VAKI Fish Pumps

MSD Animal Health Intelligence

User Manual

Contents

Warranty Terms of VAKI Fish Pump

VAKI Aquaculture Systems Ltd. Warranty covers any manufacturing defects occurring within one (1) year after delivery by VAKI or its reseller, provided that the equipment is installed, used and maintained in accordance with instructions for assembly and use. VAKI undertakes to repair such defects caused by construction or material faults arising in the fabrication of the equipment. Such defects will be repaired or replaced. The equipment must be returned to the manufacturer or authorized representative for the repair. VAKI offers warranty for any original parts that are used for repair for a period of one (1) year from date of delivery.

VAKI is not responsible for:

- Incorrect installation use, or improper care and maintenance.
- Defects caused by parts, materials , components or equipment not supplied by VAKI and are obtained , installed or used by the customer without prior written approval fromVAKI.
- Defects caused by modifications to the equipment made by the customer without the written approval from VAKI.
- Improper or unauthorized repairs made by the customer.
- Normal wear and tear on equipment.
- Improper connection of electric / hydraulic equipment.
- Defect caused by power surges.
- Damage to electrical cables.
- Any economic losses caused by the equipment out of service.

If errors or defects occur on the equipment, the customer must report as soon as possible and without any unreasonable delay to VAKI or the representative. Such a report must be submitted no later than two (2) weeks after the warranty period, one (1) year after delivery. If the customer does not inform VAKI or authorized representative within the time limits stated above, the customer will not be entitled to any warranty repairs or replacements for errors or defects. Repairs to equipment shall be made in accordance with the conditions stated above.

Environment

The VAKI Fish pump is designed to work in all weathers, except for temperatures below 0 ° C (Celsius). Use in cold weather can cause damage to hoses and priming systems. VAKI pump is built on a chassis with 2 large rubber wheels that can carry up to 400 kg per wheel, this allows the pump to easily move over rough and uneven surfaces. The pump is designed to move fish up to 400 g (salmonids). It is not suitable to pump pebbles , debris or sand.

Electrical needs

An electrical expert must ensure that the appropriate power socket is correctly connected to the pump power cable.

VAKI Fish Pumps

VAKI Fish Pumps are capable of reducing operating costs and dramatically improving efficiency. For many years, Aquaculturists around the world have utilized the robust, proven performance of VAKI Fish Pumps to move salmon, trout, char, tilapia, hybrid striped bass, mackerel, anchovy, yellow-tail, shrimp, and many other species.

Vaki now has three pump sizes, 6", 8" and 10". There are two versions of the 6" and the 8", what we call a SmartPump and a Light pump. The SmartPump is capable of connecting to SmartFlow and the Light pump is just a standalone pump.

VAKIs SmartPumps come with a PLC controller installed. The PLC displays the speed of the pump in % in big bright letters visible from a distance, it allows for semi automatic priming, records the runtime of the primary motor and the main motor which allows for preemptive maintenance. The PLC also handles the connection and communication to

SmartFlow. The pumps come with an industrial antenna, which is pre configured to connect to the closest counter.

Operating the pump

All of the pumps are similar. They all have two Variable-Frequency Drivers (VFD), one for the main motor connected to the impeller and the other one for the primer pump. The primer pump is a vacuum pump, that creates vacuum in the suction end which fills the suction side and pump with water. This is referred to as priming. When the pump is full of water then the main impeller can be turned on.

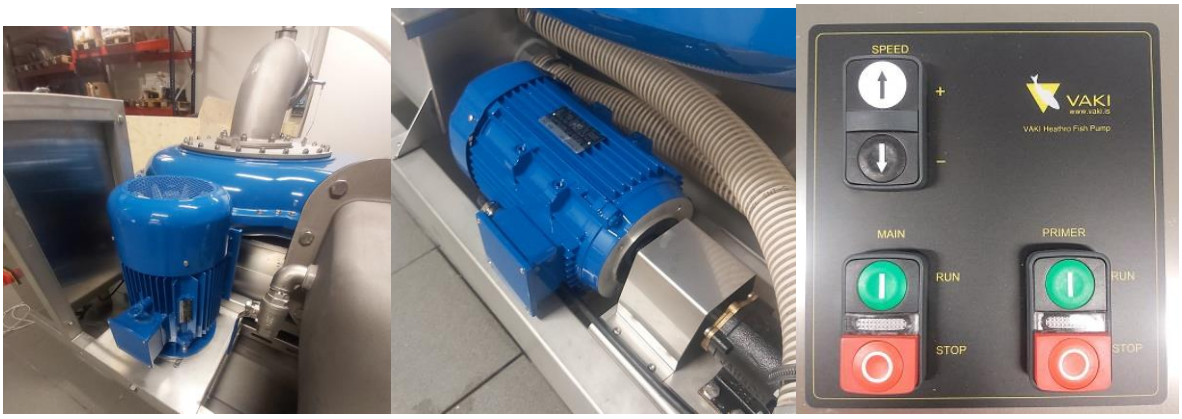


Image 1: Main motor and primer motor.

