RadonSeal
Basement Care and Repair Products

STEP-BY-STEP INSTALLATION INSTRUCTIONS

BATTERY BACKUP SUMP PUMP
MODEL RH-1400

- **Protects against power outages and main pump failures.**
- **Fully Automatic!**
- **Uniquely placed outside of sump water.**
- **High Pump Performance!**
- **Easy installation.**

Please **read all the instructions before** attempting to install the RH-1400.

The pumping capacity of the RH-1400 may vary depending on your piping configuration, battery age, and capacity.

Specifications:		**Physical Size:**
Pump Motor:	12 VDC, 21 Amps	Pump Length: 9 1/2" Width: 6" Height: 6"
Battery Charger:	1.5 AH @ 12 VDC, 0.4 Amp Load	Battery case L: 17", W: 9-1/2", H: 11"
Charger Service:	120 VAC, 60 HZ, GFCI Outlet	Pump weight: (without battery): 10 Lb
Float Switch:	Vertical Style, with mounting clamp	Total shipping weight: 22 Lbs.
Water Alarm:	Integrated	1-1/4" PVC Connection
Battery Requirements:	12 Volt Marine deep cycle or Sealed Lead acid, Size 27	
BATTERY NOT INCLUDED		
NOTE: *Extra battery case available as an add-on kit to double pumping time; not pumping rate*		

Flow Rates:		**Pumping Times:**
At 5 feet:	1800 Gallons Per Hour	Using Marine Deep Cycle Battery/30 second cycles
At 9 feet:	1400 Gallons Per Hour	At 1 minute intervals 12 Hours
NOTE: *Do not exceed 15 feet total lift; pumping capacity will be affected*		At 5 minute intervals 48 Hours
		At 15 minute intervals 96 Hours

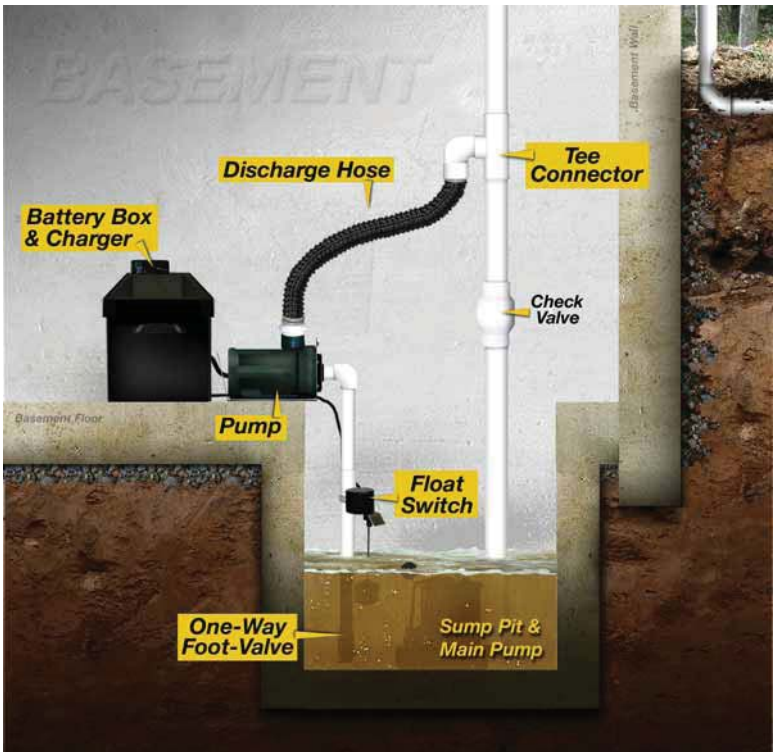
Included Parts:	
Motorized Pump Unit with stainless steel mounting bracket	One-Way Foot Valve, screen, and female reducer
Battery Case with Cover and Charger	PVC Tee Connector with elbow and 2 adapters
Vertical Switch to activate pump (pre-wired) and (1) large metal clamp	Extension Cord
(3) Cable ties, (3) Smaller Hose Clamps, (1) 90° PVC Elbow & Coupling	Flexible Discharge Hose: 4 Feet
Installation Instructions; safety specifications	Rigid PVC Pipe: (2) pieces 12" ; (1) piece 6" Long

