

# Pump Wave<sup>PLUS</sup>



## INSTALLATION AND OPERATING MANUAL

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## PumpWave Plus™

### CAUTIONS AND WARNINGS

- ⚠ **WARNING:** To prevent personal injury, ensure all water pressure is released from the pressure system prior to work being performed. Ensure pumps are disconnected and / or electrically isolated.
- ⚠ **WARNING:** The PumpWave Plus™ must be installed by a competent pump installer only.
- ⚠ **WARNING:** Before servicing the PumpWave Plus™, disconnect the device from the power supply (disconnect from the wiring system) and ensure that the green indicator light is off.
- ⚠ **CAUTION:** The PumpWave Plus™ must be wired according to local electrical standards. Please ensure you have the correct model to match your local power supply and current type by verifying the information on the data label.
- ⚠ **CAUTION:** The PumpWave Plus™ must only be connected to a wiring system fitted with a 30 mA residual-current device (RCD).
- ⚠ During installation it is the responsibility of the installer to abide by local regulations for such products, the manufacturer declines all responsibility for damage caused by the device in case of:
  1. Unauthorized repairs not carried out by authorized personnel.
  2. Use of non-original spare parts.
  3. Improper use.
  4. Improper maintenance procedures.

### PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLING YOUR NEW GLOBAL WATER SOLUTIONS (GWS) PumpWave Plus™

In the event of installation difficulties or the need for further advice, you should contact the dealer from whom you purchased the system or the nearest GWS sales office.

## 1. Operation

PumpWave Plus™ is an electronic controller that manages the operation of the pump when the consumer opens and closes a point of use. When the pump is turned on PumpWave Plus™ will continue to run the pump after water demand ceases until no flow is detected. The volume of the water in the integrated pressure tank ensures that the pump does not short cycle due to leaks or frequent minor demands. The PumpWave Plus™ can be fitted to any water system within its rated range (up to 1 hp pumps for 110V AC, up to 2 hp pumps for 220-240V AC). It is equipped with an adjustable start pressure switch that can be adjusted to start the pump ( $P_{start}$ ) from 1 to 2.5 bar (15 to 36 psi). PumpWave Plus™ flow monitor offers protection against dry running of the pump, as it shuts the pump off when no water is flowing into the pump inlet (red FAILURE indicator on). In the event of a temporary power failure, the PumpWave Plus™ will reset automatically when the power supply is restored.

Always ensure that the PumpWave Plus™ is installed in a vertical position only. Failure to do so will prevent proper operation! See figure 1.

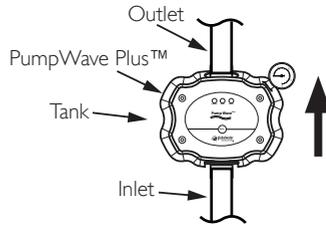


Fig. 1 Flow Direction

## 2. Installation

In order to ensure your device provides its maximum service life it should always be installed in a covered, dry position. No part of the system should be allowed to rub against any surrounding hard surfaces, such as walls etc.

Before installation: Check that the direction of flow is the one indicated in figure 1 and that there are no outlets between the pump and PumpWave Plus™.

1. PumpWave Plus™ must always be installed on the delivery side of the pump as illustrated in figure 2
2. Do not fit non-return valves on the PumpWave Plus™ discharge side.
3. When sourcing water from a well or tank underneath the pump, always fit a non-return valve on the pump intake pipe.
4. If the pump develops a maximum pressure of over 8 bar (116 psi), it will be necessary to fit a pressure reduction unit that is set to a pressure of maximum 8 bar (116 psi), before the PumpWave Plus™ device.

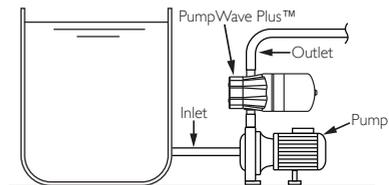


Fig. 2 Installation Example

### 2.1 Electrical Connection

Electrical connection of PumpWave Plus™ must be in compliance with current local regulations. Ensure that the pump and PumpWave Plus™ are isolated from the power supply when working on the devices. To access the terminal box, unscrew the 4 cross head screws on the outside, which will unlock the cover. Connection must be conform to the indications given in figures 3, 4 and 5. Incorrect connection may render the electrical circuit unusable.

