

IMPORTANT NOTE: For the most up-to-date version of this manual, please visit www.h2flow.net

NAUTIS VSF

Variable Speed+Flow

Operating Manual

North American version (English)



TABLE OF CONTENTS

1 General Safety Instructions..... 4

2 Installation Information..... 5

3 Wiring the Pool Pump Motor..... 8

4 Connecting the Flow Sensor and MCU..... 10

5 Operating Modes 17

6 Setting Up a Dirty Filter Reminder 17

7 Floor Cleaning Scheduler..... 19

8 Flow Meter Operation..... 20

9 Technical Specifications..... 21

10 Equipment Operation, Service & Maintenance 23

11 Troubleshooting Guide..... 25

12 Servicing Information..... 26

13 Product Registration..... 26

14 Replacement Parts & Exploded View 27

15 Limited Warranty 28

16 Notes..... Back cover

READ THIS MANUAL CAREFULLY BEFORE USING THE NAUTIS PUMP

NOTICE: The California Energy Commission requires all pumps purchased for sale or use in a residential pool for filtration in California be listed on their CEC website.

IMPORTANT NOTICE: This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment.

IMPORTANT NOTICE: In order to access the full functionality of this pump, it is important that the installation location is in a place with a stable WiFi signal. For more information on this topic, please refer to Sections 2 & 3 of this manual.



WARNING: This product must be installed and serviced by a qualified pool professional, and must conform to all national, state, and local codes.



WARNING: Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call 888-635-0296 or visit www.h2flow.net for additional copies of these instructions.

IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS.

2. **WARNING** – To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. **WARNING** – Risk of Electrical Shock. Connect only to a branch circuit protected by a ground-fault circuit interrupter (GFCI). Contact a qualified electrician if you cannot verify that a circuit is protected by a GFCI.
4. **WARNING** – To reduce the risk of electric shock, replace any damaged cord immediately.
5. **DO NOT** install within an outer enclosure or beneath the skirt of a hot tub or spa.
6. **CAUTION** – This pump is for use with permanently-installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently-installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

7. The unit must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.
8. **TO REDUCE RISK OF ELECTRICAL SHOCK**, a copper bonding connector (8 AWG U.S., 6 AWG Canada) is provided for bonding the motor to all metal parts of the swimming pool, spa, or hot tub structure and to all electrical equipment, metal conduit, and metal piping within 5 feet of the inside walls of a swimming pool, spa, or hot tub, when the motor is installed within 5 feet of the inside walls of the swimming pool, spa, or hot tub.

NOTE: To installer and/or operator of the H2flow Controls Nautis VSF Swimming Pool Pump; the manufacturer's warranty will be voided if the pump is improperly installed and/or operated.

9. SAVE THESE INSTRUCTIONS!

1. GENERAL SAFETY INSTRUCTIONS

The following guidelines provide information to minimize the risk of injury to users of pools, spas, and hot tubs.

WARNING: TO REDUCE THE RISK OF ENTRAPMENT HAZARD



- Pump suction is hazardous and can trap and drown or disembowel swimmers.
- Blocking suction with body may cause severe or fatal injury.
- **DO NOT** use or operate swimming pools, spas, or hot tubs if a suction outlet cover is missing, broken, or loose.
- All suction outlet covers must be maintained. They must be replaced if cracked, broken, or missing.
- All suction outlets must have correctly installed screw-fastened cover in-place.
- The pump suction system must provide protection against hazard of suction entrapment or hair entrapment/entanglement.
- All suction outlet covers must be certified to the latest ASME/ANSI A112.19.8 or APSP-16 performance standards to prevent hair or body entrapment.



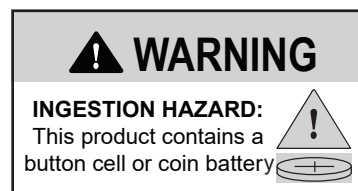
WARNING: RISK OF ELECTRICAL SHOCK OR ELECTROCUTION

Pool pump must be installed by a licensed or certified electrician or a qualified pool serviceman in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electric hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

Always disconnect power to the pool pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to serviceman, pool users, or others due to electric shock.

WARNING: PRODUCT MIGHT CONTAIN A COIN BATTERY

- This product contains non-replaceable batteries.
- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. **DO NOT** dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Non-rechargeable batteries are not to be recharged.
- **DO NOT** force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating, +60 degrees C) or incinerate. Doing so may result in injury due to venting, leakage, or explosion resulting in chemical burns.
- Product contains: CR2032, nominal voltage 3 volts.
- Call a local poison control center for treatment information.



2. INSTALLATION INFORMATION

2.1 PREPARATION GUIDE

1. Upon receipt of the pump, check the carton for damage. Open the carton and check the pump for concealed damage, such as cracks, dents, or a broken base. If damage is found, contact the shipper or distributor where the pump was purchased.
2. Inspect the contents of the carton and verify that all parts are included. See Parts List and Exploded View for details.

2.2 PUMP LOCATION

IMPORTANT NOTE: In order to utilize the full functionality of this pump, it is vital that it be placed in a location with a stable WiFi signal. Failure to do so will result in limited functionality of the equipment.

NOTE: In Canada, the pump must be located a minimum of three (3) meters (approximately ten (10) feet) from the water (CSA C22.1).

1. For trouble-free self-priming, install the pump as close to the pool as practical. Consult local codes for minimum distance between pool and pump.

WARNING: Some Safety Vacuum Release System (SVRS) devices are not compatible with the installation of check valves. If the pool has an SVRS device, be sure to confirm that it will continue to safely operate if check valves are installed.

2. The piping should be as direct and free from turns or bends as possible, as elbows and other fittings greatly increase friction losses which reduce the flow of water.
3. Place the pump on a solid foundation which provides a rigid and vibration-free support so that it is readily accessible for service and maintenance.
4. Install the pump in a well-ventilated location protected from direct sunlight and excessive moisture (rain, sprinklers, etc.).
5. Protect the pump against flooding and excess moisture, and prevent foreign objects from clogging air circulation around motor. All motors generate heat that must be removed by providing proper ventilation.
6. **DO NOT** store or use gasoline or other flammables near the pump.
7. **DO NOT** remove any safety alert labels such as **DANGER**, **WARNING**, or **CAUTION**. Keep safety labels in good condition and replace any missing or damaged labels.
8. Provide access for future services by leaving a clear area around the pump. Allow plenty of space above the pump to remove lid and basket for cleaning.

2.3 PIPE SIZING

NOTE: All pipe sizes are able to withstand the pressures the pump will deliver, but not necessarily the flow. If the pipe is too small for the pump, or is elevated above the water, the maximum gallons per minute (GPM) may not be delivered. If this happens, the pump will develop a pocket of air that makes noise (cavitation). This may shorten the life of the pump.

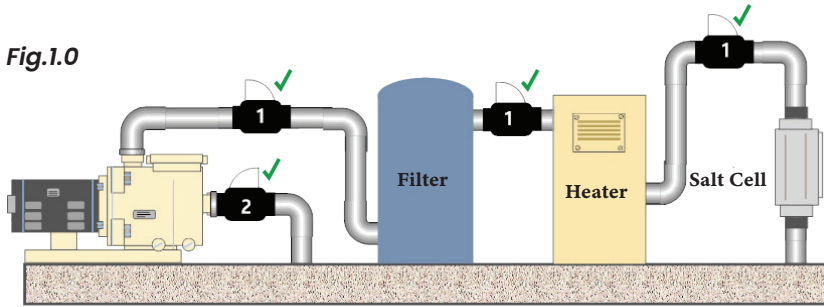
2.4 PLUMBING THE SUCTION & DISCHARGE

1. When connecting piping to the threaded ports on the pump, it is recommended that thread seal tape be used. Hard-plumbed pipes must have proper solvent-weld connections. If the suction line is not sealed correctly, the pump will not prime properly and will pump small volumes of water or none at all.
2. When installing the pump, care should be taken so that the suction line is below water level to a point immediately beneath the pump to ensure quick priming via a flooded suction line. The height between the pump and water level should not be more than five (5) feet.
3. Install the FlowVis flow meter valve body. **NOTE (1):** it is preferable that the FlowVis unit be installed to the discharge side of the pump. This should be done using a short length of pipe to connect the pump to the FlowVis. **NOTE (2):** Do not install the FlowVis lid yet. Consideration should be taken to orient the FlowVis at an angle that allows for easy removal of the strainer basket cover and removal of the strainer basket. It is recommended that the FlowVis be turned 90 degrees, so that the lid is facing outwards, as shown in the image on this page. It is important that this be done while still making it possible to read the flow on the scale (i.e., not obstructed by walls, other equipment, plumbing etc.). **NOTE:** Ensure that the FlowVis is installed with the check valve closest to the discharge side of the pump to allow for flow from the pump, through the plumbing system.



4. The preferred installation location for the FlowVis flow meter is on the discharge side of the pump, directly after the union fitting. If for any reason, the flow meter cannot be installed in this location, refer to the installation diagram below to identify preferred locations.

Fig.1.0

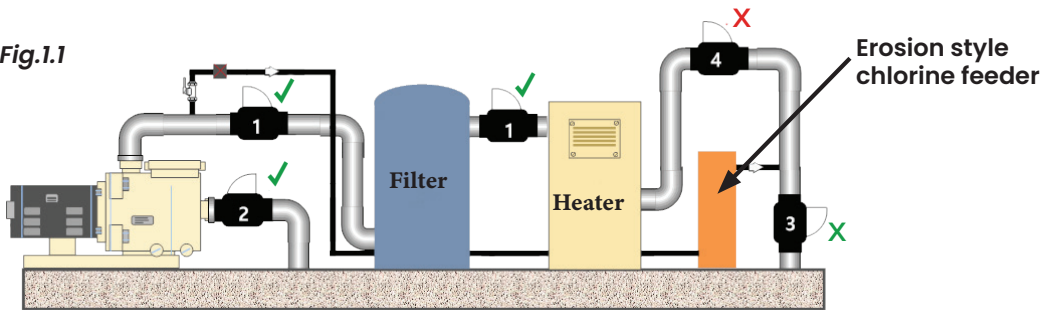


Systems using Salt Generator Cells

LEGEND

- 1 = IDEAL ✓
 2 = GOOD ✓
 3 = ACCEPTABLE ✗
 4 = AVOID ✗

Fig.1.1



Systems using Erosion Chlorine Feeders (hockey puck style)

CRITICAL STEP: Complete all PVC solvent welding (gluing) of the valve body to the pipe lines. Allow the glue to completely dry and vent out before inserting the internal flapper and performing the lid assembly in Step 5.