The control cabinets for the pumps are fairly simple. Each has 6 buttons mounted on it, for turning on and off the primer pump, for turning on and off the main pump and for decreasing and increasing the speed of the main pump. The primer pump has a fixed speed.

Priming

The Priming tank must be filled with water before using the pump. The water in this tank is used to create suction in the pumping system. Only after running the priming pump and when water starts flowing out the priming system outlet can the main motor/pump be started. There are two valves to empty the priming tank and the other to empty the main pump housing. In freezing temperatures the pump may be damaged if not drained fully after use.

Priming pump

The priming pump is connected to the priming motor by a shaft. On this shaft there is a coupling that is easy to replace if necessary (see photo below). The motor is marked with an arrow showing which direction it should turn. It is important to empty the priming pump of water if there is a danger of frost.

Troubleshooting priming

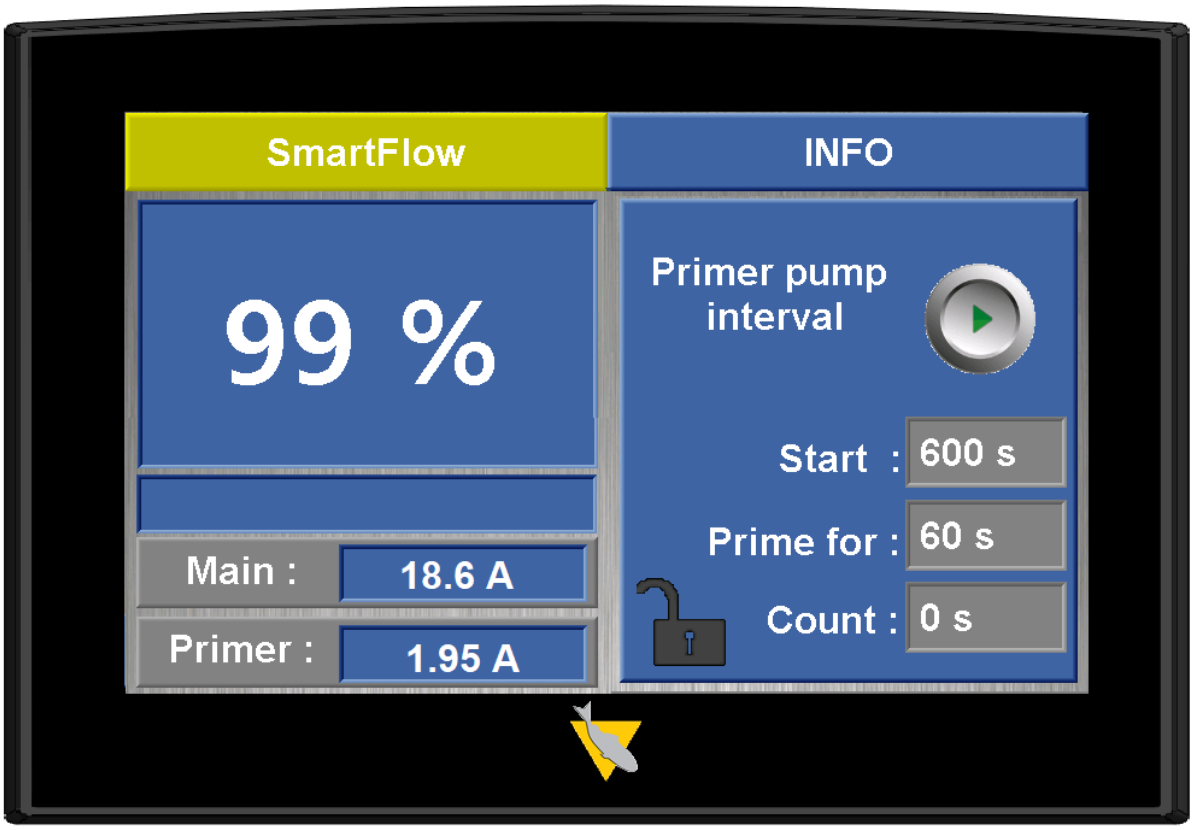
If the pump is having difficulties primping then there is air coming into the system. Check all camlocks and valves and make sure that everything is tight. Sometimes the one way valve is not completely closed. Remove the hose from the outlet and push the one way valve back.

Parts Pack

Many customers choose and buy a spare part package consisting of key parts that can be easily replaced.

1. Coupler element.
2. Cover of the coupler element.
3. Impeller for the Jabsco pump priming.
4. Adapter ring for the motor.
5. Jabsco shaft seal.
6. EPDM rubber check valve gasket and the aluminum plate.
7. Drive belt (2 pcs.).
8. Jabsco gasket.