The main power cables used must comply with requirements for the maximum current foreseen for the device 10(8)A.

To guarantee the seal on the wiring box, use cables with a minimum external diameter of 7 mm and maximum external diameter of 9 mm.

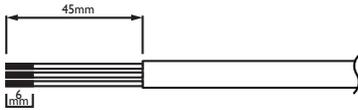


Fig. 3 Wire stripping directions

During installation of the cable, great care must be taken to ensure that the YELLOW/GREEN wires are connected to the ground. The PumpWave Plus™ can also be used with a three-phase or single phase pump with a current draw exceeding 10(8)A, using an auxiliary relay switch. In this case the connections must be made as shown in the wiring diagram in figure 5.

After connecting the wires to the terminal board, ensure that the cable clamp seal and toothed washer have been positioned and tighten the lock nut. After checking that the seal is properly positioned, close the cover again and lock the 4 cross head screws. Connect the plug to a properly grounded power socket that is in compliance with local electrical safety requirements.

Once PumpWave Plus™ has been connected to the water and power supplies, the pump must be correctly primed as indicated in the pump manufacturer's instructions.

Connect the plug to the power socket, check that the following indicator lights remain on: green (POWER ON) light, during operation; yellow (MOTOR) light, pump on.

The pump will operate for a period of time to allow the system to fill and raise the pressure in the installation to the correct level. If the pump has difficulty in priming during this period then PumpWave Plus™ will stop the pump after about ten seconds and the red FAILURE failure indicator will light up indicating a dry run. In this case, press and hold the RESET button and wait, with the tap open, until the pump has primed properly and the whole system is under pressure. Release the RESET button and turn off the tap. At this point the pump will be controlled automatically by PumpWave Plus™.

Single-phase pump max. 1.47 kW (2 hp) 220 - 240 V AC  
0.74 kW (1 hp) 110 V AC

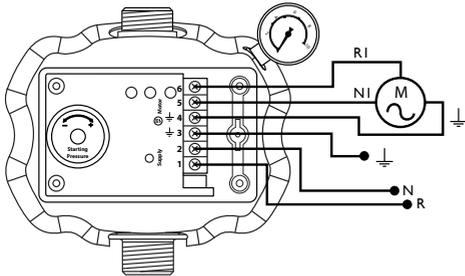


Fig. 4 Single-phase electrical connection

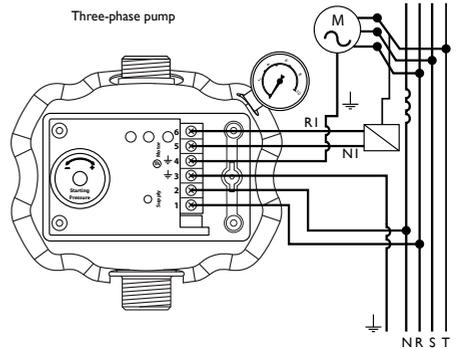


Fig. 5 Three-phase electrical connection

## 2.2. Start Pressure Adjustment

### 2.2.1 Increasing the START pressure

1. Make sure that the system is completely pressurized and the pump is not running.
2. Carefully remove the plastic cover of the device by unscrewing the 4 cross head screws.
3. Open a tap slightly and watch the system pressure lowering on the built in pressure gauge.
4. Close the tap completely as soon as the desired START pressure is reached.
5. Turn the adjusting slotted head screw clockwise until the pump starts (fig. 6).
6. Check the new setting by performing two complete START/STOP cycles.
7. Reassemble the cover.

