

VertiMACTM

Pump Switch | 13 Amp

USER GUIDE

MODEL NUMBER:

VM13 Series



VertiMAC™ Pump Switch - USER GUIDE

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Introduction

The VertiMAC™ is a float operated pump switch, typically used in sump pump applications or situations where a regular pump switch cannot operate due to limited space. The product comes with a pipe clamp bracket and stainless steel pipe clamp for mounting to a pipe. Available in 120VAC or 240VAC, bare lead (no plug) or piggyback plug, 13 Amp models.

Safety Guidelines

Before proceeding with the installation or operation of this product, read all instructions thoroughly, as well as complying with all federal, state and local codes, regulations, and practices. This product must be installed by qualified personnel familiar with all applicable local electrical and mechanical codes. Refer to the National Electrical Code (NFPA 70). Failure to properly install and test this product can result in personal injury or equipment malfunction.



1. **DISCONNECT POWER** when installing or servicing the product. Failure to disconnect all power sources could result in serious injury or death.
2. **NEVER** enter a flooded space without proper Personal Protective Equipment (PPE). Always wear dielectric rubber boots and other applicable protective equipment when water is on the floor and you must service an energized pump, alarm system, or product.
3. **DO NOT** enter the water if the water level is higher than that of the protection your PPE offers or if your PPE is not watertight.
4. **DO NOT** use this product with or near flammable liquids.
5. **DO NOT** install this product in locations classified as hazardous or in explosive atmospheres as defined by any applicable electrical safety code.

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Product Included

The standard product will include: (1) VertiMAC™ Pump Switch, (1) Pipe Clamp Bracket, (1) Stainless Steel Pipe Clamp, and (1) Pump Switch Power Cable.

(1) VertiMAC™ Pump Switch

The VertiMAC™ is a float operated pump switch for sump pump applications.

(2) Pipe Clamp Bracket

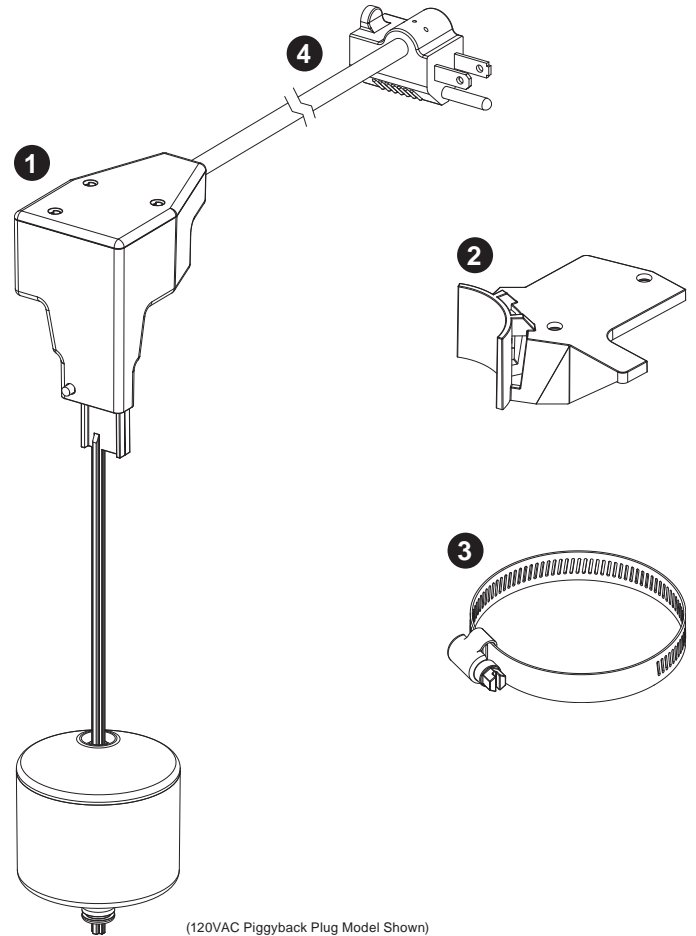
The pipe clamp bracket is pre-installed and used to mount the pump switch to a pipe.

(3) Stainless Steel Pipe Clamp

The pipe clamp attaches to the pipe clamp bracket and secures the pump switch to a pipe at the desired mounting location.

(4) Pump Switch Power Cable

The power cable is available in 120VAC or 240VAC, bare lead (no plug) or piggyback plug, 13 Amp models.



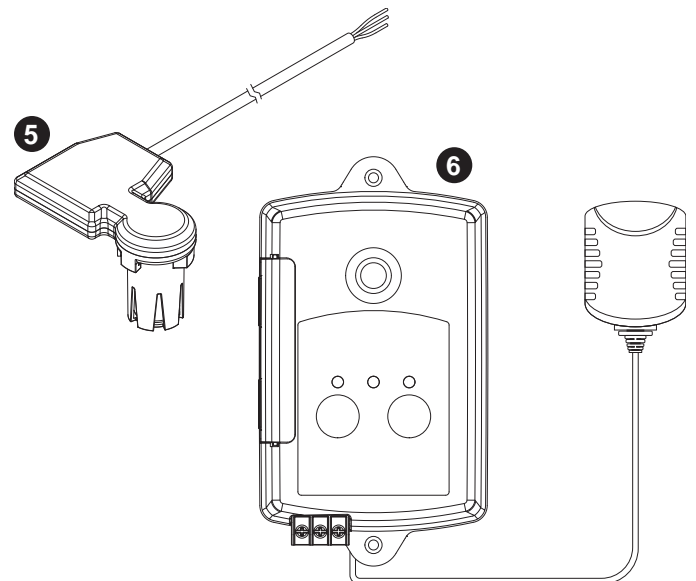
ADDITIONAL OPTIONS:

(5) Sump Advisor™ Sensor

The Sump Advisor™ sensor attaches on top of the VertiMAC™ pump switch and connects to the Sump Advisor™ alarm panel. The sump sensor integrates the high level alarm and pump run switches.