Main screen



The main screen shows the speed of the pump in %, 100% being the highest speed. The current of the main motor and the primer motor are also shown in Amps. The 6” pump only shows the Primer current. The SmartFlow button leads the user to Smartflow configurations and the INFO button reveals information about the pump.On the right side of the screen are all the tools for priming.

Semi auto priming

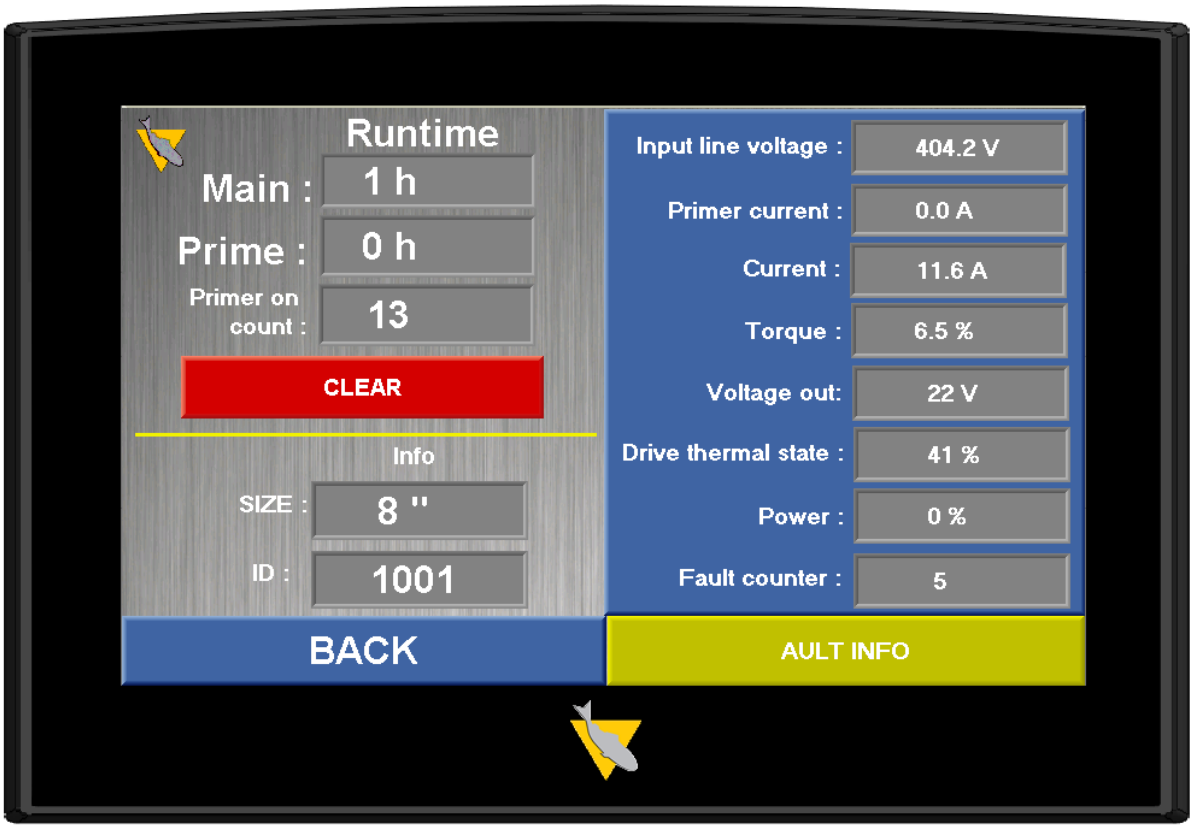
The semi auto priming is fairly simple. The primer pump will turn on with an interval and prime for a certain time. The ***Start*** time is the interval for which the primer turns on. The ***Prime for*** is the time for how long the priming runs for. Pressing the numbers will allow for them to be changed. The *Start* interval is between 30 - 3600 seconds and the *Prime for* time is between 3 - 600 seconds. Pressing the play button will turn on the auto priming feature. When the play button has been pressed and the auto priming is active the play button will turn into a stop button displayed here to the right. The auto

priming will continue until the stop button is pressed so make sure to turn it off when the pump is not in operation.