5. Install the FlowVis lid assembly inside the valve body, adhering to the following procedure:

- Make sure that the o-ring on the underside of the lid is undamaged, lubricated with silicone (such as Boss 820) and is in-place without twists.
- Ensure flapper hinge pin is centered.
- Carefully lower the lid onto its valve body, Tee, or Saddle-Clamp, making sure that the o-ring stays in place.
- Insert by hand the (6) shorter stainless steel screws into the x2 front holes, x2 rear holes, and x2 holes on the right-side (with the lid scale facing you). Do not tighten the screws at this stage.
- Mount the FlowVis Digital Sensor on the left-side (with the lid scale facing you) of the FlowVis lid (see fig.1.2). Insert by hand the (2) longer stainless screws. Do not tighten at this stage.
- Using a hand Phillips-head screwdriver, slowly tighten the screws in a diagonal pattern, per the sequence shown in Fig.1.3. **Under no circumstances should an electric screwdriver or impact driver be used.** Do not fully tighten one screw before proceeding to the next, i.e., pull them down slowly multiple times to avoid stressing and cracking the lid. Screws should be tightened to a final torque of 25 inch / pounds or 2.8 Nm.

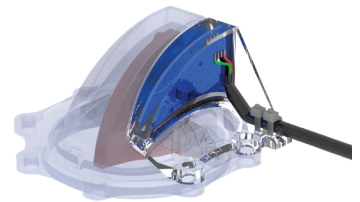


Fig.1.2

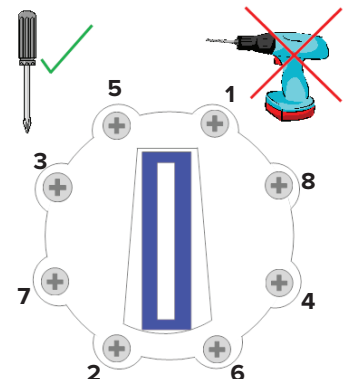


Fig.1.3

IMPORTANT NOTE: Failure to adhere to the above lid assembly installation instructions by tightening the FlowVis lid screws using an impact driver, electric screwdriver, or any other power tool, will almost certainly result in a cracking of the polycarbonate lid assembly. The evidence of such an installation will be clear and obvious and will RENDER THE FLOWVIS WARRANTY NULL AND VOID.

6. Suction and discharge lines should be independently supported at a point near the pump to avoid strains being placed on the pump. Always use properly sized valves.
7. When installing the pump below water level, it is advisable to install a valve in both the suction and discharge line in the event that the pump must be removed for servicing.
8. Before starting the pump for the first time, remove the see-through lid, (turn lid ring counter-clockwise to remove). Fill strainer tank with water until it is level with the suction inlet. Replace lid with locking ring. Hand-tighten the lid to make an air-tight seal. **DO NOT** use any tools to tighten the lid.
9. Use the fewest number of fittings as possible. Each additional fitting has the effect of moving the equipment farther away from the water. NOTE: If more than ten (10) suction fittings are needed, the pipe size must be increased.

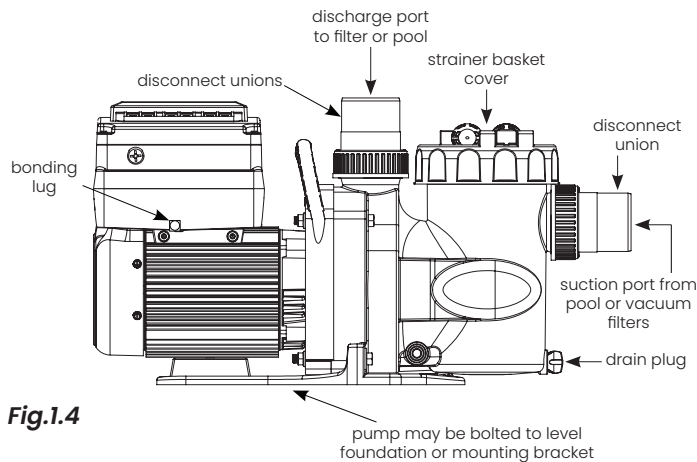


Fig.1.4

2.5 BONDING AND GROUNDING

When installing and using the motor, basic safety precautions should always be followed. The wiring of the motor should be done by a licensed electrician in accordance with local codes.

1. The motor frame must be grounded to a reliable grounding point using a solid copper conductor, No. 8 AWG or larger. In Canada, No. 6 AWG or larger must be used. If the pump is installed within five (5) feet of the inside walls of the swimming pool, spa, or hot tub, the motor frame must be bonded to all metal parts of the swimming pool, spa, or hot tub structure and to all electrical equipment, metal conduit, and metal piping within five (5) feet of the inside walls of the swimming pool, spa, or hot tub.

2. Bond the motor using the provided external lug.

WARNING: Always disconnect the power source before working on a motor or its connected load. Motor is fitted with internal auto reset that may restart without warning!

WARNING: In order to avoid the risk of property damage, severe personal injury, and/or death, make sure that the control switch, time clock, or control system is installed in an accessible location, so that in the event of an equipment failure or loose plumbing fitting, the equipment can be easily turned off.

CAUTION: The pump must be permanently connected to a dedicated electrical circuit. No other equipment, lights, appliances, or outlets may be connected to the pump circuit, with the exception of devices that may be required to operate simultaneously with the pump, such as a chlorinating device or heater.

2.6 ELECTRICAL INSTALLATION

1. The pump motor must be securely grounded inside the motor terminal compartment. NOTE: **DO NOT** connect to electric power supply until unit is permanently grounded.
2. Wire size must be adequate to minimize voltage drop during the start-up and operation of the pump.
3. Insulate all connections carefully to prevent grounding or short-circuits. Sharp edges on terminals require extra protection. To prevent the wire nuts from loosening, tape them using suitable, listed (UL, ETL, CSA) electrical insulating tape. For safety, and to prevent entry of contaminants, reinstall all conduit and terminal box covers. Do not force connections into the conduit box.
4. Connect L1, L2/N, and Ground to the terminal block as shown on the motor nameplate.

2.7 VOLTAGE CHECKS

The correct voltage, as specified on the pump data plate, is necessary for proper performance and long motor life. Incorrect voltage will cause damage to the motor.

It is the responsibility of the electrical installer to provide data plate operating voltage to the pump by ensuring proper circuit sizes and wire sizes for this specific application.

CAUTION: Failure to provide data plate voltage during operation will cause the motor to overheat and void the warranty.

2.8 PRESSURE TEST

WARNING: When pressure testing a system with water, air is often trapped in the system during the filling process. This air will compress when the system is pressurized. Should the system fail, this trapped air can propel debris at a high speed and cause injury. Every effort to remove trapped air must be taken, including opening the bleed valve on the filter and loosening the pump basket lid while filling the pump. **WARNING:** Trapped air in the system can cause the filter lid to be blown off, which can result in death, serious injury, or property damage. Be sure all air is properly purged out of the system before operating. **DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR CHECK FOR LEAKS.**

WARNING: When pressure testing the system with water, it is very important to make sure that the pump basket and lid is completely secure.

1. Fill the system with water, using care to eliminate trapped air.
2. Pressurize the system with water to no more than 25-30 PSI.

WARNING: Pressurize the system with water to a maximum of 25-30 PSI, or the maximum pressure rating specified by your pool filter manufacturer, whichever is lower. **NEVER** exceed 35 PSI under any circumstances. Pressure testing must be done by a trained pool professional. Circulation equipment that is not tested properly might fail, which could result in severe injury or property damage.

3. Close the valve to trap pressurized water in the system.
4. Observe system for leaks and/or pressure loss.
5. If there are leaks, repeat steps 1-3. For technical support call 888-635-0296.

3. WIRING THE POOL PUMP MOTOR

NOTE: For additional information about wiring the pool pump motor, refer to the Nidec Installation and Operation Manual, included with your Nautis VSF pool pump.

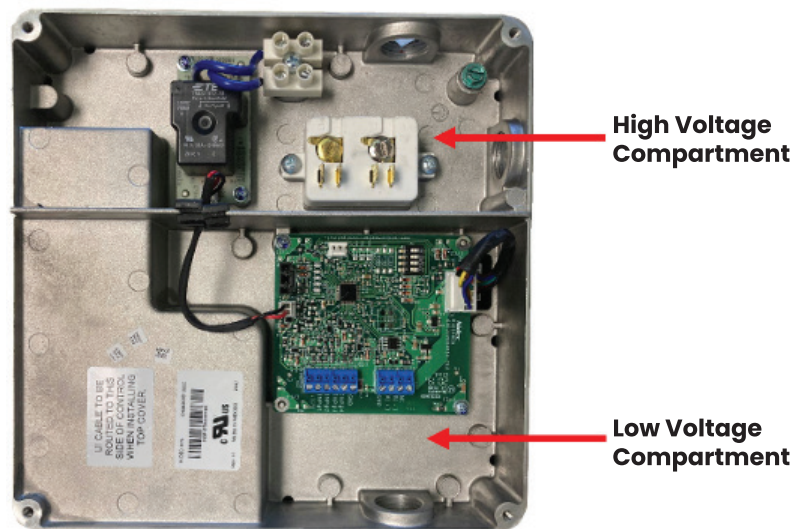
The 1.65 THP pool pump motor is a Dual Voltage Model (115 or 230VAC), while the 2.7 and 3.45 THP are Single Voltage Models (230VAC only). Voltage selection is automatic. The control senses the input line voltage and then operates the pool pump at the applied input voltage.