**IMPORTANT:** The START pressure has to be at least 1 bar (15 psi) lower than the maximum pressure of the pump.

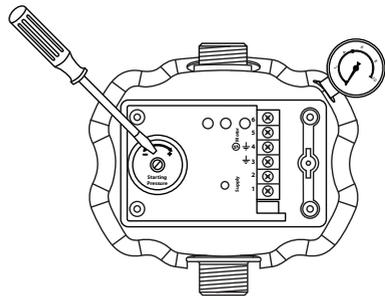


Fig. 6 Start Pressure Adjustment

### 2.2.2 Decreasing the START pressure

1. Make sure that the system is completely pressurized and the pump is not running.
2. Carefully remove the plastic cover of the device by unscrewing the 4 cross head screws.
3. Turn the adjusting slotted head screw counterclockwise for about 5° (fig. 6).
4. Open a tap and check on the built in pressure gauge if the pump START pressure has been set correctly; if the pump START pressure is still too high, repeat steps 4 and 5 until the desired START pressure is reached.
5. Reassemble the cover.

### 3. TROUBLESHOOTING

**The pump does not stop:**

- Check if PumpWave Plus™ is installed as indicated in figures 1 and 2.
- Check for any leaks in the water supply system.
- Check if the float moves freely and is not blocked.

**The pump starts and stops continually:**

- Intake less than flow meter sensitivity limit (1.5 L/min).
- Check for any leaks in the water supply system.

**The pump does not start:**

- Check that the pump has not shut down due to a malfunction (red FAILURE indicator on), if so, return to normal operation by pressing the reset button.
- Check the minimum restart pressure setting  $P_{start}$  (it must exceed the pressure supplied by the column of water in the system).
- Check that the pump is not blocked.
- Check the green POWER ON indicator light to ensure that the power supply is on.

**PumpWave Plus™ indicates a malfunction in the water supply, but there is water in the tank or well:**

- Reset the pump by pressing the reset button. If the problem persists:
  - Check that the pump is properly primed.
  - Check that the pump reaches at least 1 bar (15 psi) above minimum set pressure ( $P_{start}$ ).
  - Check that the inlet pipe is not blocked or the filter is clogged.

### 4. Disposal

Check with local authorities for proper disposal and recycling. Do not dispose of the manual - keep it for further reference.



### 5. Warranty

Global Water Solutions Ltd. (GWS) warrants its PumpWave Plus™ device against manufacturing defects in material and workmanship for a period of 1 year from the date of manufacture. Warranty applies to Global Water Solutions products only when used for their intended purpose, and does not apply if a defect is due to improper use of the product, result of accident, misuse, or abuse. If the product was improperly installed or altered in any way, not specifically authorized by the factory, the warranty is void. The warranty set forth in this paragraph is made expressly in lieu of all other warranties expressed, or implied, including but not limited to merchantability or fitness for a particular purpose.

In no event shall GWS be liable for cost of processing, lost profits, goodwill or any other consequential or incidental damage of any kind resulting from the order or use of its products whether arriving from breach of warranty, nonconformity to ordered specifications, delay in delivery, or any loss sustained by the buyer nor will GWS be liable for labor and expenses necessary to remove and reinstall replacement product.

To obtain service under this warranty, consumer must deliver alleged defective product, freight prepaid, to an authorized GWS distributor or OEM partner. GWS will either issue credit or at its option, repair or replace defective product freight prepaid to the distributor. GWS reserves the right to make changes in construction, which, in its judgment, constitutes a product improvement.

All warranty is subject to verifiable proper installation and installation of a pressure reduction unit as recommended in the installation manual.

**Standard manufacturer's warranty as defined in the standard GWS warranty terms and conditions.**

### Specifications

Supply voltage	110V AC	220-240V AC
Frequency	60 Hz	50/60 Hz
Max. operating power	0.74 kW (1 hp) 10(8)A	1.47 kW (2 hp) 10(8)A
Protection level	IP 55	
Max. water pressure	8 bar (116 psi)	
Max. flow rate	100 L/min (26.4 gal/min)	
Min. required flow rate	1.5 L/min / 0.4 gal/min	
Max. water temperature	35°C (95°F)	
Ambient temperature	0 - 40°C (32-104°F)	
Factory preset start-up pressure	2 bar (29 psi), adjustable from 1 to 2.5 bar (15 to 36 psi)	
Min. required pressure differential during operation ( $P_{start}-P_{stop}$ )	1 bar (15 psi)	
Connections / threads	2x male BSPP, compatible with NPT	
Pressure tank precharge	factory precharge 1.9 bar (28 psi)	