Information screen

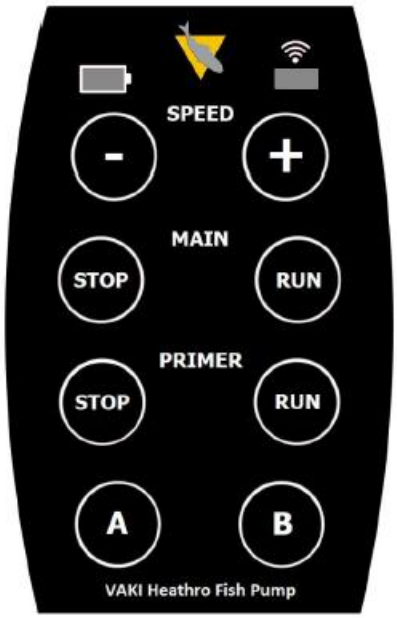
The information screen will display the runtime for both the main motor and the priming motor in hours. This information can be useful for preemptive maintenance. Some additional information is also displayed here, for instance the size of the pump and the pump's id.

The 8” and 10” will have more information then the 6”. All of this information can be used to determine if the pump is operating as intended.



Remote

VAKI has two remotes in circulation, SCORPION & TRAP. The SCORPION Transmitter is a sealed waterproof enclosure with fixed internal Lithium Battery, which is recharged using standard QI wireless charger base. The TRAP remote uses 3xAAA batteries. The Transmitter will auto sleep between operations to save power.



Buttons

Vaki has a new remote in use shown on the right. The SPEED -/+ will decrease/increase the speed of the main motor. The speed will decrease/increase until the button is let go. The MAIN STOP/RUN button will turn off/on the main motor. The PRIMER STOP/RUN button will turn off/on the primer motor used to create vacuum in the pump.

RF Transmit & Low Battery

The **GREEN** LED operates when transmitting an RF signal. If the battery requires recharging, the Low Battery LED illuminates for 3 seconds after each operation.

Recharging the SCORPION Remote

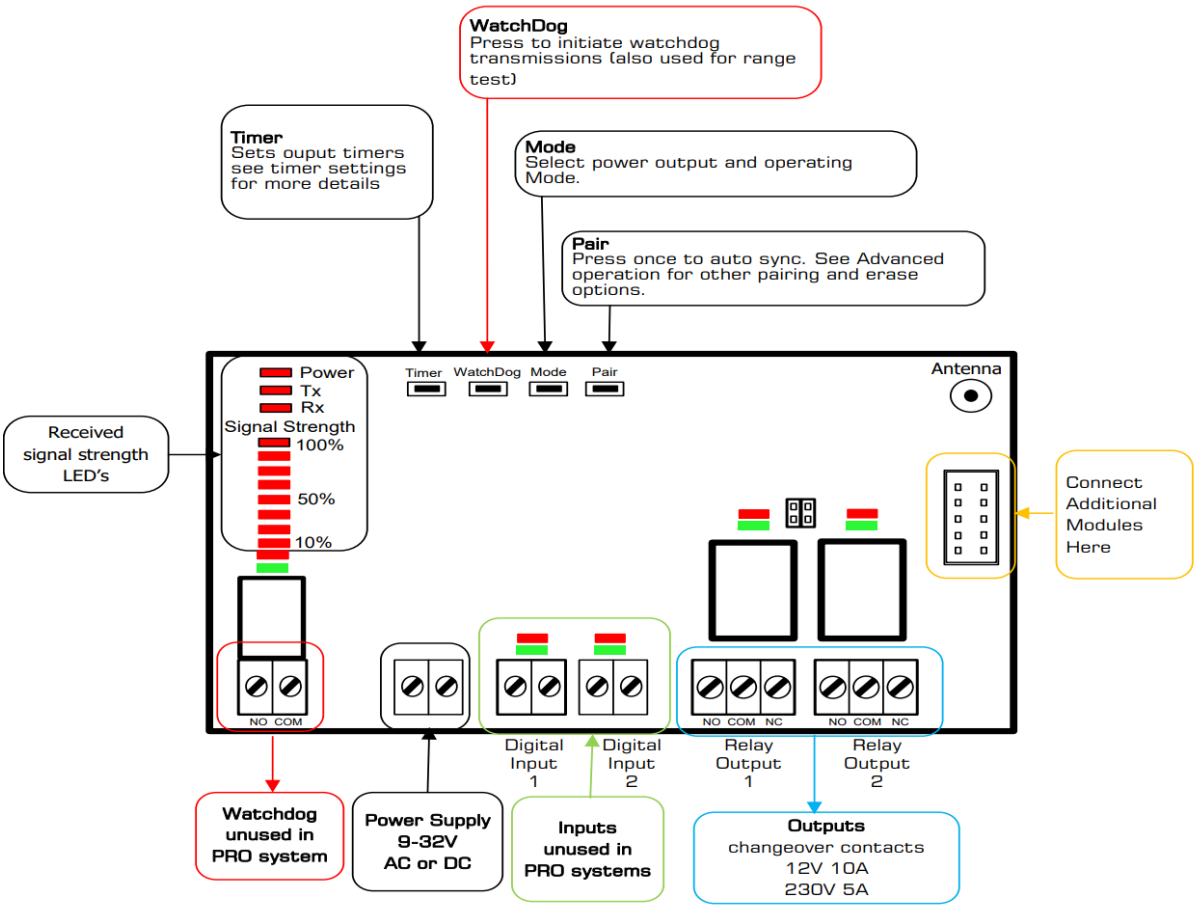
When charging Remove the green cover and place the transmitter directly onto the charging pad. If the remote was placed correctly a **BLUE** light will appear on the charging pad. VAKI remote is compatible with any QI standard wireless charger. (e.g. Apple or Samsung standard Wireless charging pads).