WARNING

- Before connecting or disconnecting cables or other electrical connections, verify that the electrical power to the system is removed. Failure to comply may cause serious damage to the pool pump motor or pump system, or personal injury.
- Always disconnect electrical power at the fuse box or circuit breaker panel before handling electrical connections or performing maintenance on the motor. Allow the motor to come to a complete stop and wait four (4) minutes. This allows the control bus capacitors to discharge any residual voltage.
- The control unit on the motor contains hazardous voltage.

Follow the steps outlined below to wire the motor.

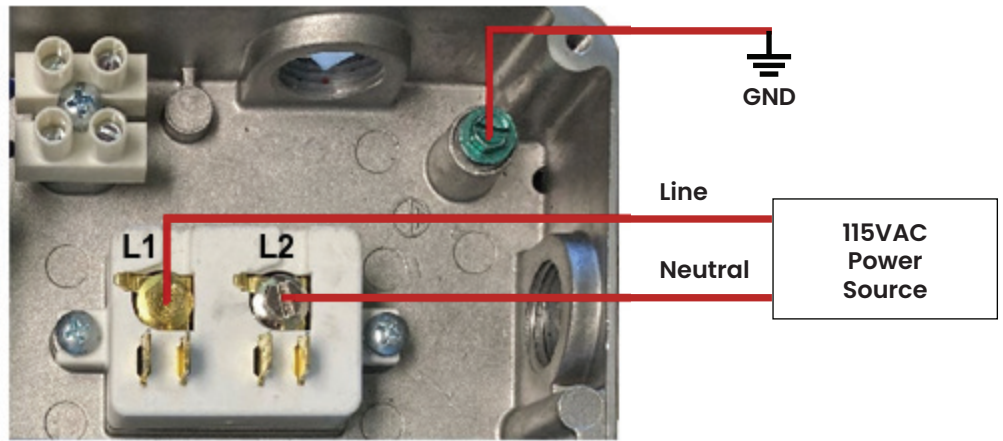
1. Remove the four (4) slotted head hex washer screws securing the User Interface Cover to the wiring compartments. Set the cover aside.
2. On Dual Voltage Models, voltage selection is automatic. The control senses the input line voltage and operates the pool pump motor at the applied input voltage. No action is required.
3. Remove the conduit plug on the side of the **High Voltage Compartment**.



High & Low Voltage Compartments

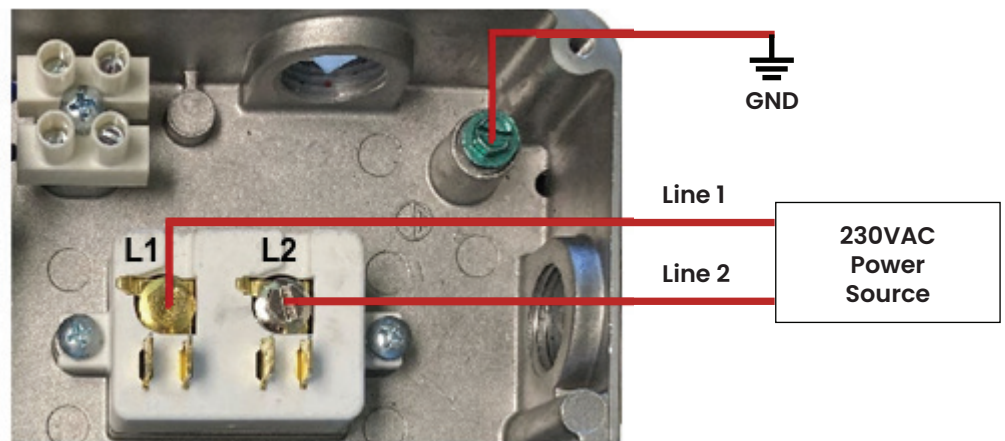
Fig.1.5

4. Insert the power cable and use a water-tight connector to seal the conduit hole (1/2-14 NPT thread).
5. Install the **AC** and **Ground** power input wires as specified on the motor nameplate. You must connect **L1**, **L2**, and **GND** (Green Screw) in the wiring compartment correctly and securely. **Note:** While voltage selection is automatic on Dual Voltage Models, the AC Terminal Block is to be wired differently for 115VAC and 230VAC. (See Figs.1.6 & 1.7 below).



AC Terminal Block Wiring for 115VAC

Fig.1.6



AC Terminal Block Wiring for 230VAC

Fig.1.7

6. Ensure that the UI cable is routed safely in the **Low Voltage** side of the control.
7. Set the User Interface Cover back in place and secure the **User Interface Cover** tightly with the four (4) hex screws.
8. Apply electrical power. You can now begin programming the pool pump motor.

4. CONNECTING THE FLOW SENSOR AND MCU

4.1 PREPARING THE FLOW METER AND MCU

IMPORTANT SAFETY WARNING: As outlined in the General Safety Warning section of this manual, it is important that power should always be turned off during wiring. Follow all local electrical codes and use qualified personnel.

IMPORTANT NOTE: As mentioned in previous sections of this manual, in order to utilize the full functionality of this pump, it is vital that it be placed in a location with a stable WiFi signal. Failure to do so will result in limited functionality of the equipment..

1. Wire the Motor Controller as shown in Fig.1.8 below:

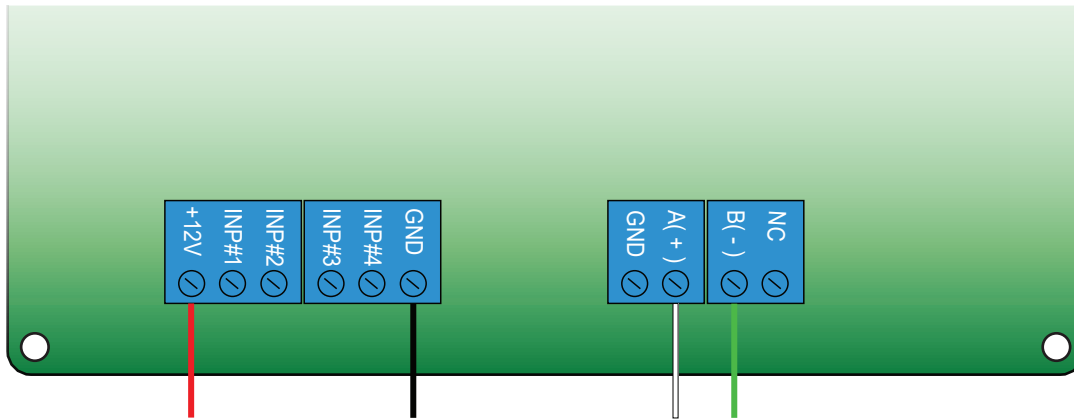


Fig.1.8

2. Ensure the pump is properly installed, wired for correct voltage (115/230VAC), and powered on.
3. The pump may start in Standby or a default mode after power-up.

4.2 ENTER NAVIGATION MODE AND ENABLE REMOTE CONTROL

1. Press the **'MENU/ENTER'** button once to enter Navigation Mode.
2. Use Scroll Up or Scroll Down to select the Standard Settings (or Install Settings in some references) menu tree.
3. Press **'MENU/ENTER'** to enter the menu tree.
4. Scroll Down until you reach the Remote Control screen.
5. Press **'MENU/ENTER'** to enter Input Mode (the setting should flash).
6. Use Scroll Up or Scroll Down to toggle from Disable to Enable.
7. Press **'MENU/ENTER'** to save the change.
8. Press **'START/PAUSE'** to exit the menu option and return to the menu tree/Navigation Mode.

After exiting the menu tree, the control automatically enters Remote Mode. The display will typically show 'Remote Mode'. The pump now prioritizes commands from the connected automation system.

4.3 DOWNLOAD BLUESYNC

1. Search for 'BlueSync by H2flow' in the mobile app store for your device.
2. Install and open the app.

4.4 POWER CYCLE THE SYSTEM

1. Turn the system off at the breaker for 30 seconds, then power on the system at the breaker.

4.5 INSTALLING AND ACCOUNT CREATION IN THE BLUESYNC APP

NOTE: Steps 4.5–4.8 are also available in a video tutorial that can be accessed by scanning the QR code to the right.



9:08

h2flow
CONTROLS

Get Started now
Create an account or log in

Email
Enter your email

Password
Enter your password

[Forgot Password ?](#)

☒ Remember me

[Log In](#)

Don't have an account? **Sign Up**

Fig.1.9

1. Create a new account by clicking on **'Sign Up'**.
2. Enter user information and click **'Register'**.

9:11

h2flow
CONTROLS

Verify Your Identity
Please enter the code we sent to your registered email

Didn't get the code? [Resend](#)

3 3 8 5

[Verify](#)

1 2 3
ABC DEF
4 5 6
GHI JKL MNO
7 8 9
PQRS TUV WXYZ
0

Fig.2.0

3. A verification code will be sent to the email address provided. Enter this when prompted. NOTE: It may be necessary to check your junk or spam folder for this.