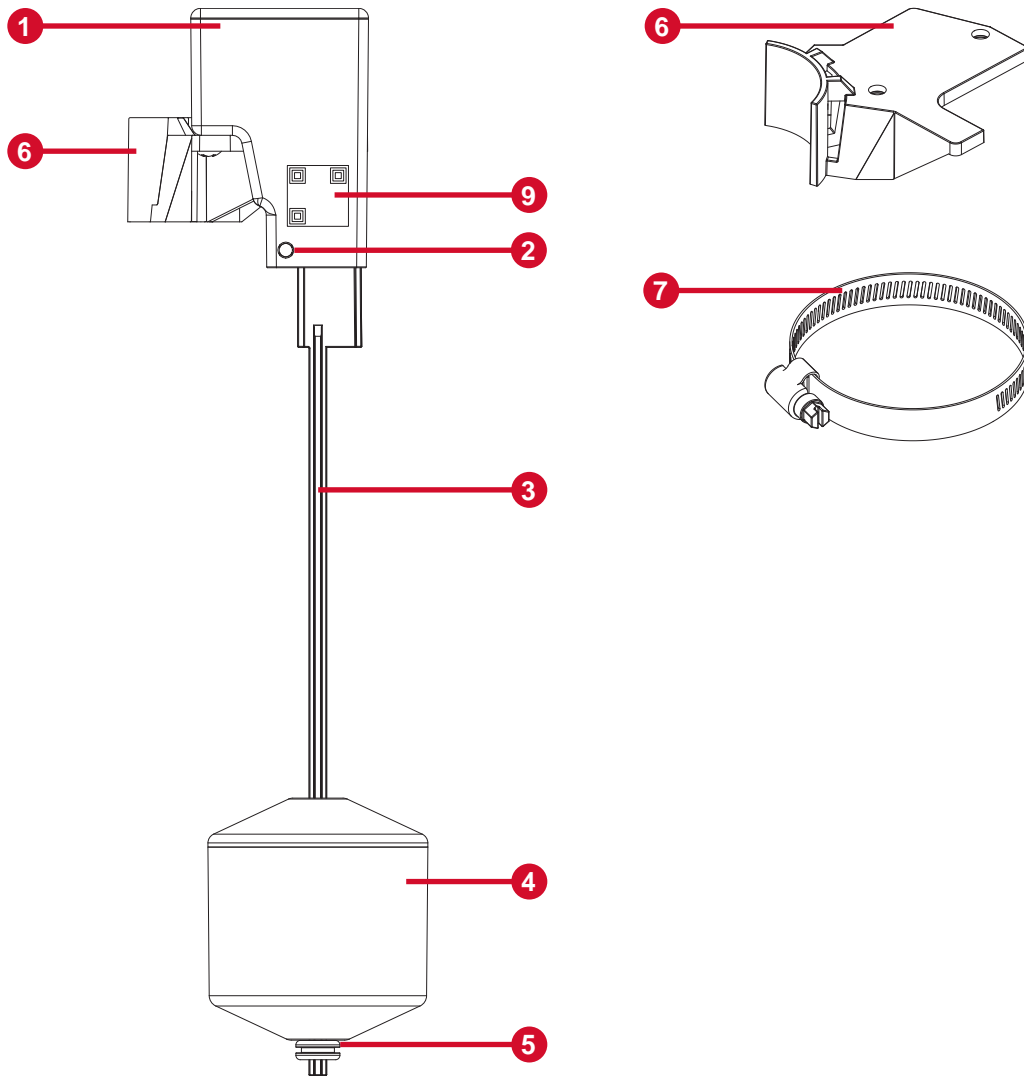
(6) Sump Advisor™ Alarm Panel

The Sump Advisor™ alarm panel provides local high level alarm and pump run indication of the VertiMAC™ pump switch. The alarm panel includes auxiliary dry contacts for high level alarm and pump run status that can be connected to a building automation system (BAS) or auto dialers.



Features

Refer to the illustration below to reference the feature descriptions provided.



(1) VertiMAC™ Pump Switch Housing - Magnetically activated switching mechanism encapsulated in epoxy to ensure a waterproof switch.

(2) Actuator Pin - Connects the actuator rod to the pump switch housing to ensure proper activation of the switching mechanism.

(3) Actuator Rod - Activates or deactivates the mechanism inside the pump switch housing as the float rises or lowers on the rod.

(4) Float - Slides up and down the actuator rod to turn the pump on and off.

(5) Rubber Grommet - Placed on the actuator rod at the determined location for desired pump differential.

(6) Pipe Clamp Bracket - Pre-installed, attaches to the pump switch housing and used to mount the VertiMAC™ pump switch to a pipe.


(7) Stainless Steel Pipe Clamp - Attaches to the pipe clamp bracket and secures the VertiMAC™ pump switch to a pipe at the desired mounting location.

(8) Pump Switch Power Cable (not shown) - Available in 120VAC or 240VAC, bare lead (no plug) or piggyback plug, 13 Amp models.

(9) QR Code - Scan code which directs you to alderonind.com where additional information can be found for the VertiMAC™ pump switch.

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Installation

 DISCONNECT ALL POWER SOURCES WHEN INSTALLING OR SERVICING THIS PRODUCT. FAILURE TO TURN OFF ALL POWER SOURCES COULD RESULT IN SERIOUS INJURY OR DEATH.

Pump Differential

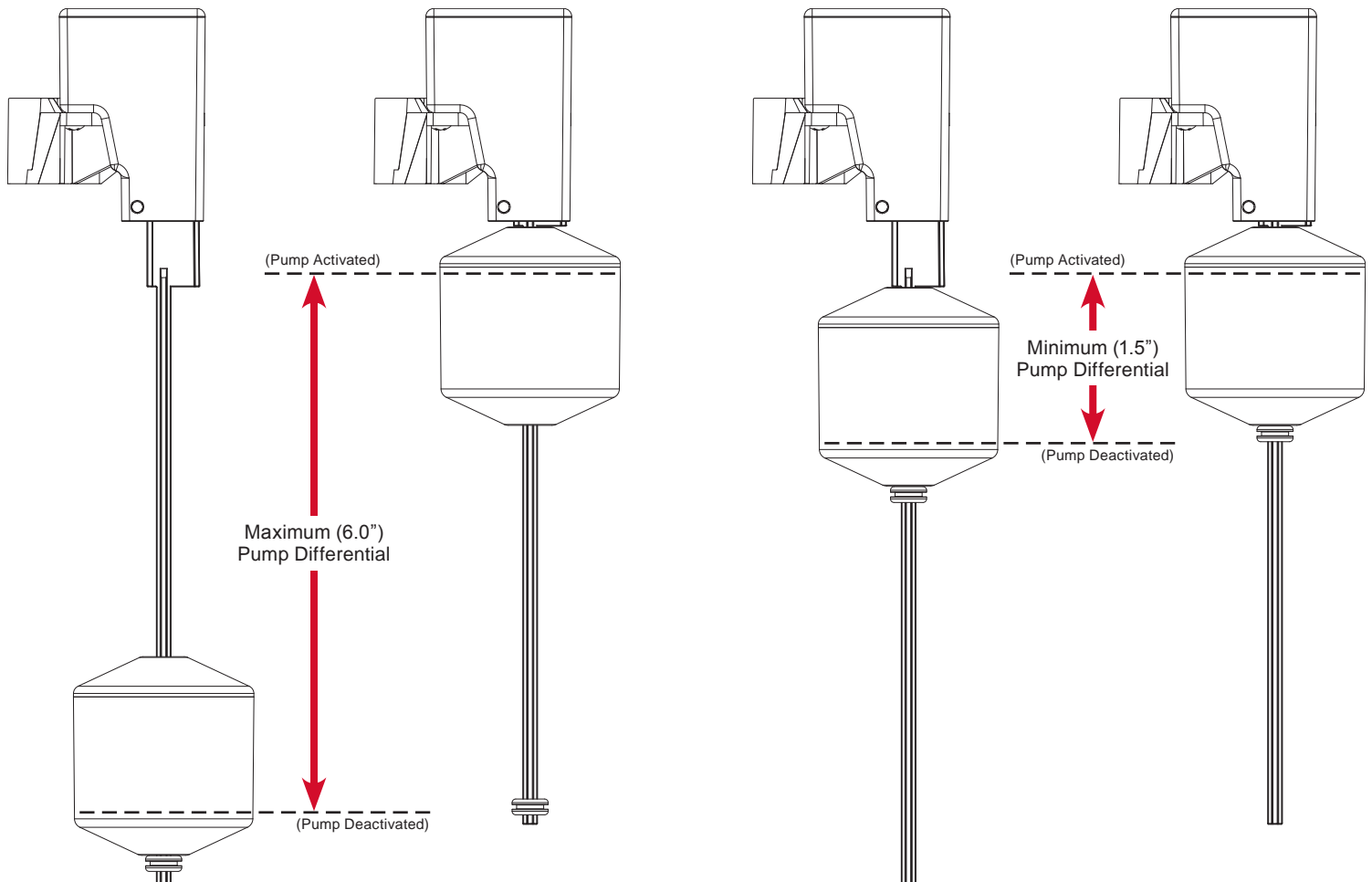
STEP 1: DETERMINING PUMP DIFFERENTIAL

Determine the pump differential and move the rubber grommet on the actuator rod to achieve the desired range. After the pump switch installation is complete, perform testing to achieve actual pumping differential.

Maximum Differential: Move the rubber grommet to the bottom of the actuator rod to create the largest pump differential, which is six inches (6.0”).