Additional Parts & Supplies Needed:	**Tools Needed:**
Check valve for primary pump (existing?)	Hand saw and/or PVC cutting tool
PVC Primer and Cement (small cans) for PVC connections	Phillips and slotted screwdrivers
Teflon Tape or Pipe Sealant (Dope) for threaded connections	Utility knife, tape measure, large adjustable pliers
Deep cycle Marine, Lead Acid, Gel, or AGM Battery	

NOVION INC., 18 L'HERMITAGE DR., SHELTON, CT 06484
800-472-0603 OR 203-225-0367 WWW.RADONSEAL.COM

STEP 1: Place RH-1400 On Floor

Remove all packaging and materials and hang all wires over the side and out of the battery box. Decide which way the battery box will face with respect to the pump motor/bracket. There are positioning holes on one long side as well as one short side of battery box for attaching the stainless steel mounting bracket. Use the two stainless steel screws and nuts provided and attach bracket to battery box so that the bracket sits on the floor and can be positioned next to the sump, as shown. Position battery box and pump in final position on the floor close to the sump pit.



STEP 2: Disconnect Primary Pump

Unplug primary pump and drain discharge pipe. A **high quality, fully functioning check valve must** be present above the main pump and below the RH-1400 discharge Wye connection. Without it, the RH-1400 will not operate properly and it will send water down through your main pump and back into the sump. A removable, type check valve is recommended in order to service the main pump in the future without disconnecting RH-1400.

STEP 3: Install Suction Pipe

Prime and cement the foot valve together as shown in the photo in Step 4 then glue the end of one short rigid PVC pipe supplied with RH-1400 into the narrow end of the female reducer attached to the foot valve and allow time to dry. Don't cement any more sections until you verify all positioning of pipes. Measure the vertical distance from pump inlet fitting to approximately 2 - 4 inches from bottom of sump pit. Use coupling supplied to connect a second piece of the PVC pipe *(cut to fit if necessary)* to the first section with the foot valve attached. Connect 90° elbow, as shown in drawing above and use the last piece of PVC pipe for the horizontal section *(cut to fit if necessary)* and push into socket fitting on pump suction inlet. Once all sections are correctly positioned; disassemble, prime, and cement all joints. Allow time to dry. Make sure the foot valve will **ALWAYS BE UNDER WATER. SUCTION AND DISCHARGE LINE MUST BE FULL OF WATER AT ALL TIMES IN ORDER TO OPERATE.**

STEP 4: Install Discharge

Assemble the Tee fitting to the other parts as supplied in the parts bag and shown here to the right. Prime and glue the white PVC Threaded x Socket adapter into the side opening of the Tee and thread the elbow and black barbed adapter into place as shown using Teflon tape. Locate the assembled Tee fitting in the discharge pipe of the main sump pump at a point above the existing check valve. Use the flexible hose from the pump to the tee to help you determine the proper position of the tee. Hose may be cut to fit, if needed, using a utility knife or hack saw. If the main pipeline is 1-1/4" PVC use the white PVC bushing adapters provided and glue into the Tee fitting. If these are unneeded, set them aside. Once you have located the Tee position, carefully, and as squarely as possible, cut and remove a 2" section from your main pump discharge pipe. Prime, glue, and insert the Tee fitting into position on the main pump discharge pipe and allow time to dry completely. While drying, you may attach the flexible hose to the pump discharge connection and do the same at the Tee fitting by attaching the hose to the black barbed hose connector. Secure the hose at both ends using the stainless steel hose clamps provided. A third hose clamp *(included)* may be needed at the connection to the pump. Place them close together and tighten securely.

STEP 5: Float Switch

Attach vertical float switch to side of the suction pipe using the larger hose clamp provided. Float should be positioned in its fully down position just above the "normal primary pump" level. Slide float up the rod by hand to simulate a normal response to high water and confirm the location of the "high" level. The float will need to rise to the top of the rod to turn the pump on and travel all the way down to the bottom of the rod to turn the pump off. If necessary, you may move the stopper on the bottom of the rod up to a new position for an earlier shut-off. Make sure the pump will come on before the float reaches the top of the pit so water never rises to the floor level. Pump must turn off before the water drops down below the foot valve so air does not enter the system and break the suction prime. After following the start-up procedures below, you may have to make some minor adjustments to the float to assure proper operation. Adjust floats on both pumps, if necessary. **SUCTION AND DISCHARGE LINE MUST BE FULL OF WATER AT ALL TIMES IN ORDER TO OPERATE. DO NOT ALLOW THE MAIN PUMP TO DRAIN THE WATER BELOW THE FOOT VALVE OF HYDROPUMP; ADJUST FLOAT OR PUMP IF NECESSARY TO PREVENT THIS.**

START UP

Connect all **Red (+) Pos** wires from charger **and** pump motor together to positive (+) battery terminal. Connect **all Black (-) Neg** wires from charger and pump motor together to negative (-) battery terminal using wing nuts on terminals. Tighten securely. Plug charger into a GFCI protected wall outlet using extension cord supplied. Plug primary pump into wall outlet. If unsure about any of this, consult with a licensed electrician.