4. Login to your account.

4.6 CONNECTING NAUTIS VSF TO BLUESYNC

1. Ensure Bluetooth is enabled on your mobile device.

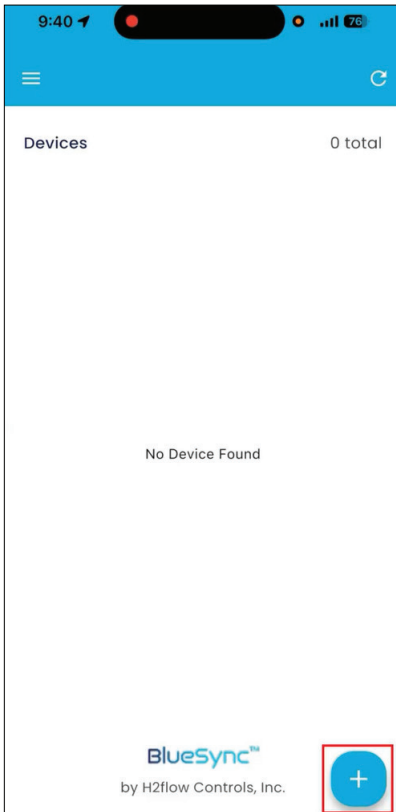


Fig.2.1

2. Click the '+' button in the lower-right corner of the dashboard, as shown below.

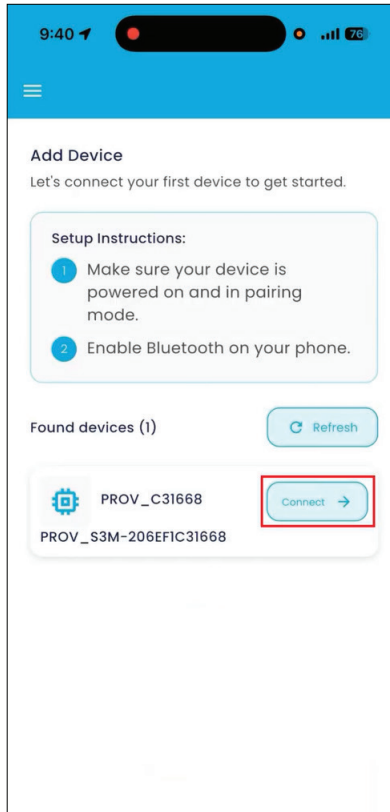


Fig.2.2

3. Once your device appears, select 'Connect'.

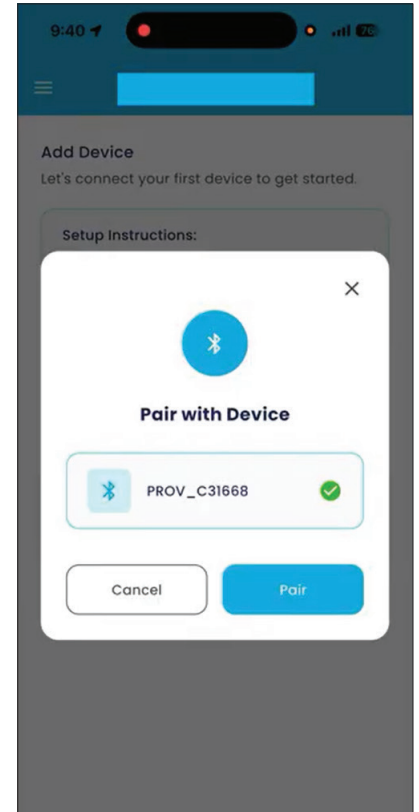


Fig.2.3

4. Select 'Pair' and wait for your device to discover local WiFi networks.

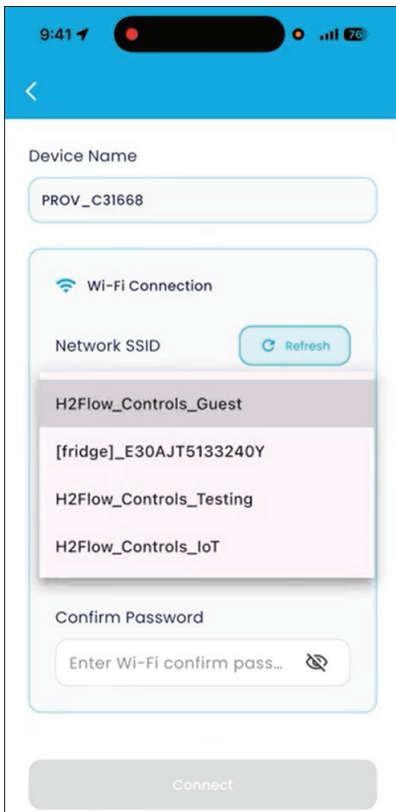


Fig.2.4

5. Select your SSID (internet network) from the dropdown and enter your network password. Click '**Connect**'.



Fig.2.5

6. Once connected, the device will appear on your dashboard.

4.7 SETTING UP NAUTIS VSF IN BLUESYNC

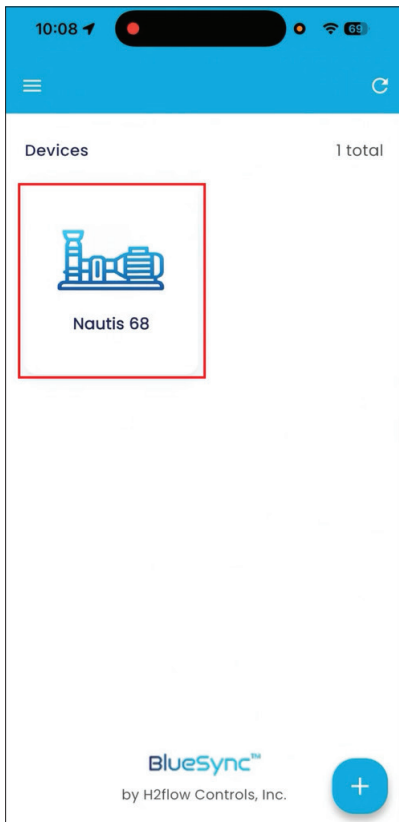


Fig.2.6

1. Select the device from the BlueSync dashboard

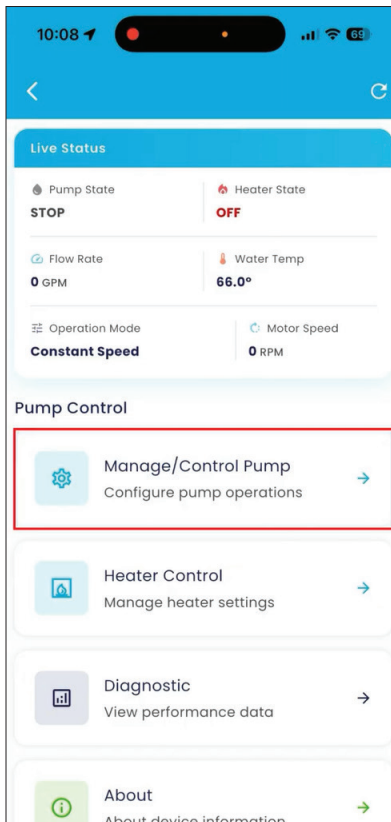


Fig.2.7

2. On the pump device page, select '**Manage/Control Pump**'.

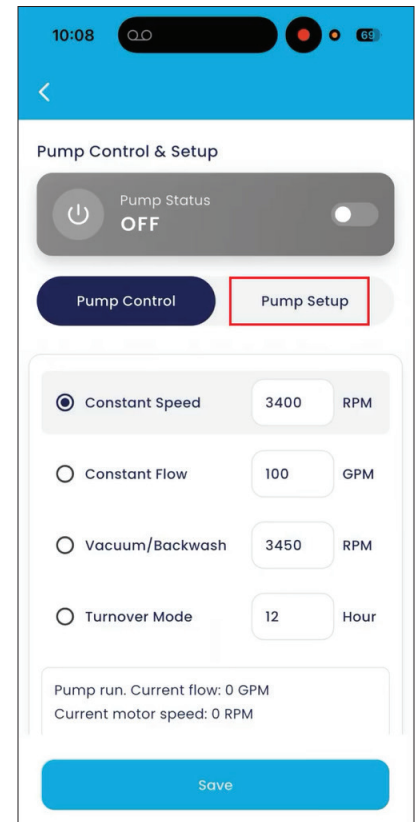


Fig.2.8

3. Select the '**Pump Setup**' tab.

4. Enter the correct number of gallons in your pool.
5. If necessary, change the Priming Mode time.
6. Select '**Save**'.

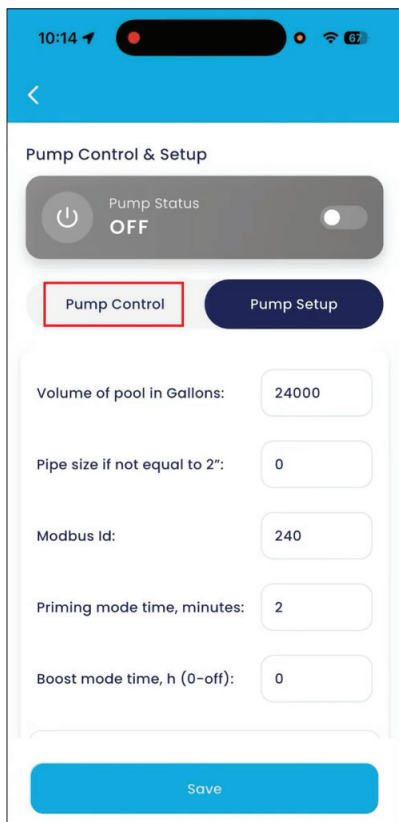


Fig.2.9

7. Select the **'Pump Control'** tab.

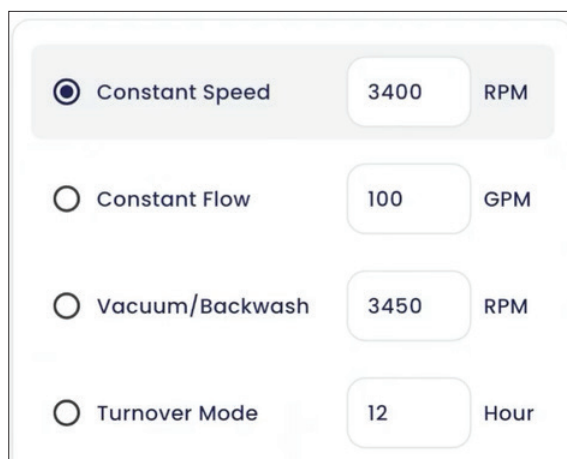


Fig.3.0

8. There are four operating mode available:
 - Constant Speed
 - Constant Flow
 - Vacuum/Backwash
 - Turnover Mode (recommended)

Select the preferred mode of operation. More information about the features and uses of each operating mode can be found in Section 5 of this manual.