Minimum Differential: Move the float and rubber grommet to the top of the actuator rod to create the smallest pump differential, which is one and a half inches (1.5”).

Note: Leave approximately one eighth inch (1/8”) of space between the rubber grommet and the bottom of the actuator rod to achieve the maximum differential. Placing the rubber grommet at the bottom of the rod could cause the grommet and float to separate from the actuator rod.

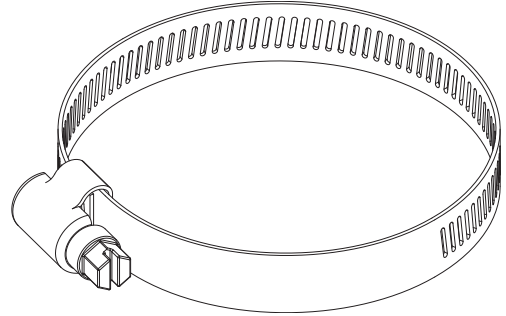


Mounting Pump Switch

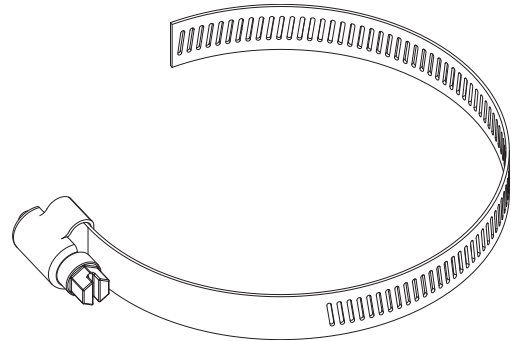
STEP 1: RELEASE PIPE CLAMP

The pipe clamp comes secured into the fastener (1A) and must be released (1B) using either a slotted screwdriver or 5/16" nut driver on the fastener nut.

1A



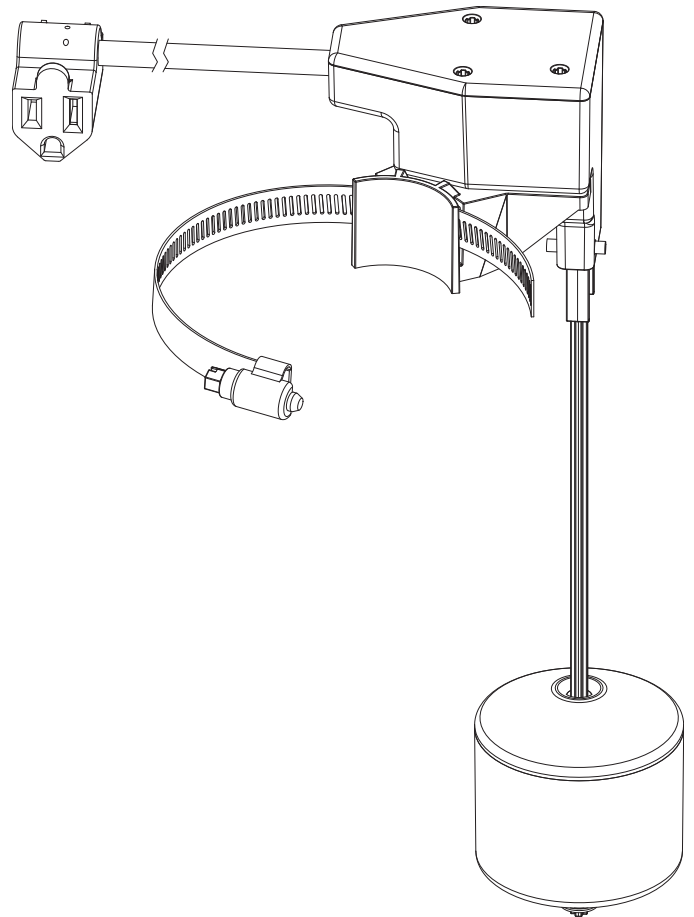
1B



STEP 2: INSTALL PIPE CLAMP

Slide the pipe clamp through the loop on the pre-installed pipe clamp bracket of the VertiMAC™ pump switch.

Note: Make sure the pipe clamp is positioned as shown in the diagram when installing so excess portion of the clamp exits the fastener away from the pump switch.



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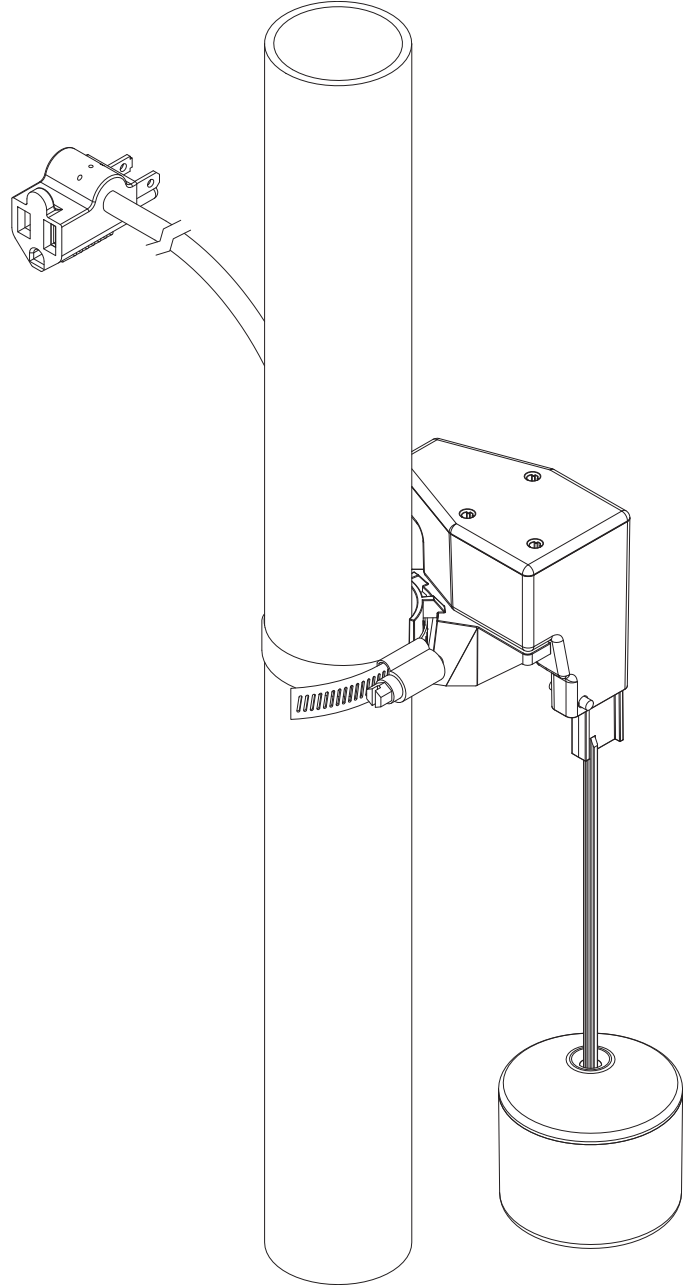
Mounting Pump Switch (continued)

STEP 3: MOUNTING TO PIPE

Attach the pipe clamp to pipe at the approximate mounting level and tighten using the fastener nut. Make sure to keep all cables and wires away from the float while mounting.

Note: Do not completely secure pipe clamp and VertiMAC™ pump switch to the pipe until the off level has been determined. See step 4 final mounting location on page 9.