When charging the LOW Battery **RED** LED flashes, indicating charging is in progress. When fully charged the **GREEN** LED is illuminated. If the Battery **RED** LED doesn't

flash then try moving the remote a little on the charging pad until a blue light appears on the pad and the **RED** LED starts to flash.

Receiver Unit

The receiver and the remote are prepared on delivery but if in any case a new remote is added to the system it needs to be paired to the receiver. In doing so follow the commands below but before take a look at the diagram below to get a feel for the receiver.



To PAIR a button

Here are the output settings.

1. Start main
2. Stop main
3. Start primer
4. Stop primer
5. Speed +
6. Speed -
7. A
8. B

To PAIR a button

1. Press and release the PAIR button on the 725TRX to enter Pairing mode. Press and release the PAIR button to cycle through LEDs until only the LED above Relay is Flashing.
2. Press the button on the hand held transmitter you wish to pair to the relay.
3. All flashing LEDs on 725TRX relays will go out, the PAIR LED will flash quickly for 2 seconds .
4. Pairing Complete.

Erasing Everything (reset to Factory Default):

1. Apply power.
2. Press and hold the PAIR button for 15 seconds, the PAIR LED will flash slowly then fast.
3. Release the PAIR button.
4. 725-TRX is now reset to Factory Default.

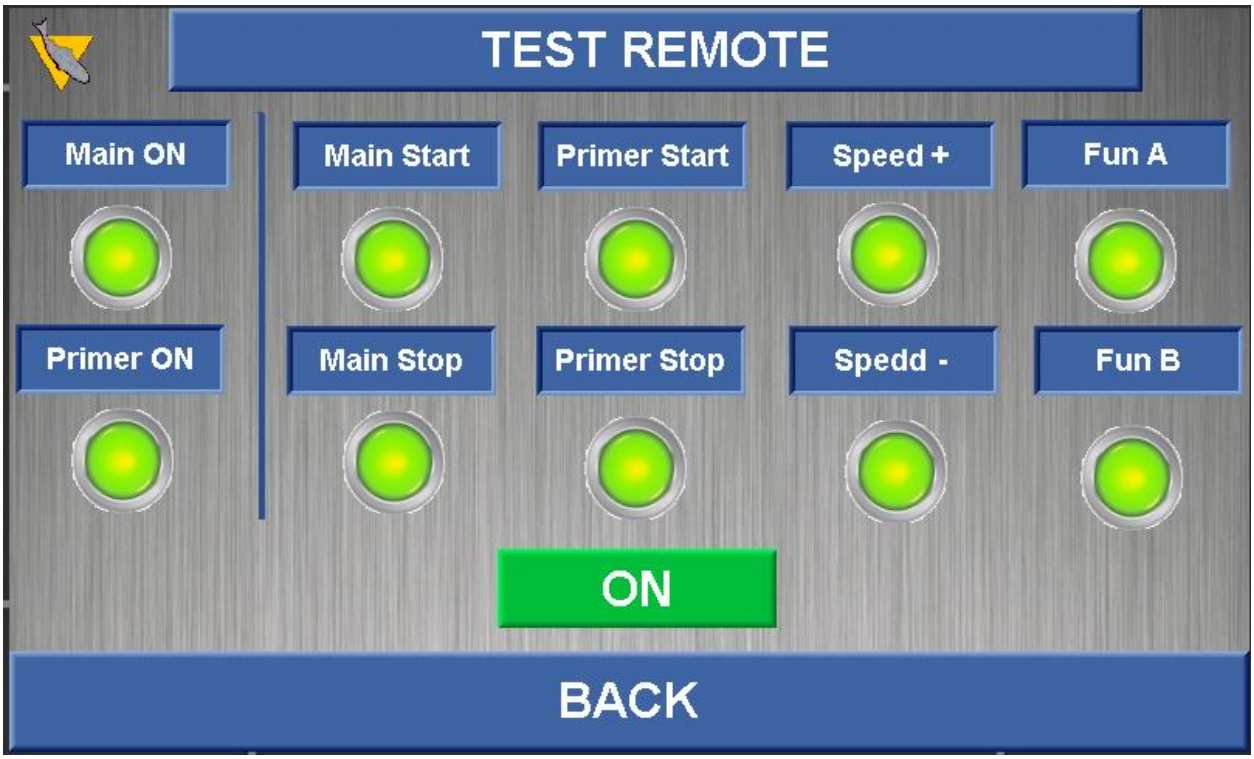
ERASE Individual Transmitters:

1. Apply power
2. Press and hold the PAIR button for 10 seconds, the PAIR LED will flash slowly as soon as this happens and release the PAIR button.
3. Press any button on the transmitter to be erased.
4. The 725-TRX will exit to normal operating mode and the transmitter will be erased.