9. Ensure that any changes to the operating mode are saved by selecting **'Save'** at the bottom of the page.

4.8 OPERATING NAUTIS VSF WITH BLUESYNC

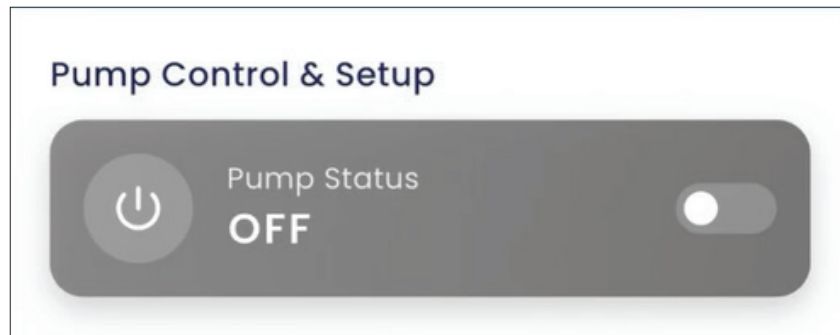


Fig.3.1

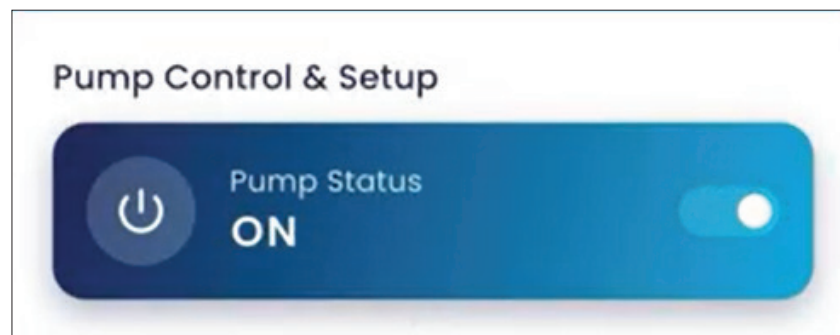


Fig.3.2

1. Start the pump by toggling the button in the upper-right of the pump control page so that the Pump Status displays '**ON**', as shown in Fig.3.2.
2. If operating in Constant Flow mode, H2flow recommends setting up a dirty filter reminder. More information on this can be found in Section 6 of this instruction manual.

4.9 HOW TO EXIT REMOTE MODE (RETURN TO LOCAL/UI CONTROL)

If you need to regain full control via the onboard controls, follow these steps:

1. Press and hold **Speed 2** and **Speed 3** buttons simultaneously for 5 seconds.
NOTE: If no further button is pressed within ~10 seconds, the unit may revert to Remote Mode.
2. Press '**MENU/ENTER**' to save and return to Navigation Mode.
3. The pump stops (if running), enters Standby Mode, and no longer responds to external commands until Remote Mode is re-enabled.

5. OPERATING MODES

5.1 AVAILABLE OPERATING MODES

1. Nautis VSF has four available operating modes to choose from:

- Constant Speed
- Constant Flow
- Vacuum/Backwash
- Turnover Mode (recommended)

To select and configure the desired operating mode, select '**Pump Control**' on the pump device page. After selecting the mode of operation, click 'Save' at the bottom of the page.

5.2 DETAILS OF THE OPERATING MODES

- **Constant Speed mode:** Constant Speed mode operates the pump motor at the user specified revolutions per minute.
- **Constant Flow mode:** In Constant Flow mode, the pump continually monitors the flow rate and adjusts the speed of the pump accordingly, in order to maintain the user defined flow rate.
- **Vacuum/Backwash mode:** Vacuum/Backwash mode is a simple way to operate the pump at a high speed during vacuuming or backwashing of the filter system.
- **Turnover mode:** Turnover mode is the preferred day-to-day operating mode for the Nautis VSF pump. Enter the total number of hours it will take to circulate the total volume of the pool. For residential/private pools, H2flow recommends an 8-12 hour turnover rate. This means that the entire volume of water of the pool is being circulated through the plumbing system every 8-12 hours. For commercial/public pools, H2flow recommends that the pool be operated according to local code.

6. SETTING UP A DIRTY FILTER REMINDER

6.1 STEP-BY-STEP INSTRUCTIONS ON SETTING UP A DIRTY FILTER REMINDER

Note: This feature is only available when operating in Constant Flow mode or Turnover mode.

1. Open the BlueSync App and Select the Pump icon

- From the main Live Status screen, tap '**Manage/Control Pump**' as shown in Fig.3.3.

2. Access Pump Setup

- On the **Pump Control & Setup** screen, make sure the pump is '**ON**'. Refer to Fig.3.2 in the previous section for a visual reference of this.
- Select the desired operating mode (this feature is only available for Constant Flow mode and Turnover mode).
- Ensure the pump has been running and has settled into its normal speed after a recent filter cleaning.

Instructions continued on next page.

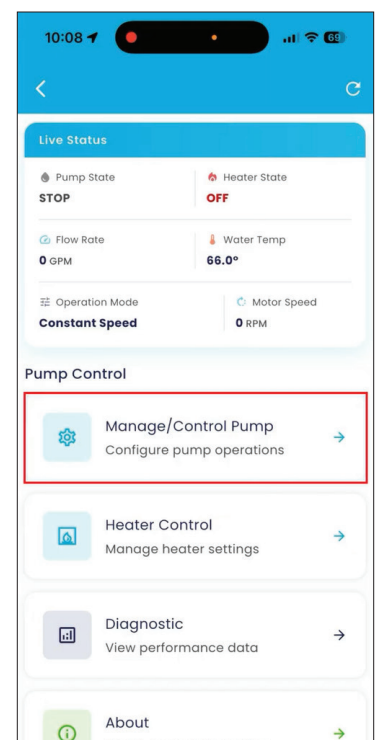


Fig.3.3

3. Set the Clean Filter Speed (Normal RPM)

- Scroll to the section '**Setup normal pump speed with clean filter, RPM**'
- Tap the '**Read**' button
- The app will read the current motor speed (example: **858 RPM**).
- Tap the '**Save**' button next to it.
- You should see a green '**Success – Device configuration change successfully**' message.

4. Confirm the Dirty Filter Limit

- Below the clean filter setting, you will now see: '**Max pump speed with dirty filter [e.g., 1030] RPM**'
- This is the new upper limit the pump will use when the filter gets dirty.

5. Save the Overall Settings

- Tap the large blue '**Save**' button at the bottom of screen.

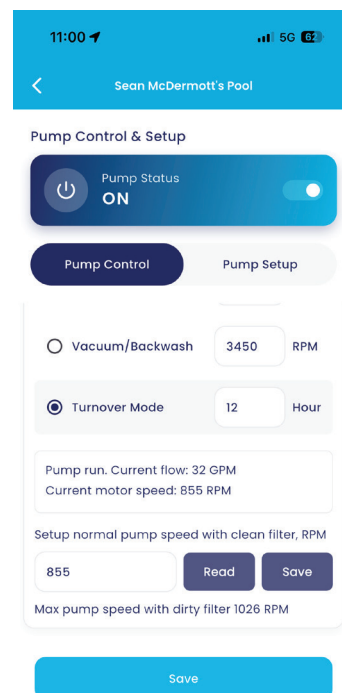


Fig.3.4

How the Reminder Works

- With a clean filter, the pump runs at your saved normal speed (e.g., ~858 RPM).
- As the filter gets dirty, the pump will automatically increase speed to maintain the same flow rate.
- Once it hits the max dirty-filter speed (e.g., 1030 RPM), the system will trigger an alert so you know it's time to clean the filter.
- This prevents over-pressurizing the system while giving you a clean maintenance signal.

Tips

- Always set this **after** cleaning the filter and letting the pump stabilize in Turnover or Constant Flow mode.
- You can re-set the clean filter RPM anytime after future cleanings.
- The 'dirty filter' max speed is calculated automatically based on the clean filter reading you saved.

7. FLOOR CLEANING SCHEDULER

WHERE TO FIND IT

1. Open the BlueSync app and go to **'Pump Control & Setup'**.
2. Tap the **'Pump Setup'** tab (next to 'Pump Control').
3. Scroll to the **'Floor Cleaning Scheduler'** section.

HOW TO CONFIGURE A FLOOR CLEANING SCHEDULE

1. Set the Start Time

- Under "Set the start time for floor cleaning", choose **AM** or **PM**.
- Tap the desired hour (e.g., **08** for 8:00).
- The selected time will highlight in blue.

2. Set Floor Cleaning Duration

- Tap the **'Floor cleaning durement, h:'** field (default is 1.00).
- Use the on-screen numeric keypad to enter the number of hours the cleaning cycle should run.
- Tap **'Done'** when finished.

3. Set Floor Cleaning Flow Rate

- Tap the **'Floor cleaning flow, GPM:'** field (default is 55.00).
- Use the keypad to enter the desired gallons per minute.
- Tap **'Done'**.

4. Save the Schedule

- Tap the large blue **'Save'** button at the bottom.
- The schedule will be saved to the device and will repeat **every day** at the specified time.

Tips

- Use this scheduler to synchronize the correct pump flow rate with your in-floor cleaning system.
- It can also be used to create periods of higher or lower flow rates at different times of the day.
- The pump **does need to be running** for the scheduled cleaning to occur.

Important Note

If you see a red **Error** message saying, "The operation failed because the requested device isn't online", make sure your pool equipment is powered on and connected to the network before saving.

Quick References

- **Default values:** 1.00 hour @ 55.00 GPM
- **Schedule repeats:** Daily
- **Location:** Pump Setup → Floor Cleaning Scheduler

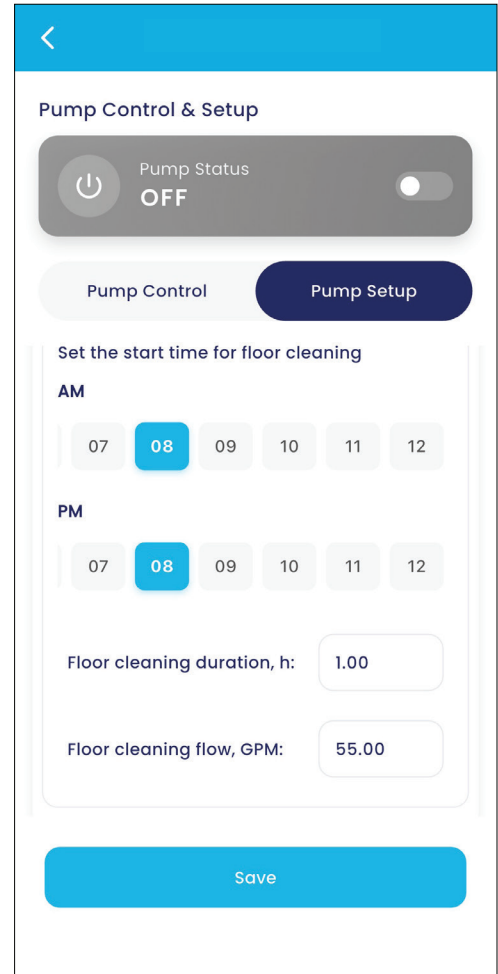


Fig.3.5

8. FLOW METER OPERATION

8.1 DESCRIPTION OF THE OPERATING PRINCIPLE

To measure electric current 4–20mA, an INA193 microcircuit from Texas Instruments is installed at the converter input. The INA193 is a current shunt monitor with a voltage output that can sense drops across shunts at common-mode voltages from –16V to +80V, independent of the supply voltage. They have output voltage scales 20 V/V. The 500-kHz bandwidth simplifies use in current control loops.

