainless steel probe and plastic fitting are available as an option. EST ignores water films that form when hot sewage condenses on the cooler tank lid and walls. The run timer insures that the probe stays out of the