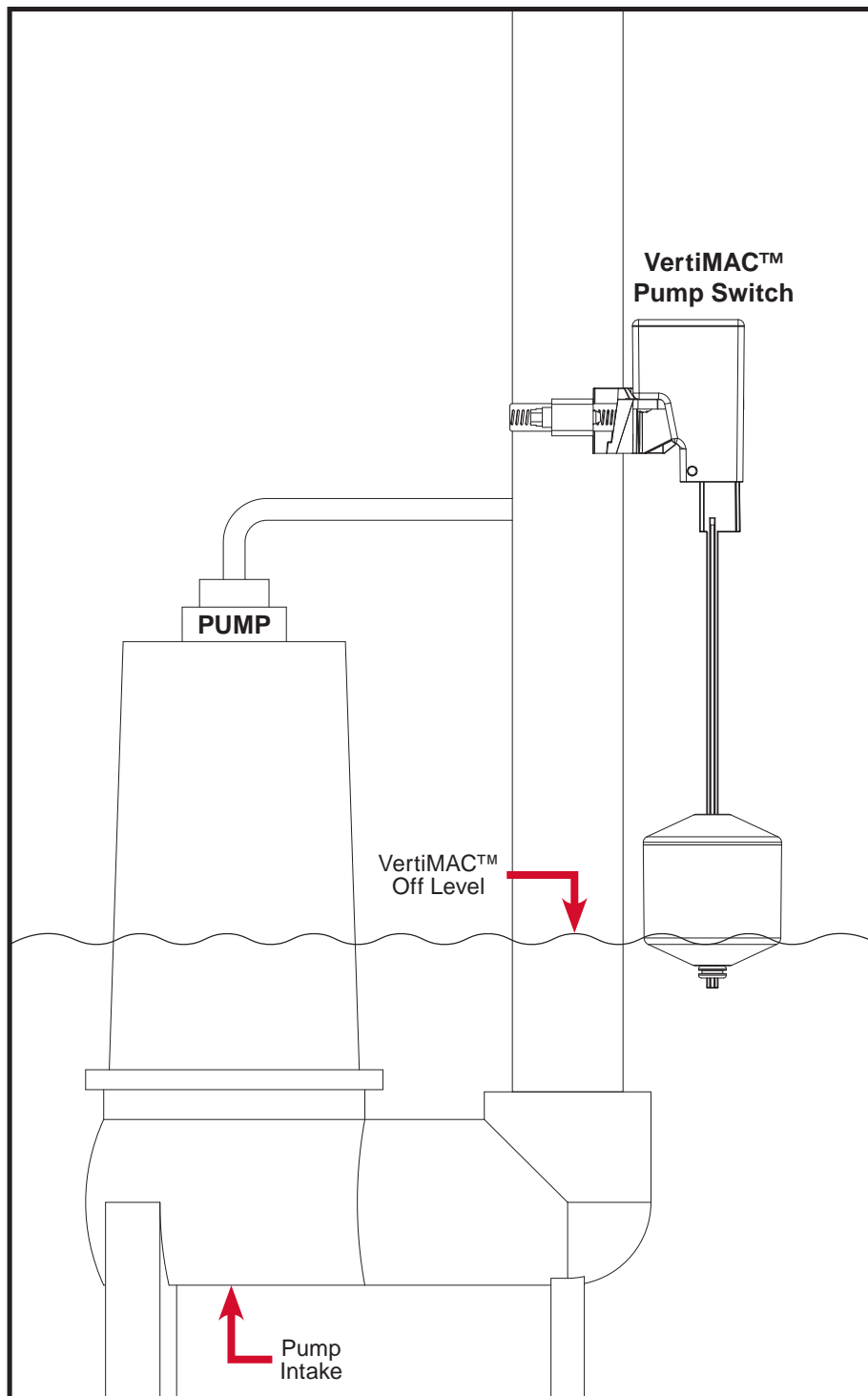
CAUTION: The VertiMAC™ pump switch MUST be mounted in the vertical position. Mounting the pump switch at an angle will result in the switch not functioning properly. Perform a quick test by lifting the float up and down to ensure the switch is working.



Mounting Pump Switch (continued)

STEP 4: FINAL MOUNTING LOCATION

After the off level of the VertiMAC™ pump switch has been determined, check to make sure level is above the intake to the pump to prevent dry cycling. Refer to the instructions that came with the pump for complete operation information. Once the pump switch is in the final mounting location, securely fasten the pipe clamp and VertiMAC™ pump switch to maintain an accurate pumping range.



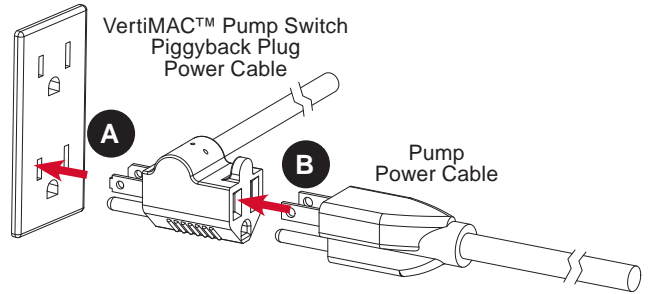
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Connecting Power

Make sure the installation process is completed and there are no cables or wires to interfere with the operation of the float.

PIGGYBACK PLUG MODELS

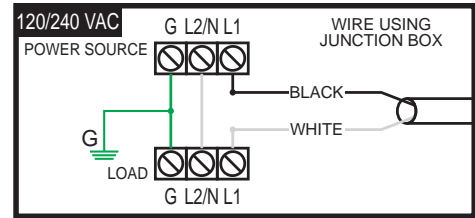
- 1) Plug the male end of the piggyback plug on the VertiMAC™ pump switch power cable into a standard wall outlet or power receptacle that matches the voltage of the pump switch (A).
- 2) Plug the male end of the pump power cable into the female end of the piggyback plug on the VertiMAC™ pump switch power cable (B).



BARE LEAD MODELS

- 1) Connect bare lead wires from the VertiMAC™ pump switch power cable to terminal inputs in a junction box as shown in the diagram.

WARNING: In 240VAC installations, one side of the line going to the load is always HOT. This condition exists if the switch is on or off. Install double pole disconnect on all 240VAC circuits.



Testing

Make sure the installation process is completed and there is power to the product.

STEP 1: TEST PUMP OFF

When the actuator rod is in the down position (deactivated), the pump should be off.

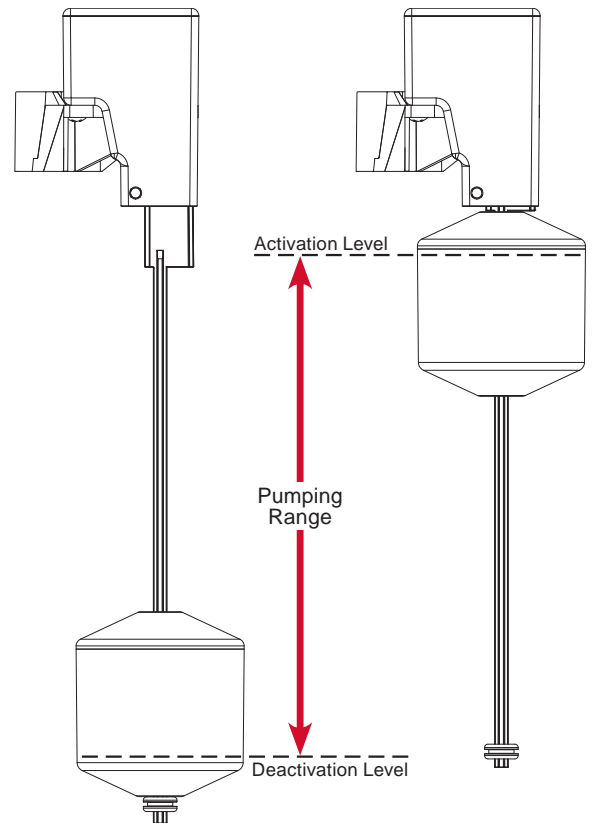
STEP 2: TEST PUMP ON

When the actuator rod is in the up position (activated), the pump should be on.