The INA193 devices operate from a single +2.7V to +18V supply, drawing a maximum of 900 μ A of supply current. They are specified over the extended operating temperature range –40°F to 257°F (–40°C to +125°C), and are offered in a space-saving SOT-23 package.

The power supply for the measuring sensor circuit at the converter input is provided by an isolated power source DC-DC 12V/12V, 1W (ISO). The terminals of this isolated power supply are labeled **POWER ISO**.

To convert the voltage from INA193 to digital form, an ESP32 ADC input is used. Here, using the internal program, information is generated according to tables depending on the selected type of input sensor. The type of sensor at the converter input is set by adjusting the DIP switch settings.

No.	MODEL INPUT SENSOR	DIP SWITCH POSITION			
		1	2	3	4
1	Model: FV-2-N	ON			
2	Model: FV-2	ON			
3	Model: FV-C-S		ON		
4	Model: FV-25	ON	ON		
5	Model: FV-C-HF-S			ON	
6	Model: FV-3	ON		ON	
7	Model: FV-3-40	ON			ON
8	Model: FV-15		ON		ON
9	Model: FV-15-U	ON	ON		ON
10	Model: FV-2-U			ON	ON

NOTE: 'No.1' (Model: FV-2-N) in the table above, is the standard model supplied with the Nautis VSF pump.

8.2 MODBUS PARAMETERS

Modbus Baud Rate - 9600

Parity - None

Stop Bit - 1

Node/Address - 240

8.3 CONNECTION DIAGRAM

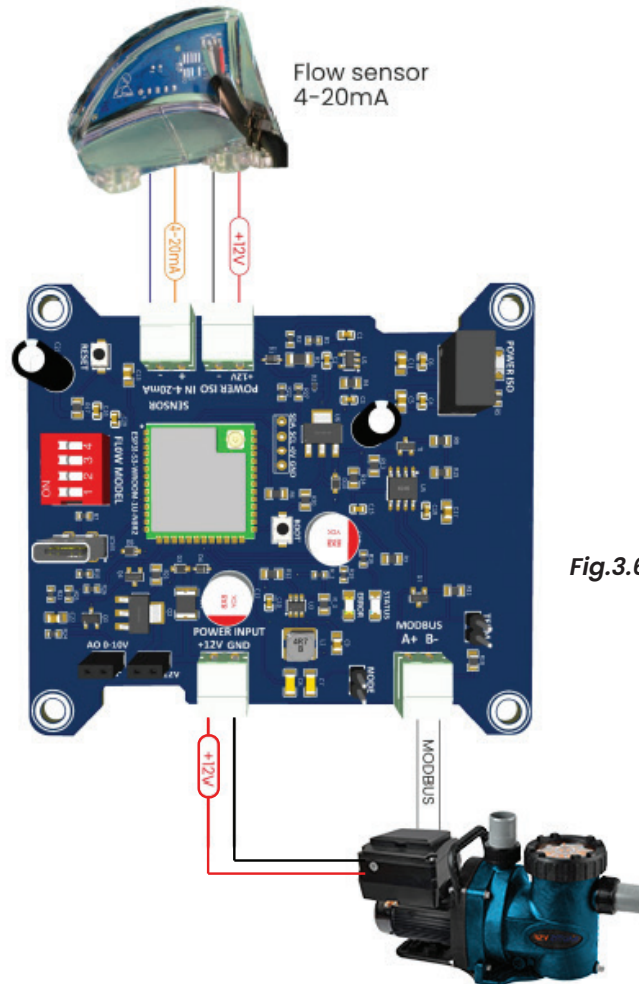


Fig.3.6

9. TECHNICAL SPECIFICATIONS

Motor Electrical Requirements

AC Input	Total Horsepower	Full Load Current
115VAC	1.65	13.6
230VAC		6.8 Amps
230VAC	2.70	11.1
230VAC	3.45	14

FV-2-N (FlowVis)

Pipe Size	2-inch Schedule 40 PVC
Flow Range	10–110 GPM
Pressure Rating	50 psi maximum working pressure
Temperature Range	32°F (0°C) to 140°F (60°C)
Check Valve Functionality	Integrated in 2-inch models
Installation Flexibility	Any orientation (horizontal, vertical, upside-down). Minimal or zero straight pipe required before/after (per NSF certification configs); can be installed near elbows, tees, etc.
Scale	Clear lid with GPM; includes velocity scale in feet per second (FPS)
Materials (typical for FV-2 series)	• Valve Body: CPVC • Lid: Polycarbonate • Indicator/Flapper: ABS or similar • Seals/O-rings: Viton/Silicone • Springs/Pins: Hastelloy C-276 (corrosion-resistant)
Head Loss	Low; ~0.77 psi at 20 GPM, up to ~2.37 psi at higher flows. Exact values vary by flow rate – see manufacturer head loss data.
Approvals	NSF 50 certified (many models, including for pool/spa use). Indoor/outdoor rated.
Warranty	3-year warranty; 15-year design life
Other Features	No calibration needed; serviceable with repair kits (flapper, spring, o-ring, etc.); digital upgrade available (FlowVis Digital for remote display, alarms, etc.)

FV-D-SO (FlowVis Digital Sensor)

Housing Material	Polycarbonate (clear)
Cable Length	26.25 ft. (8m) standard
Output	Non-linear, Non-standard, 4–20mA
Output Format	12VDC sourced from connected device (e.g., FV-D display, Signal Converter, Nautis Pump, or Nautis MCU)
Maximum Load	250 Ohms
Installation	Mounts on the side of any compatible FlowVis lid using extended screws.

Nautis MCU (Motor Control Unit)

Power	12VDC; interfaces with variable speed pump motors (Modbus RS485); exact voltage/current details align with compatible pumps (e.g., 115/230VAC systems).
Communication	Bluetooth, WiFi, 4–20mA, and RS485 Modbus
Environmental	Designed for pool equipment room use (indoor/outdoor considerations per installation).

10. EQUIPMENT OPERATION, SERVICE, AND MAINTENANCE

10.1 START UP GUIDE

If this is a new pool installation, make sure all piping is clear of construction debris and has been properly pressure tested. The filter should be checked for proper installation, verifying that all connections and clamps are secure according to the manufacturer's recommendations.

WARNING: To avoid risk of property damage, severe personal injury or death, verify that all power is turned off before starting this procedure.

1. Release all pressure from the system and open the filter pressure release (air bleed) valve.
2. Depending on the location of the pump, do one of the following:
 - If the pump is located below the water level of the pool, open the filter valve to prime the pump with water.
 - If the pump is located above the water level of the pool, remove the lid and fill the basket with water before starting the pump.
3. Prior to replacing the lid, check for debris around the lid o-ring seat. Debris around the lid o-ring seat will make it difficult to prime the pump.
4. Hand-tighten the lid to make an air tight seal. **DO NOT** use any tools to tighten the lid: hand-tighten only. Make sure all valves are open and the unions are tight.
5. Once all the air has left the filter, close the pressure release valve.
6. Switch on power to the pump-motor to start.
7. Allow the pump to run for up to 10 minutes to allow air trapped in the suction line to be purged.
8. If the pump does not prime and all the instructions to this point have been followed, check for a suction leak. If there is a leak repeat Steps 2 through 6.

NOTE: It is normal for a few drops of water to escape from the mechanical seal from time to time. This is especially true during the break-in period.

9. For technical support, call 888-635-0296. If calling from outside the U.S., dial 419-841-7774.

10.2 ROUTINE MAINTENANCE

This pump requires little or no service other than reasonable care and periodic cleaning of the strainer basket. **DO NOT** strike basket to clean. When cleaning the basket inspect the lid o-ring for damage and replace if necessary.

1. Inspect the pump basket for debris by looking through the clear pump lid.
2. Turn OFF the power to the pump. If the pump is located

below the water level, close isolation valves on the suction and discharge sides of the pump to prevent back flow of water.

3. Remove any debris, because as the debris accumulates, it will begin to block the flow of water through the pump. Keep the basket clean and clear to improve the performance of the pump.
4. Turn the lid ring counter-clockwise to remove. Carefully remove the lid and lock ring.
5. Remove the basket and properly dispose of the debris into the trash and rinse out the basket. Check basket for cracks, if crack is found replace basket.
6. Replace basket back into the pump, aligning the basket properly with the suction pipe. Then fill with water up to the suction pipe. Clean the clear lid, o-ring, and sealing surface of the pump of any debris.
7. Replace lid with lid ring. Hand-tighten the lid to make an air-tight seal. **DO NOT** use any tools to tighten the lid.
8. Verify that all valves have been returned to the proper position for normal operation. Turn ON the power to the pump.

NOTE It is normal for a few drops of water to escape from the mechanical seal from time to time. This is especially true during the break-in period.

The mechanical seal may become worn or loose over the course of time, depending on the running time and water quality. If water continually leaks out, a new mechanical seal should be fitted. After long periods of no operation (seasonal storage, etc.) the pump must be checked for ease of rotation while it is switched off. Refer to Section 2.4 Removal and Replacement of the Impeller and/or Mechanical Seal.

WARNING: Before servicing the pump, switch off the circuit breakers at the power source. Severe personal injury or death may occur if the pump starts while your hand is inside the pump.