Note: *If connecting an optional second battery using our "Dual Battery Case", all the Red Wires go to the Positive (+) Terminals and all the Black Wires go to the Negative Terminals. Connect the proper-colored wire to each terminal of the first battery and "jump" to the matching terminals of the second battery using the wires included with the Dual Battery Case. This keeps the batteries in "parallel" and allows the charger to maintain both batteries.*

IMPORTANT: Fill sump with water from a hose if needed to test for proper installation. Lift primary sump pump float by hand and operate the main pump for approximately 10 seconds. Do this 2 or 3 times to sufficiently prime RH-1400 with sump water and to purge out any trapped air. Verify that all joints are sealed. Now unplug primary pump and fill pit with water. You may simulate the rising water by lifting the float by hand, but don't empty the pit and lose the prime. Confirm that the location and position of the RH-1400 float is correct and moves freely. Raise float to reach the desired "high level" which will begin the pumping before water reaches the top of the sump. Confirm that the float shuts the pump off when returned to the "low level" before water surface is below the bottom of the foot valve. Repair any leaks now during this process. A small drip may develop at the front of the pump over time. This is normal and should not cause any problem. The water should either evaporate or find its way into the sump, harmlessly.

Battery Charging: A new battery or one that's discharged may take 24-48 hours to fully charge. The charger green indicator light means the charger is receiving power from the wall outlet. The red light will glow to indicate the battery is fully charged.

Note: *It is normal for the red light to go on and off. It is normal for the charger to feel warm to the touch and hum slightly.*

DON'T FORGET TO PLUG THE PRIMARY PUMP BACK IN WHEN YOU ARE FINISHED!

WATER ALARM

This alarm is activated at the same time that RH-1400 activates, to let you know there is a high water situation. It will sound each time RH-1400 runs and turn off at the end of each cycle. There is a wiring connection inside the junction box, which can be disconnected if quieter operation is desired. Remove the four screws from the front cover of the small junction box located on the side of the larger battery box and remove the thin, **red alarm wire** from terminal block to silence alarm. A small slotted screwdriver will be needed for this.

MAINTENANCE PROCEDURES

3–4 times per year lift the RH-1400 float by hand and confirm pump operation and water removal. Confirm that the float is allowed to move freely and hits no obstacles. Check battery age and charger status lights. The green light must be on to show that the charger is powered from the wall outlet. The red light should be on when charging is complete and off when charging is required. This is an automatic charger; no adjustments or maintenance are required.

TROUBLESHOOTING

Pump is running but no water is being removed from pit?

- Pump may have lost its prime: Fill the sump with water and run the main sump pump on and off a few times.
- If necessary, open the hose clamp on discharge hose where it is connected to the Wye fitting and pull the hose off the barbed fitting. Pour water into hose till full. This restores a lost prime. Reconnect hose and start pump again.
- Clogged suction or discharge piping: clear obstruction and restart.

Pump is removing low volumes of water?

- Suction or discharge piping may be partially clogged: clear obstruction.
- Excessive discharge pipe length and/or configuration can produce a large pressure drop; accept the lower flow or change the piping layout, direction, length, etc. *(See separate discharge connection kit)*
- Battery may need charging or replacing. A new battery often needs 24 - 36 hours of charging. If it is more than 3 years old, it is likely to need replacing.
- Check all PVC joints and confirm that they are cemented and leak-tight. Air leaks reduce pumping capacity.

Pump will not turn on or off properly?

- Float must be fully down for off and fully up for on. Adjust float by hand to each position required to test pump and reposition clamp on suction pipe, or rubber stopper on bottom of float rod, if necessary, to assure proper operation.
- Battery terminals may be connected improperly: correct and tighten securely.