STEP 3: PUMPING RANGE

After testing is complete, the pumping range can be adjusted by moving the rubber grommet up or down the actuator rod to achieve the desired pump differential.

WARNING: If making any adjustments to the VertiMAC™ pump switch after testing has been completed, make sure to disconnect all power sources before servicing the product.

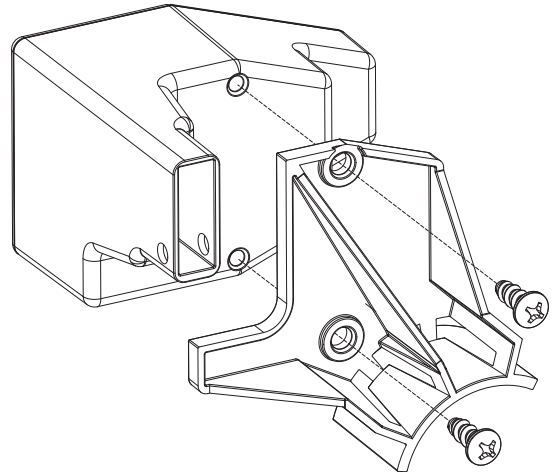


Additional Assembly and Product Information

This VertiMAC™ pump switch model comes pre-assembled with the actuator rod, float, and pipe clamp bracket installed. The pumping differential is set at the maximum range (6.0"). If adjustments or servicing is required, use this section for additional instructions on the VertiMAC™ pump switch.

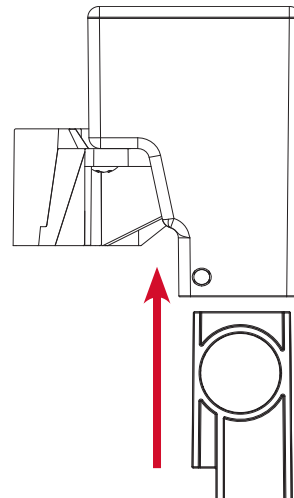
MOUNTING PIPE CLAMP BRACKET

Place the pipe clamp bracket on the bottom of the VertiMAC™ pump switch housing and line up the holes. Use a #2 phillips head screwdriver to securely fasten the bracket to the housing with provided screws.



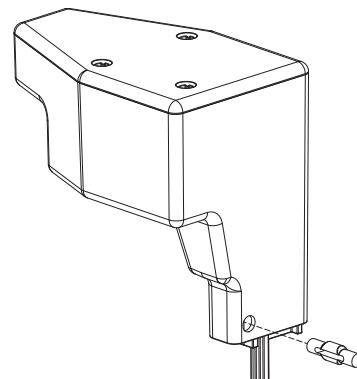
INSERTING ACTUATOR ROD

Slide the actuator rod arm upward into the front of the VertiMAC™ pump switch housing, positioned so the notch on the actuator arm matches the side of the housing with the hole. If the actuator rod arm is inserted in the correct position, the pump switch housing should make a clicking sound as the rod slides up and down.



ACTUATOR PIN PLACEMENT

Once the actuator rod arm has been placed into the VertiMAC™ pump switch housing in the up position, insert the actuator pin into the small hole on the left side of the housing until it snaps in place.

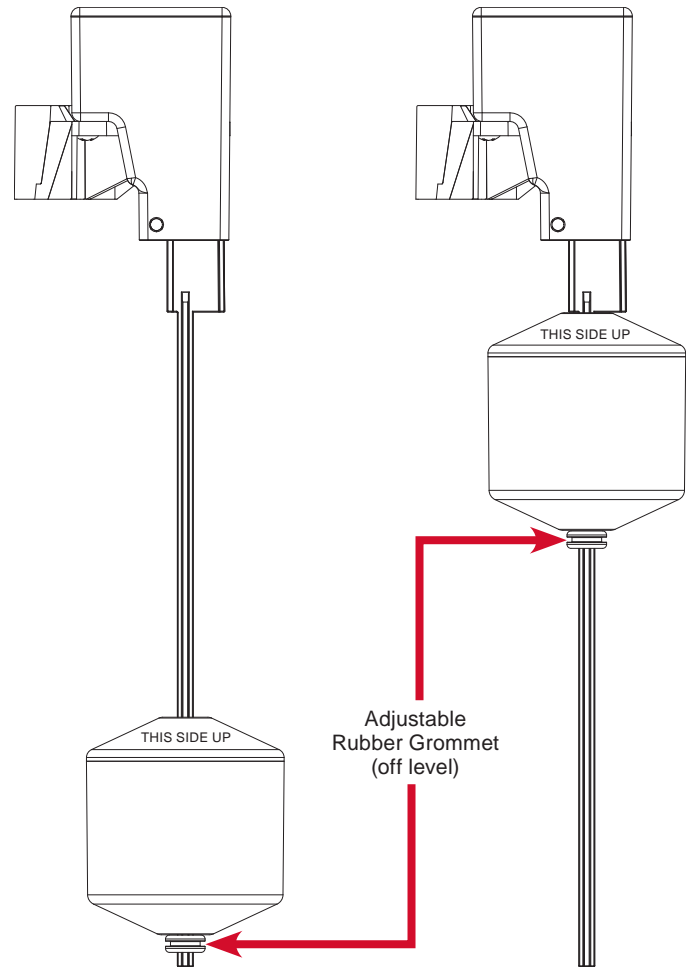


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Additional Assembly and Product Information (continued)

RUBBER GROMMET AND FLOAT PLACEMENT

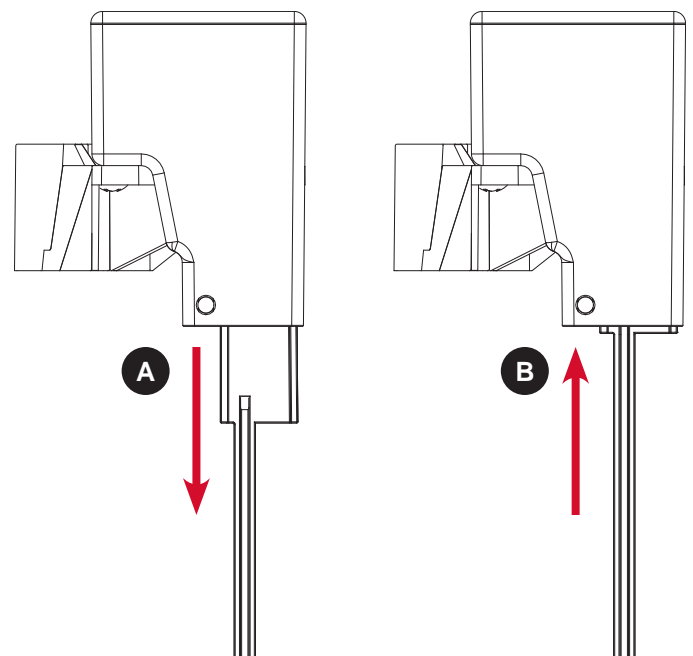
Slide the float onto the actuator rod, positioned so the text “This Side Up” on the float is facing up and then slide the rubber grommet onto the actuator rod to secure the float on the rod. The pump differential can be adjusted by sliding the rubber grommet up and down the actuator rod. See step 1 determining pump differential on page 6.



PUMP SWITCH: PUMP OFF and PUMP ON

When the actuator rod is in the down position (deactivated), the mechanism inside the VertiMAC™ pump switch housing turns the pump off (A).

When the actuator rod is in the up position (activated), the mechanism inside the VertiMAC™ pump switch housing turns the pump on (B).