Remote damaged

If the remote is damaged in any way and is not operating as it should, it's best to take the remote's antena off and place it somewhere out of reach. Next eras the remote setting explained here above. Connecte VAKI and ask for a new remote. The new remote needs to be paired with the pump as explained above.

The remote can also be turned off programmatically via the pumps screen. On the main screen press SmartFlow. From there press TEST REMOTE. Press the ON button and it will turn read and read OFF. This means the remote controller is OFF.

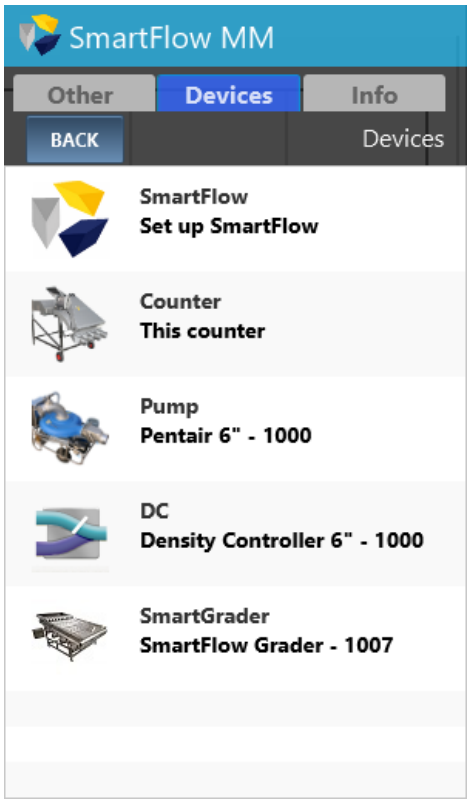


Configuring pumps IP and WIFI

The pump is equipped with a WIFI antenna. To have the pump connect to a network the antenna needs to be programmed. There are few options in programming the antenna, with a VAKI Counter equipped with SmartFlow or with a laptop equipped with Ethernet port.

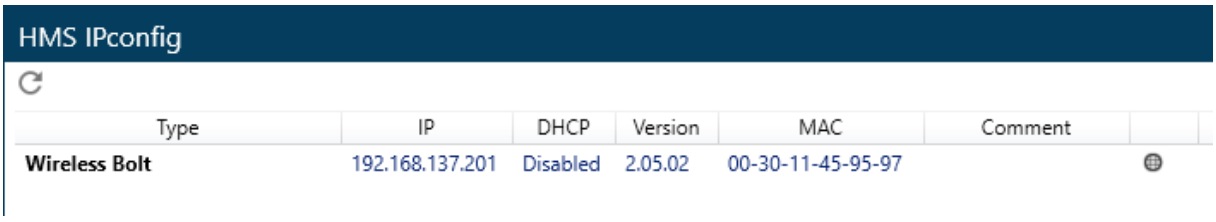
Counter equipped with SmartFlow

The pumps are pre programmed to connect to the closest VAKI Counter in range. If the counter is running SmartFlow then the pump will be listed in devices. **The IP address of the pumps are 192.168.137.220 and the antenna is 192.168.137.200/201.** To connect to the antenna all that is needed is to enter in a web browser the IP address of the antenna which should be **192.168.137.200** or **192.168.137.201.** If for some reason the IP address of the antenna is not the same as above an IP finder can be used. The IP finder is pre-installed on the Counters and is called **HMS IPconfig.** The software can also be found here.



Laptop over ethernet

The pump's electrical cabinet needs to be opened with power on. The antenna is on the top, with an ethernet cable running from it to the PLC. Unplug the cable and connect it to the laptop. If the cable is not long enough an additional cable should be used. Open up **HMS IPconfig** and search for the antenna. When the antenna is found, change the adapter card to have the same subnet as the antenna and then enter the ip into a browser.