10.3 WINTERIZING

CAUTION: The pump must be protected when freezing temperatures are expected. Allowing the pump to freeze will cause severe damage and void the warranty.

There are two options when winterizing the pump

Option 1:

1. Drain all the water from the pump, system equipment, and piping.
2. Remove drain plugs. **DO NOT** replace plugs. Store the plugs in the empty strainer basket for winter.
3. Keep the motor covered and dry.

Option 2:

1. Drain all the water from the pump, system equipment, and plumbing.
2. Remove the pump and motor from the plumbing and store indoors in a warm, dry location.

NOTE: When the winter season is over the pump will need to be checked and primed prior to start.

CAUTION: DO NOT run the pump dry. If the pump is run dry, the mechanical seal will be damaged and the pump will start to leak at the seal. If this occurs, the mechanical seal will need to be replaced. ALWAYS maintain the proper water level in your pool. Continued operation in this manner could cause a loss of pressure, resulting in damage to the pump casing, impeller, and mechanical seal.

10.4 REMOVAL AND REPLACEMENT OF THE IMPELLER AND/OR MECHANICAL SEAL

WARNING: Before servicing the pump, switch off the circuit breakers at the power source. Severe personal injury or death may occur if the pump starts while your hand is inside the pump.

1. Turn OFF the pump. Switch off the circuit breaker to the pump motor. If you are not replacing the motor, do not disconnect the electrical wiring.
2. Turn OFF any valves to prevent pool water from reaching the pump. Drain water from the pump by loosening the unions or removing the drain plug.
3. Remove the four (4) thru-bolts and nuts connecting the pump casing/strainer tank to the pump flange.
4. Pull the motor and flange/seal housing out from the pump casing/strainer tank. Remove the pump casing o-ring. The impeller is connected to the motor shaft.
5. Remove the diffuser by gently pulling the diffuser (the diffuser is the cover over the impeller) horizontally until the pins clear the seal housing.
6. Remove the cap from the rear of the motor. Place a flat head screwdriver through into the screwdriver slot on the motor shaft.
7. While holding the motor shaft, turn the impeller counter-clockwise to remove from the shaft.
8. Gently pull the mechanical seal from the impeller shaft, noting the way it was originally installed.

CAUTION: DO NOT damage the ceramic or carbon sealing surfaces of the seal. If the sealing surfaces are damaged, leaks will occur.

9. Using water with a small amount of dish soap, brush the impeller shaft for easy of assembly.
10. With the carbon side up, push the mechanical onto the impeller shaft and wipe carbon surface with a clean cloth.

CAUTION: DO NOT use grease or lube to install seal. It will damage the seal and cause failure.

11. The ceramic side of the seal can be pushed out from

the rear of the seal housing. Please note its position before removing.

12. Using water only, wet the ceramic side of the seal and using your thumbs push into the seal housing. Clean surface with a clean cloth.
13. Wipe the motor shaft of all debris and apply a single drop of LOCTITE® to the motor shaft threads.
14. Install impeller by spinning it clockwise onto the motor shaft. Continue to turn clockwise until the carbon and ceramic sides make contact and the seal spring slightly compresses.
15. Install the diffuser by aligning the diffuser pins with the holes in the seal housing and pressing together.
16. Make sure the diffuser and casing o-rings are in place and free of debris. Replace the casing o-ring. Slide the motor flange/seal housing into the casing.
17. Install the four casing thru-bolts and nuts using a cross pattern from side-to-side and top-to-bottom.
CAUTION: DO NOT over-tighten.

10.5 MOTOR REPLACEMENT

WARNING: The pump must serviced by a professional service technician qualified in pool/spa installation. The following procedures must be followed exactly. Improper installation and/or operation can create dangerous electrical hazards, which can cause high voltage to run through the electrical system. This can cause property damage, serious personal injury, and/or death. Improper installation and/or operation will void the warranty.

1. Disconnect the wiring from the side of the motor. (Refer to the Electrical Installation)
2. Remove the four (4) thru-bolts and nuts holding the flange/seal housing to the pump casing/strainer tank.
3. Slide the motor and flange/seal housing away from the casing/stainer tank.
4. Remove the diffuser by gently pulling the diffuser horizontally until the pins are clear from the flange/seal housing.
5. Remove the rear motor cap and place a flat heat screwdriver into the screwdriver slot on the rear of the motor shaft.
6. While holding the motor shaft, turn the impeller counter-clockwise.
7. Pull the seal housing with away from the pump flange.
8. Remove the four flange bolts (7/32" allen head). Pull the flange away from the front of the motor.
9. Remove the slinger from the old motor and install on to the new motor.
10. Clean the surfaces of the seal. Refer to Section 2/4 Removal and Replacement of the Impeller and/or Mechanical Seal.

11. TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSES	SOLUTION
1. Pump will not prime.	- Suction air leak. - No water in pump. - Closed valves or blocked lines. - Low voltage to motor.	Make sure the see-through lid and o-ring are clean and properly positioned. Tighten see-through lid (hand tight). Tighten all pipes and fittings on suction side of the pump. Be sure water in the pool is high enough to flow through skimmer. Make sure strainer tank is full of water. Open all valves in system. Clean skimmer and strainer tank. Open pump and check for clogging of impeller. Check voltage at motor. If low, pump will not come up to speed.
2. Motor does not turn.	- No power to motor. - Pump jammed.	Check that all power switches are on. Be sure fuse or circuit breaker is properly set. Time set properly? Check motor wiring at terminals. With power off, turn shaft. It should spin freely. If not, disassemble and repair.
3. Low flow.	- Dirty filter. - No skimmer basket. - Closed valves or blocked lines. - Suction air leak.	Back wash filter when filter pressure is high, or clean cartridges. Clean skimmer and pump strainer basket. See problem 1. See problem 1.
4. Noisy operation of motor.	Bad bearings.	Noise when shaft is turned up by hand. Motor is hot in bearing area when running. Replace bearing.
5. Motor runs hot.	These motors will run hot to the touch, however, this is normal. They are designed that way. Thermal overload protector will function to turn them off if there is an overload or high temperature problem. Excessive heat can be caused by: - Low voltage. - Installed in direct sun. - Poor ventilation.	Increase size of electrical wire. Be sure motor is operating on correct voltage. Shield motor from sun's rays. Do not tighten cover or enclose the motor.
6. Stuck in remote mode / frozen screen	Frozen screen	Power cycle the pump by turning off the breaker. Wait 2 minutes before restoring the power. Try the exit sequence again. The problem persists, it may indicate an issue with the power board.
7. No response	- Remote control disabled - Wiring connections	Verify wiring is correct, Node ID, and that Remote Control is enabled.
8. Display Issues	Keypad lockout may be enabled	Ensure the keypad is unlocked (if lockout feature is active).

PROBLEM	POSSIBLE CAUSES	SOLUTION
9. Noisy operation of pump.	- Air leak in suction line. Bubbles in water returning to pool at inlet. - Restricted suction line due to blockage or under size pipe. Indicated by high vacuum reading at pump suction. - Foreign matter (gravel, metal, etc.) in pump impeller. - Cavitation.	Repair leak. Check suction pipe, see-through lid in place? O-ring clean? Remove blockage or increase suction pipe size. Make sure strainer tank is clean. Are all suction valves fully open? Disassemble pump and remove foreign matter from impeller. Improve suction conditions. (Reduce suction lift, reduce number of fittings, increase pipe size). Increase discharge pressure and reduce flow by throttling discharge valve.
10. Motor overload protection "kicks out".	- Motor is not connected properly. - Low voltage due to under size wire or low incoming voltage. - Wrong size heaters in protective device. - Overload due to binding in pump or wrong size impeller.	Check wiring diagram on motor. Check with volt meter. Increase size of supply wire. Reports low supply voltage to power company. Voltage at motor must be within 10% of motor nameplate voltage. Heaters should be one size larger than full load amps shown on motor nameplate. Indicated by high amperage readings on motor, binding shaft. Disassemble unit and correct.

12. SERVICING INFORMATION

When calling the manufacturer regarding a question or problem with your pump, please have the serial number available. The serial number is located on the pump either on the flange or motor labels.

Replacement parts may be available from your installer. Call, e-mail, or write:

H2flow Controls, Inc.
7629 New West Road,
Toledo, OH 43617

Phone: 888-635-0296
sales@h2flow.net

13. PRODUCT REGISTRATION

Thank you for purchasing an H2flow Controls product. Please take a few moments to register your product online. Your registration helps us keep you up-to-date on product information and offers.

Before you register:

What do I need to get started?

- The Serial Number and Model Name
- A valid email address. We will use this to communicate with you regarding any warranty or

registration related information.

- A copy of your sales receipt and/or qualified installer's invoice.