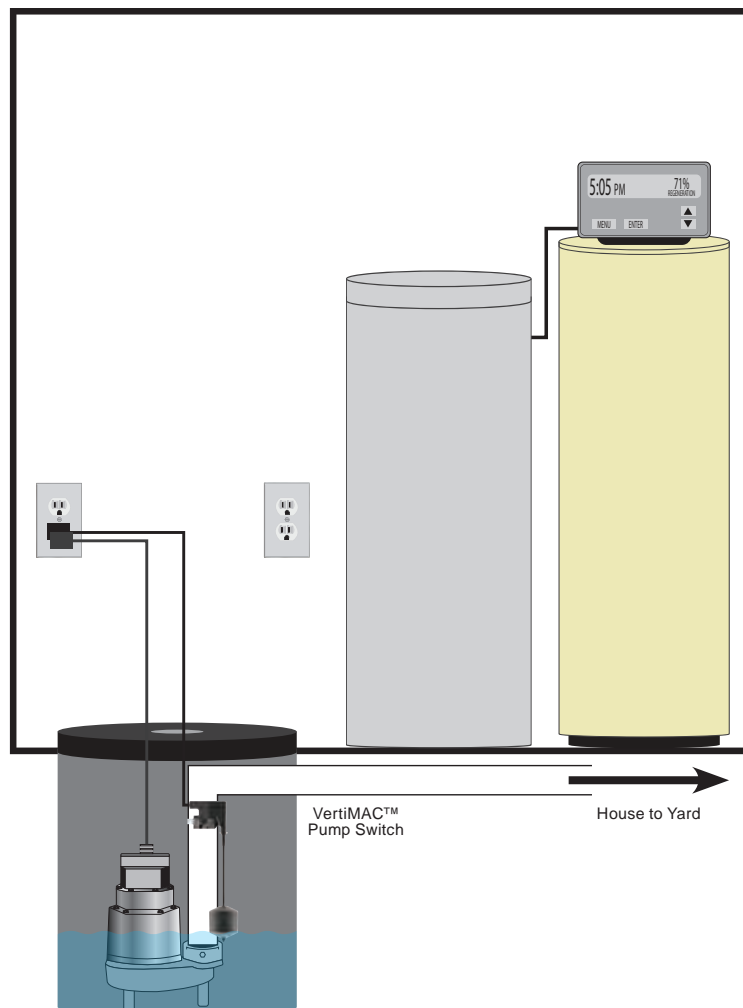
General Operation

The VertiMAC™ is a float operated pump switch, typically used in sump pump applications or situations where a regular pump switch cannot operate due to limited space. The VertiMAC™ pump switch is mounted in a vertical position to a pipe and is activated by the float upon a rising water level. As the water level rises, the float pushes the actuator rod upward which activates the mechanism inside the pump switch housing and turns the pump on. When the water level recedes, the float lowers the actuator rod downward deactivating the mechanism inside the pump switch housing and turns the pump off. To adjust the pump differential, slide the rubber grommet up or down the actuator rod for the desired pumping range. The applications are not limited to what is listed in this user guide. Follow all individual instructions for sensors and accessories used with the VertiMAC™ pump switch.

The following applications can be found in this user guide: Sump Pump, Sump Pump with VertiMAC™ Sump Advisor™ System, Sump Pump with Battery Backup, and Limited Space Dewatering.

Sump Pump

The diagram below is a typical setup for a sump pump application. The VertiMAC™ pump switch is mounted to the discharge pipe and powered by a standard wall outlet using the piggyback plug power cable. The pump power cable is then plugged into the female end of the VertiMAC™ piggyback plug. The float is used to operate the pump switch, turning the pump on and off based on the pump differential for the desired pumping range.

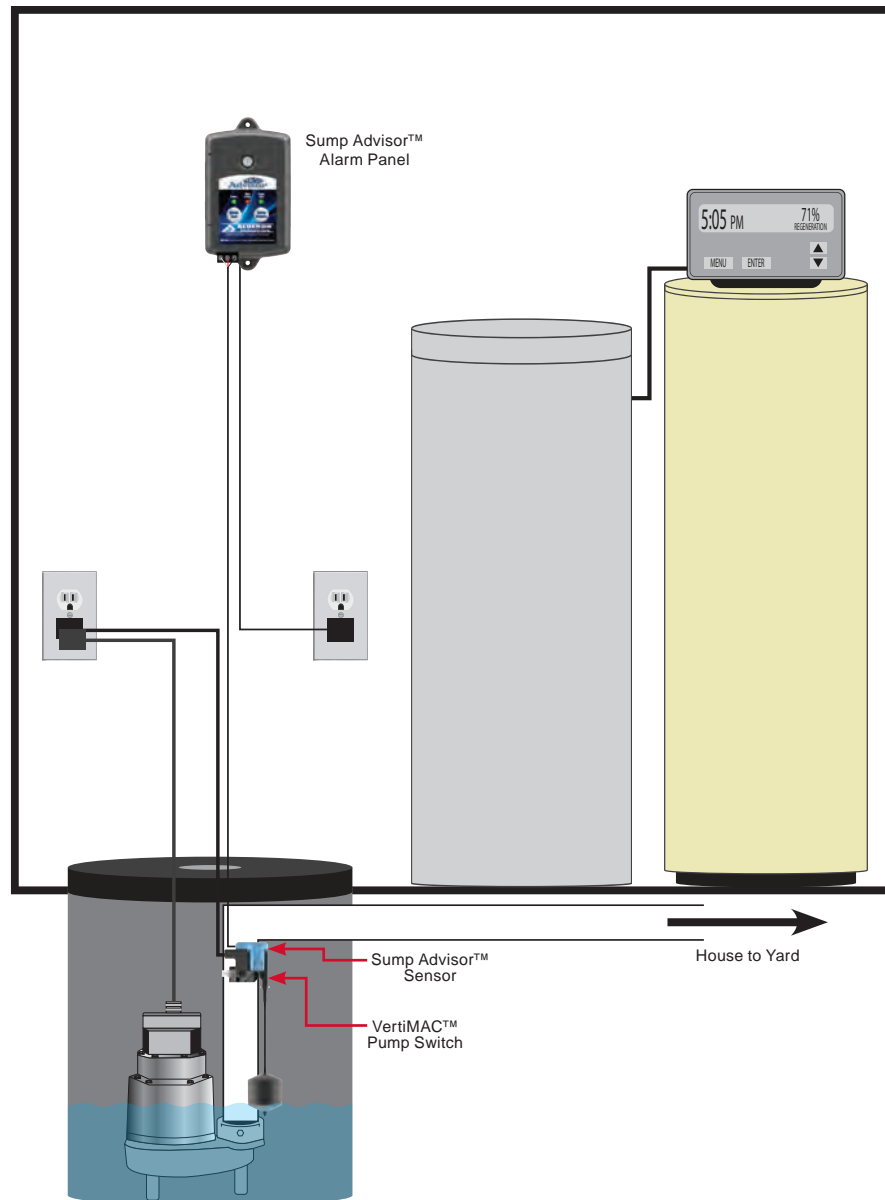


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Sump Pump with VertiMAC™ Sump Advisor™ System (pump switch, sensor, and alarm panel)

The diagram below is a typical setup for a sump pump with indoor alarm application. The VertiMAC™ pump switch is mounted to the discharge pipe and powered by a standard wall outlet using the piggyback plug power cable. The pump power cable is then plugged into the female end of the VertiMAC™ piggyback plug. The float is used to operate the pump switch, turning the pump on and off based on the pump differential for the desired pumping range. The Sump Advisor™ sensor is an accessory option which is mounted to the top of the VertiMAC™ pump switch and connected to the Sump Advisor™ alarm panel for local high level alarm and pump run indication.