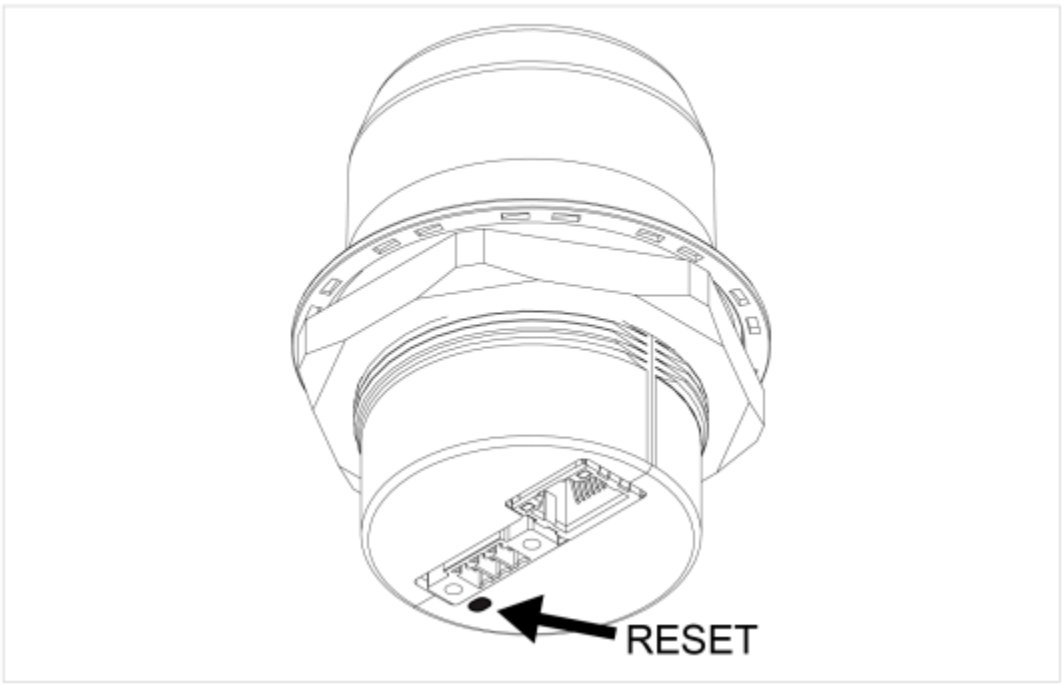
Programming the WIFI antenna.

The WIFI antenna is programmed with a browser. The steps are as follows.

1. Go to **Network Settings** and select **IP Assignment Dynamic (DHCP)** and **Internal DHCP Server Disabled.**
2. Go to **WLAN Settings** and press **Scan for Networks**; Find the network in the list and select it. Enter the password of the network into the **Passkey** and make sure it is right.
3. Press Save and Reboot.
4. Plug the antenna back to the pump and close the cabinet.
5. The pump needs a new IP address on the network.
6. To set the IP address of the pump press the **SmartFlow** button on the main screen.
7. Set the IP address accordingly.
8. The VGS is the ending of the IP address of the SmartFlow which the pump is supposed to connect to. So if the counter has an IP address X.X.X.100 then VGS would be 100.

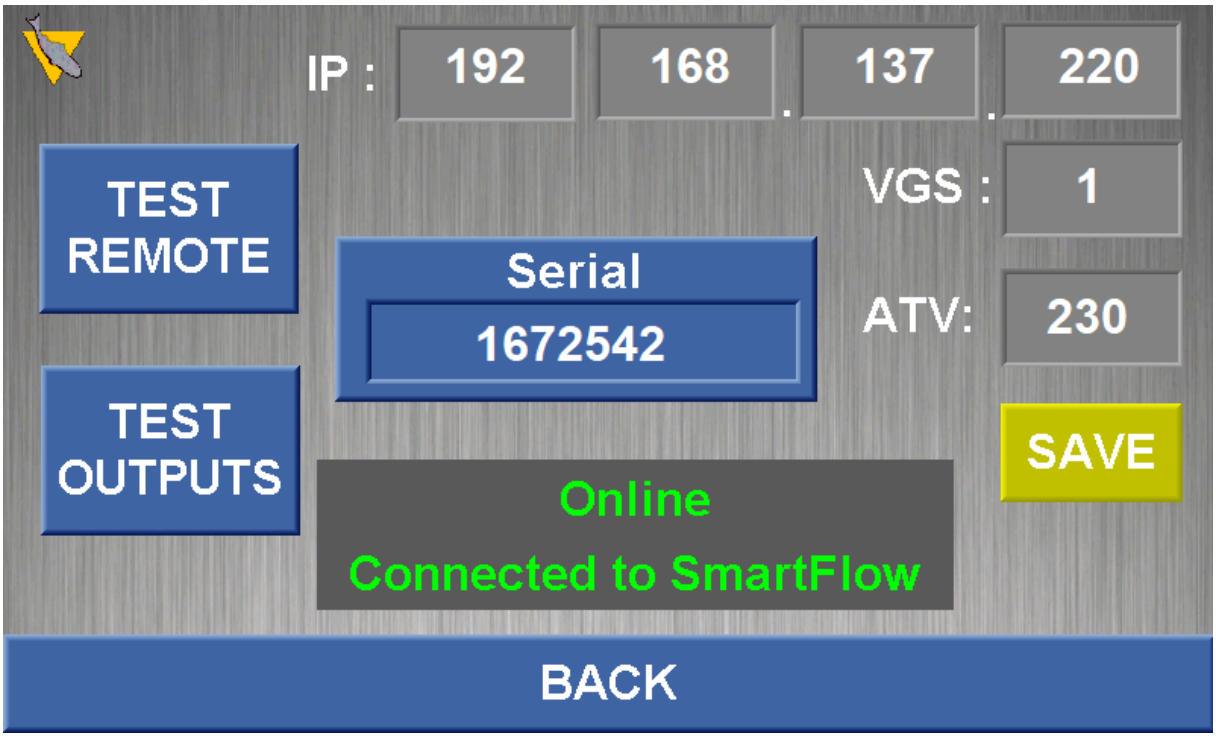
To set the wifi to factory settings the reset button needs to be pressed for 10 seconds or longer.