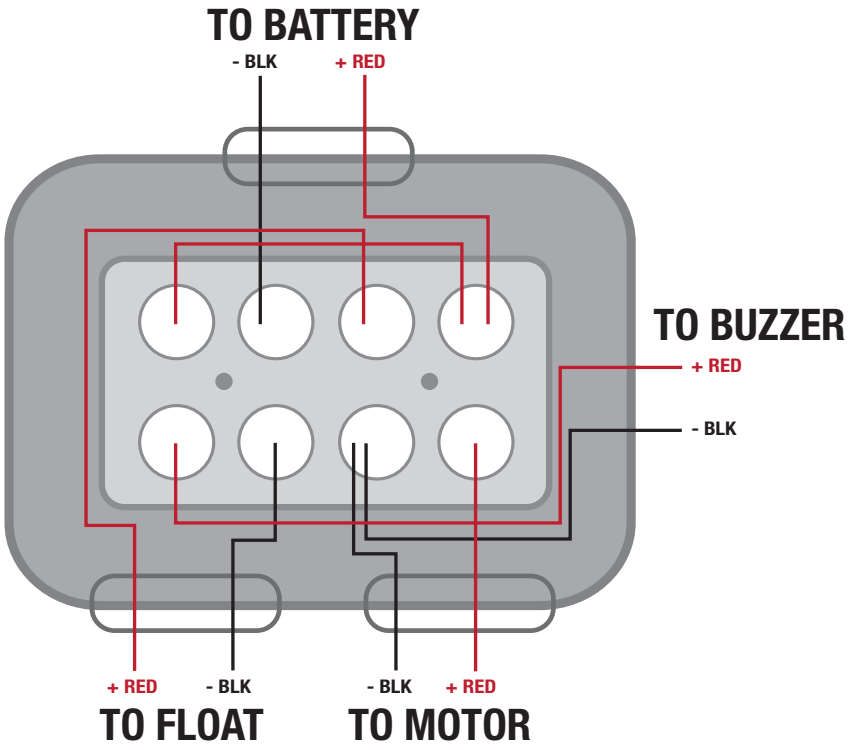
NOTE: SUCTION AND DISCHARGE LINE MUST BE FULL OF WATER AT ALL TIMES IN ORDER TO OPERATE.

THIS IS NOT A SELF-PRIMING PUMP.

THE FOOT VALVE AND CONNECTION TO THE MAIN PUMP DISCHARGE IS DESIGNED TO KEEP THE LINE AND PUMP FULL OF WATER.

DO NOT ALLOW RH1400 TO PUMP DOWN DRY.

SET THE FLOAT SWITCH ON BOTH MAIN AND BACKUP PUMPS TO TURN OFF WHILE THE FOOT VALVE IS STILL SUBMERGED.



⚠ WARNING **ELECTRICAL SHOCK HAZARD**
Disconnect power before installing or servicing this product. A qualified service person must install and service this product according to applicable electrical and plumbing codes.

⚠ WARNING **EXPLOSION OR FIRE HAZARD**
Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.

Failure to follow these precautions could result in serious injury or death. Replace product immediately if switch cable becomes damaged or severed. Keep these instructions with warranty after installation. This product must be installed in accordance with National Electric Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within boxes, conduit bodies, fittings, float housing, or cable.

Customer Satisfaction Guarantee and One Year Limited Warranty

Contact us by phone at 1-800-472-0603 or email to sales@radonseal.com regarding any questions or problems. Before returning the product, you must contact us first for authorization. Please give your name, address, phone number, and date of purchase.

If you are not completely satisfied with your new pump within 30 days of shipment, we will refund your money in full except for shipping charges, as long as it is returned in its original packaging and in re-salable condition, shipping pre-paid.

We warrant the pump to be free of defects in material and workmanship, to the original owner, for a period of one year from the date of shipment. In the event of any defect within the warranty period, we will, at our option, replace or recondition the product without charge providing the product is returned, prepaid to the factory. This shall constitute the exclusive remedy for any alleged defect. The warranty is applicable in the USA and Canada only.

The warranty becomes void by any misapplication, misuse, abuse, or improper installation of the product. This warranty gives you specific legal rights and you may also have other rights, which may vary from state to state. We make no other warranties, express or implied, except as provided in this limited warranty.

We shall not be responsible for any incidental, indirect, contingent, or consequential damages, including, without limitation, damages or other costs resulting from labor charges, delays, loss of use, revenue or profit, vandalism, negligence, fouling caused by foreign material, damage from peculiar water conditions, chemicals, electrical problems, or other circumstances over which we have no control.