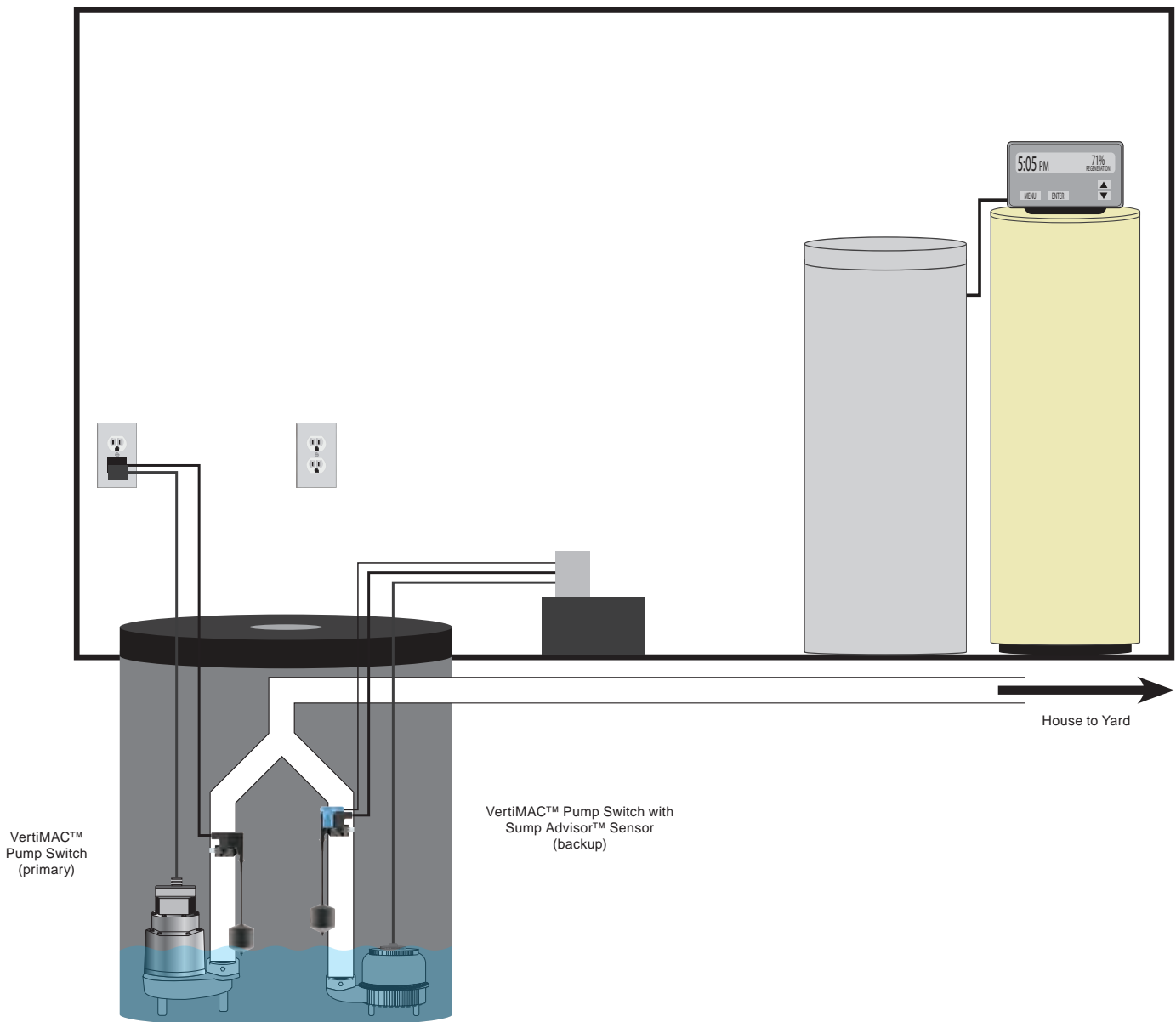
When the water level rises, the float pushes the actuator rod upward which activates the mechanism inside the pump switch housing and turns the pump on. The Sump Advisor™ sensor will send a signal to the Sump Advisor™ alarm panel, activating the green pump run LED indicator and the pump run auxiliary dry contacts (which can monitor pump run counts and run time by BAS systems). If the water level rises activating the high level alarm float on the sensor, the red high sump LED indicator, buzzer, and alarm auxiliary dry contacts on the alarm panel will activate. Pressing the alarm silence pushbutton will silence the buzzer. When the water level recedes, the float lowers the actuator rod downward which deactivates the mechanism inside the pump switch housing and turns the pump off. When the alarm condition is cleared, the system will automatically reset itself for the next alarm cycle.



Sump Pump with Battery Backup

The diagram below is a typical setup for a sump basin where a VertiMAC™ pump switch and VertiMAC™ pump switch with Sump Advisor™ sensor control a 120VAC or 240VAC operated pump (primary) and a 12VDC operated pump (battery backup). The primary pump is controlled by the primary VertiMAC™ pump switch where the piggyback plug is plugged into a standard wall outlet and the pump power cable is then plugged into the female end of the VertiMAC™ piggyback plug. The VertiMAC™ pump switch with installed Sump Advisor™ sensor will be mounted slightly higher than the primary pump switch as a backup. The cables for the backup pump switch and sensor are connected to the control panel for the battery backup system.

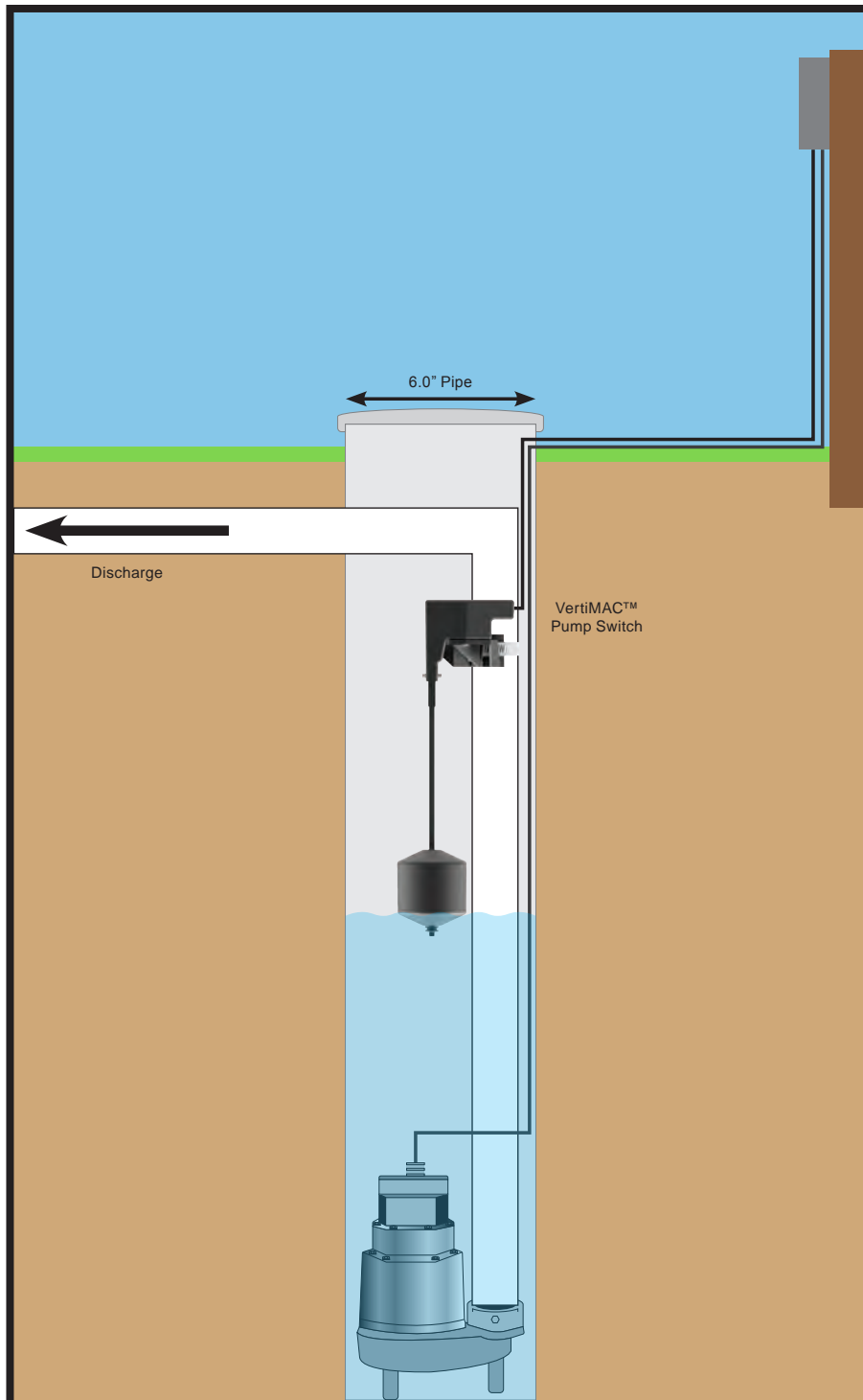
When the water level rises and activates the primary VertiMAC™ pump switch, the primary pump will turn on until the water level recedes and deactivates the pump switch turning the primary pump off to complete the pump cycle. If the water level continues to rise and activates the backup VertiMAC™ pump switch with Sump Advisor™ sensor, the backup pump will turn on until the water level recedes and deactivates the pump switch turning the backup pump off. If the water level rises activating the high level alarm float on the Sump Advisor™ sensor, it will activate the high level alarm on the control panel. When the water level recedes the high level alarm float on the sensor will deactivate to clear the alarm condition on the panel. The VertiMAC™ pump switch and Sump Advisor™ sensor allows for a compact trouble-free installation for sump pump systems with battery backup.