To register your H2flow Controls equipment online, please visit **h2flow.net/register-a-product** or scan the QR code below:



14. REPLACEMENT PARTS AND EXPLODED VIEW

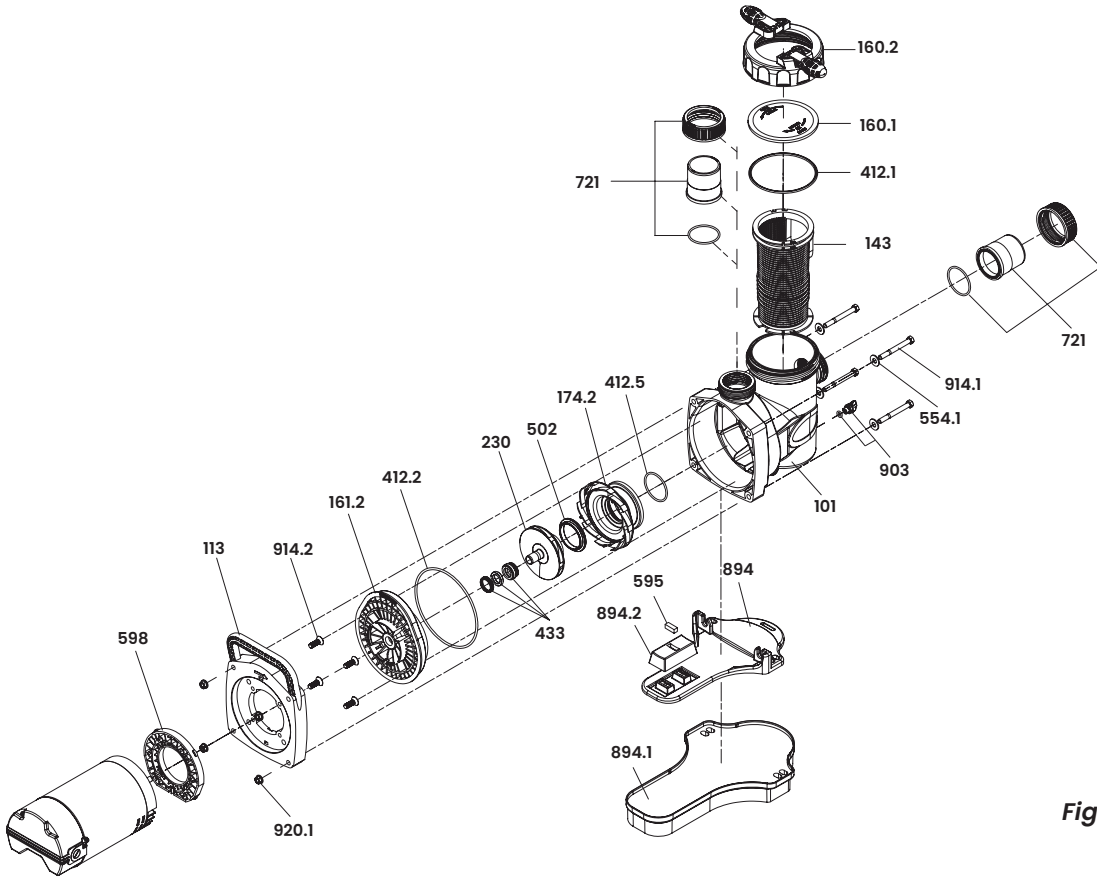


Fig.3.7

DRAWING #	QTY REQUIRED	DESCRIPTION
160.1	1	Lid - Clear
Not Shown	1	Lid - Clear w/ LED Light
160.2	1	Lid - Lock Ring w/ Handles
412.1	1	O-ring - Lid 137 x 5mm
143	1	Basket
101	1	Casing (1.5")
101	1	Casing (2.0")
903	1	Drain Plug - Winged w/ O-ring
914.1	4	Screw - 3/8-16 x 3-1/2" Hex Cap SS
554.1	4	Washer - Flat 3/8" SS
920.1	4	Nut - 3/8-16 Brass
595	1	Rubber Buffer - 10 x 10 x 27mm
894.1	1	Riser for WF
894.2	1	Motor Support
894	1	Base Plate
412.5	1	O-ring - Diffuser 90 x 5mm
174.2	1	Diffuser (-I, -II)

DRAWING #	QTY REQUIRED	DESCRIPTION
174.2	1	Diffuser (-III, -IV, -V)
174.2	1	Diffuser (-VI)
502	1	Wear Ring (-III, -IV, -V)
230	1	Impeller (-II)
230	1	Impeller (-III)
230	1	Impeller (-IV)
230	1	Impeller (-V)
230	1	Impeller (-VI)
433	1	Mechanical Seal (20mm) - Carbon/ Ceramic
412.2	1	O-ring - Casing 190 x 5mm
161.2	1	Seal Housing
914.2	4	Screw - 3/8-16 x 2" (Allen Head)
113	1	Flange
598	1	Motor Flange
721	1	1.5" Union Package - Suction/Discharge
721	1	2.0" Union Package - Suction/Discharge

15. LIMITED WARRANTY

H2flow Controls, Inc. grants solely to the original consumer purchaser ("Buyer") of the pump and motor the following personal, non-transferable and limited warranty on the following terms and conditions (the "Limited Warranty"): the pump and motor is warranted to be free of material defects in materials or workmanship under normal use for a period of two (2) years beginning on the date of the Buyer's purchase of the pump and motor. Notwithstanding any provisions herein to the contrary, the warranties and obligations hereunder shall not in any event extend for more than three (3) years beyond the date of shipment of the pump and motor from the factory (the "Limited Warranty Period"). The Limited Warranty is subject to each of the following additional terms and conditions:

- 1. IN THE EVENT OF ANY BREACH OF THE LIMITED WARRANTY, H2FLOW CONTROLS, INC.'S ENTIRE OBLIGATION AND LIABILITY TO BUYER, AND BUYER'S SOLE AND EXCLUSIVE REMEDY SHALL BE AS FOLLOWS:** H2flow Controls, Inc. will, at its option, either repair or replace the pump and motor or refund to Buyer the purchase price actually paid by Buyer for the pump and motor subject to the Limited Warranty. H2flow Controls, Inc. shall have no obligations under the Limited Warranty unless Buyer delivers timely written notice to H2flow Controls, Inc. of the Limited Warranty claim within the Limited Warranty Period and returns the pump and motor to H2flow Controls, Inc. if requested. To the fullest extent permitted by law, H2flow Controls, Inc. expressly disclaims any liability for, and the Limited Warranty does not include or cover, any labor, costs or other expenses in connection with the removal, transportation, shipment, insurance, replacement, repair, or installation of repaired or replaced parts or for any other costs or expenses or damages to property or things including, but not limited to, those arising in connection with the use of, or inability to use, the pump and motor.
2. To the fullest extent permitted by law, the Limited Warranty will be void and of no force or effect and H2flow Controls, Inc. will have no liability, responsibilities or obligations to Buyer or with respect to the pump and motor in the event of the occurrence of any one or more of the following:
 - a) Any damage to the pump and motor caused by Buyer, any third party, ground movement, other natural forces, acts of God or any other sources or causes not arising from a breach of the Limited Warranty, excluding ordinary wear and tear;
 - b) Any replacement, modification, alteration or repair of any parts or components of the pump and motor by anyone other than H2flow Controls, Inc.;
 - c) Any abuse, misuse, accident, tampering with, improper installation or modification of the pump and motor or any other actions, inactions or failures to act that violate the terms and conditions of this Limited Warranty;
 - d) Buyer's failure or inability to present an invoice, bill, receipt or other documentation clearly evidencing that the pump and motor was installed and maintained in strict compliance with this Limited Warranty and that the claim was timely submitted within the Limited Warranty Period; and/or
 - e) Buyer's failure to comply with the conditions and contingencies set forth in paragraph 3 below.
3. The Limited Warranty is expressly conditioned and contingent upon Buyer's strict compliance with each of the following:
 - a) Installation of the pump and motor by an experienced and qualified pool industry professional and a licensed electrician who is licensed within the jurisdiction in which the pump and motor is installed and will be used; and;
 - b) Buyer's operation and maintenance of the pump and motor in strict accordance with H2flow Controls, Inc.'s printed operator/maintenance manuals delivered with the pump and motor.
- 4. DISCLAIMER: THE LIMITED WARRANTY IS THE ONLY WARRANTY MADE AND IS IN LIEU OF ALL OTHER WARRANTIES, AND ANY AND ALL IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, THE IMPLIED WARRANTY AGAINST INFRINGEMENT, AND THE IMPLIED WARRANTY OR CONDITION OF FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY LIMITED IN THEIR SCOPE AND DURATION TO THE TWO YEAR TERM OF THE LIMITED WARRANTY SET FORTH HEREIN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO THE BUYER.**

5. TO THE FULLEST EXTENT PERMITTED BY LAW, IN NO EVENT SHALL H2FLOW CONTROLS, INC. OR ITS OFFICERS, DIRECTORS, EMPLOYEES, SHAREHOLDERS, AGENTS, OR REPRESENTATIVES BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OR LOSS, INCLUDING TIME, MONEY, GOODWILL, AND LOST PROFITS IN ANY WAY WHICH MAY ARISE HEREUNDER OR FROM THE USE OF OR INABILITY TO USE THE PUMP AND MOTOR OR THE PERFORMANCE OR NONPERFORMANCE OF ANY OBLIGATION UNDER THIS LIMITED WARRANTY. THIS PARAGRAPH, THE WARRANTY DISCLAIMERS IN PARAGRAPH 4 ABOVE, AND THE SOLE AND EXCLUSIVE REMEDY SET FORTH IN PARAGRAPH 1 ABOVE SHALL APPLY EVEN IF H2FLOW CONTROLS, INC. HAS BEEN NOTIFIED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH DAMAGES OCCURRING, WHETHER SUCH LIABILITY IS BASED ON CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, PRODUCTS LIABILITY OR OTHERWISE, AND EVEN IF ANY REMEDY STATED HEREIN FAILS OF ITS ESSENTIAL PURPOSE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OR LOSS, SO THE ABOVE EXCLUSIONS AND LIMITATIONS MAY NOT APPLY.
6. This limited Warranty gives the Buyer specific legal rights, and the Buyer may also have other rights, which vary from state-to-state.
7. A return merchandise authorization ("RMA") must be obtained from H2flow Controls, Inc. before returning any product. Products returned **without** an RMA will be refused and returned, unopened, to the Buyer. All returned products are to be sent freight prepaid and insured for Buyer's protection to the manufacturer at 7629 New West Road, Toledo, Ohio 43617. Under no condition will products be accepted after the expiration of the Limited Warranty Period. H2flow Controls, Inc. shall not bear any costs or risks incurred by Buyer in shipping a defective pump and motor to H2flow Controls, Inc. or in shipping a repaired or replaced pump and motor to Buyer.

TECHNICAL SUPPORT:

Address: H2flow Controls, Inc.
7629 New West Road
Toledo, OH 43617
USA

Hours: (Monday - Friday) 8:00 am - 5:00 pm EST

Toll Free: 888-635-0296

Email: support@h2flow.net

Website: www.h2flow.net

Date of Installation:

Installed by:

Serial Number:

For Service, Call:

16. NOTES



H2flow Controls, Inc., 7629 New West Rd., Toledo, OH 43617 U.S.A.
Tel: 888-635-0296 (Toll Free) OR (+1) 419-841-7774 (International)
For international sales and service, please visit our website: www.h2flow.net