RESET Button



IP config

The 6” and the 10” have two IPs, one for the PLC and one for the WIFI module. The 8” pump has three IPs, one for the PLC, one for the WIFI module and one for the VFD. To configure the IP address of the PLC go to SmartFlow settings, by pressing the SmartFlow button on the main screen.



VGS is the ending of the IP address of the SmartFlow which the pump is supposed to connect to and ATV is the ending of the VFD for the 8” pump. So if the counter has an IP address X.X.X.100 then VGS would be 100. Below is the configuration for changing the IP of the VFD and here is a link to the VFDs ethernet card model.

If the ethernet card of the pump is functioning correctly a green **Online** will be displayed, otherwise it would read **Offline** in red. If the pump is connected to a counter which is running SmartFlow, **Connected to SmartFlow** is displayed below Online. The user should restrain from changing anything here unless otherwise instructed by a VAKI service agent.

Network Settings

The parameters are accessible via **[Configuration]** (ConF-), **[Full]** (FuLL-), **[Communication]** (CoM-) menu and **[Communication module]** (Cbd-) submenu.

Parameter Description (HMI mnemonic)	Range or Listed Values	Default	Long Name	Short Name	Access	Parameter Number
[Ethernet protocol] (EthM) This parameter defines which protocol is used for implicit exchanges	0:Modbus TCP 1:EtherNet/IP	0	**[Modbus TCP]** **[Ethernet IP]**	(MtCP) (E IP)	R/W	64241
[Rate setting] (rdS) Rate and data settings	0: Autodetect 1: 10 Mbps Full 2: 10 Mbps Half 3: 100 Mbps Full 4: 100 Mbps Half	Auto	**[Auto]** **[10M. full]** **[10M. half]** **[100M. full]** **[100M. half]**	(Auto) (10F) (10H) (100F) (100H)	R/W	64251
[IP mode] (IPM) Use this parameter to select the IP address assignment method	0: Man 1: BOOTP 2: DHCP	DHCP	**[Fixed]** **[BOOTP]** **[DHCP]**	(MAnu) (boot) (dHCP)	R/W	64250
[IP module] (IPC) (IPC1)(IPC2)(IPC3)(IPC4) These fields are editable when IP mode is set to Fixed address	0 to 255 for each 4 fields	-	**[139.160.069.241]**	(139) (160) (069) (241)	R/W	64212 64213 64214 64215
[IP Mask] (IPM) (IPM1)(IPM2)(IPM3)(IPM4) These fields are editable when IP mode is set to Fixed address	0 to 255 for each 4 fields	-	**[255.255.254.0]**	(255) (255) (254) (0)	R/W	64216 64217 64218 64219
[IP Gate] (IPG) (IPG1)(IPG2)(IPG3)(IPG4) These fields are editable when IP mode is set to Fixed address	0 to 255 for each 4 fields	-	**[0.0.0.0]**	(0) (0) (0) (0)	R/W	64220 64221 64222 64223
[MAC @] (MAC) MAC address display	[00-80-F4-XX-XX-XX]	-	**[00-80-F4-XX-XX-XX]**	0080 F4--- XX XXXX	R	64267 64268 64269

Maintenance

The pump is robust and reliable. To make the pump last longer and keep it performing well recommend the following maintenance routines.

After the first 24 hours of use

Check the belts have proper tension

Daily Maintenance

1. Flush the pump and motor with fresh water.
2. Check camlock connections.
3. Check mechanical parts.

Weekly maintenance

1. Lubricate the wheel bearing
2. Make sure nothing is stuck in the driver belt cover. Check the belts are OK.
3. Check the air in the tires.
4. Check all hoses and connections for leaks.
5. Lubricate the pump shaft bearing (under the main pump housing). IMPORTANT: before greasing remove the screw on the opposite side of the shaft. Remember to replace the screw afterwards.

ADDRESS
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