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Limited Space Dewatering

The diagram below is a typical setup for a dewatering application where a pump switch cannot operate due to limited space. The VertiMAC™ pump switch is mounted to the discharge pipe inside a six inch (6.0") pipe placed in the ground. With the pump and discharge pipe inside the small size of the pipe, a typical pump switch would not have enough space to pivot and activate the pump. The VertiMAC™ pump switch and pump power cables are wired to terminal inputs in a junction box. The float is used to operate the pump switch, turning the pump on and off based on the pump differential for the desired pumping range.



Troubleshooting

PROBLEM	PROBABLE CAUSE	SOLUTION
Float stuck in the up position after water has pumped out of the tank	Float or actuator rod has an obstruction preventing its normal operation	Remove obstruction and make sure the float and actuator rod operate properly
	VertiMAC™ pump switch is mounted at an angle preventing normal operation of the float or actuator rod	Remount the VertiMAC™ pump switch so the float and actuator rod operate in a vertical manner
Float in the down position while the pump continues to run	Internal switch has failed	The VertiMAC™ pump switch is at the end of its life cycle, replace immediately
Float in the up position but the pump does not turn on	Power is not applied to either the pump or VertiMAC™ pump switch	Make sure the VertiMAC™ piggyback plug power cable is properly connected and outlet or receptacle has power
		Bare lead models, make sure there is power to the pump and VertiMAC™ pump switch
	The pump or VertiMAC™ pump switch have failed	Replace the pump or VertiMAC™ pump switch
Pump differential is not at the desired range for specific application	Rubber grommet on the actuator rod has not been properly set	Adjust rubber grommet position on the actuator rod either up or down to change the pump differential

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Specifications

Primary Voltage:	120VAC or 240VAC, 60 Hz (voltage depends on part number)
Electrical:	13 Amps, 120VAC 0.5HP or 240VAC 1.5HP
Cable Type:	SJT, 16 gauge
Connection Types:	Bare Lead (no plug; 120/240VAC) Piggyback Plug (120VAC or 240VAC; voltage depends on part number)
Pumping Range:	1.5" - 6.0" (inches)
Operating Temperature:	0 - 140° F
Certifications:	CSA (US and Canada)

Note: The VertiMAC™ pump switch must be used with pumps that provide integral thermal overload protection.

Warranty Information

Three-Year Limited Warranty - Standard Products

LIMITED WARRANTY: Subject to the conditions of this Three-Year Limited Warranty, Alderon Industries, LLC (“Alderon”) warrants to the original user or consumer of an Alderon product (the “Product”) that, for a period of three (3) years from the date of manufacture, the Product will be free from defects in materials and workmanship under normal use and service, and provided the Product is installed, operated and maintained in accordance with instructions supplied by Alderon.

WARRANTY EXCLUSIONS: Notwithstanding anything to the contrary, this Limited Warranty does not cover:

1. Alderon custom control units. Please see the One-Year Limited Warranty – Custom Controls.
2. Damage, defects or malfunctions resulting from (a) failure to properly install, operate or maintain the Product in accordance with printed instructions provided and with applicable local codes, ordinances and good trade practices; (b) normal wear and tear; (c) abuse, accident or negligence; (d) de-installation and movement of the Product from its original installation location; (e) repair and/or modification of the Product without prior authorization from Alderon; (f) use of the Product for purposes other than for what it was designed and manufactured; or (g) conditions beyond the control of Alderon, including lightning and freight damages (hidden or visible). **Contact parcel or the freight company for claims on freight damage in transit.**
3. Cost of field labor or other charges incurred by you in removing and/or re-affixing the Product or any part or component thereof.
4. Transportation costs.

CLAIM PROCEDURE: To make a claim regarding breach of warranty, (a) the claim must be received by Alderon before the expiration of the warranty period; and (b) the defective Product, or part thereof, must be returned to a designated Alderon location, **FREIGHT PREPAID**, together with proof of purchase. A return goods authorization must be received prior to the return of the defective Product or part. Please contact the sales representative in your area to determine the designated Alderon location for return and to obtain the return goods authorization. If you do not have a sales representative in your area, please call 218-483-3034 to submit your claim, or mail notice of your claim to:

Warranty Claims
Alderon Industries, LLC
P.O. Box 827
Hawley, MN 56549

EXCLUSIVE REMEDY: In the event of a warranty claim that Alderon determines to be covered by this Limited Warranty, Alderon will, at its option, repair or replace the Product.

The above limited warranty and this exclusive remedy are the sole express warranty and remedy given by Alderon on the Product. No warranties or representations at any time made by any representative from Alderon shall vary or expand the provisions hereof. TO THE EXTENT PERMITTED BY LAW, ALL EXPRESS AND IMPLIED WARRANTIES (INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT) OTHER THAN THE EXPRESS LIMITED WARRANTY SET FORTH ABOVE ARE EXPRESSLY DISCLAIMED. UPON THE EXPIRATION OF THE ABOVE STATED LIMITED WARRANTY PERIOD, ANY AND ALL APPLICABLE IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT, ARE DISCLAIMED. SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE.

LIABILITY LIMITATION: In no event will Alderon’s liability to you or any other person or entity exceed the price paid to Alderon for the defective Product. IN NO EVENT SHALL ALDERON BE LIABLE TO YOU OR ANY OTHER PERSON OR ENTITY FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT OR SPECIAL DAMAGES OF ANY DESCRIPTION, WHETHER ARISING OUT OF WARRANTY (INCLUDING ANY IMPLIED WARRANTIES) OR ANY OTHER CONTRACT, STRICT LIABILITY, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, INCLUDING ARISING FROM INSPECTION OR REMEDY DELAYS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION AND EXCLUSION MAY NOT APPLY TO YOU.



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