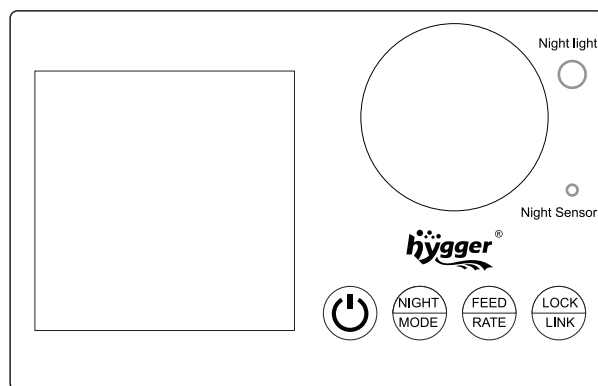
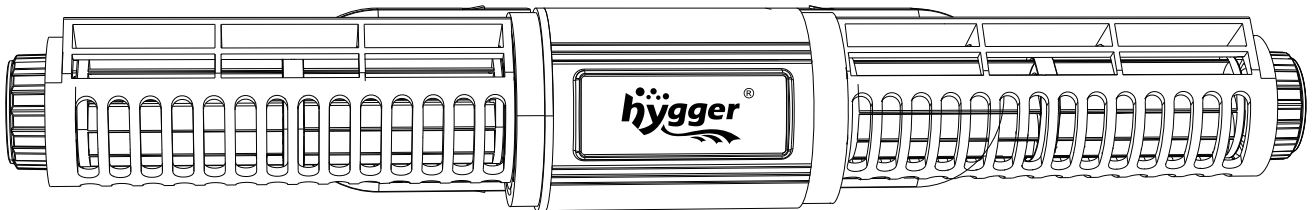




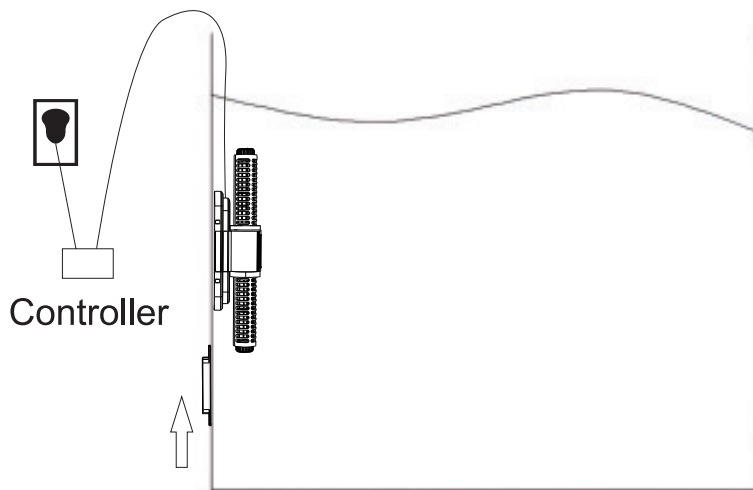
# HG166 USER MANUAL

## hygger Intelligent Cross Flow Pump



## WARNING:

- ① For optimal performance, please prevent the pump from dry running.
- ② Keep the controller in a dry place, protected from water splashes.
- ③ Exercise caution when assembling the magnetic base. Align it parallel to the pad adjacent to the aquarium's outer wall to prevent glass damage.



- ④ Never attempt to disassemble the controller or the adapter without professional guidance.
- ⑤ This pump is unsuitable if you wear a pacemaker or have a defibrillator implanted.

## 1. INTRODUCTION

hygger Intelligent Cross Flow Pump, engineered with cutting-edge technology, are meticulously designed to emulate the natural environment, providing an authentic habitat for your fish and aquatic life within aquariums or ponds. Please thoroughly review this manual before installing and operating the pump.

## 2. PRODUCT FEATURES

- ① The unique control system offers a variety of wave modes and functions, essentially fulfilling the diverse waveform requirements of users.
- ② With wireless connection control, multiple units can synchronize operations between wave pumps, allowing for multi-unit control and remote operation capabilities.
- ③ Utilizing low-voltage DC frequency conversion technology ensures users' safety.
- ④ The straightforward operation panel enables the execution of complex dynamic seawater functions.
- ⑤ The direction of water flow can be adjusted to suit various needs.
- ⑥ Equipped with sine wave technology, these pumps deliver a large flow rate while operating with exceptional quietness.

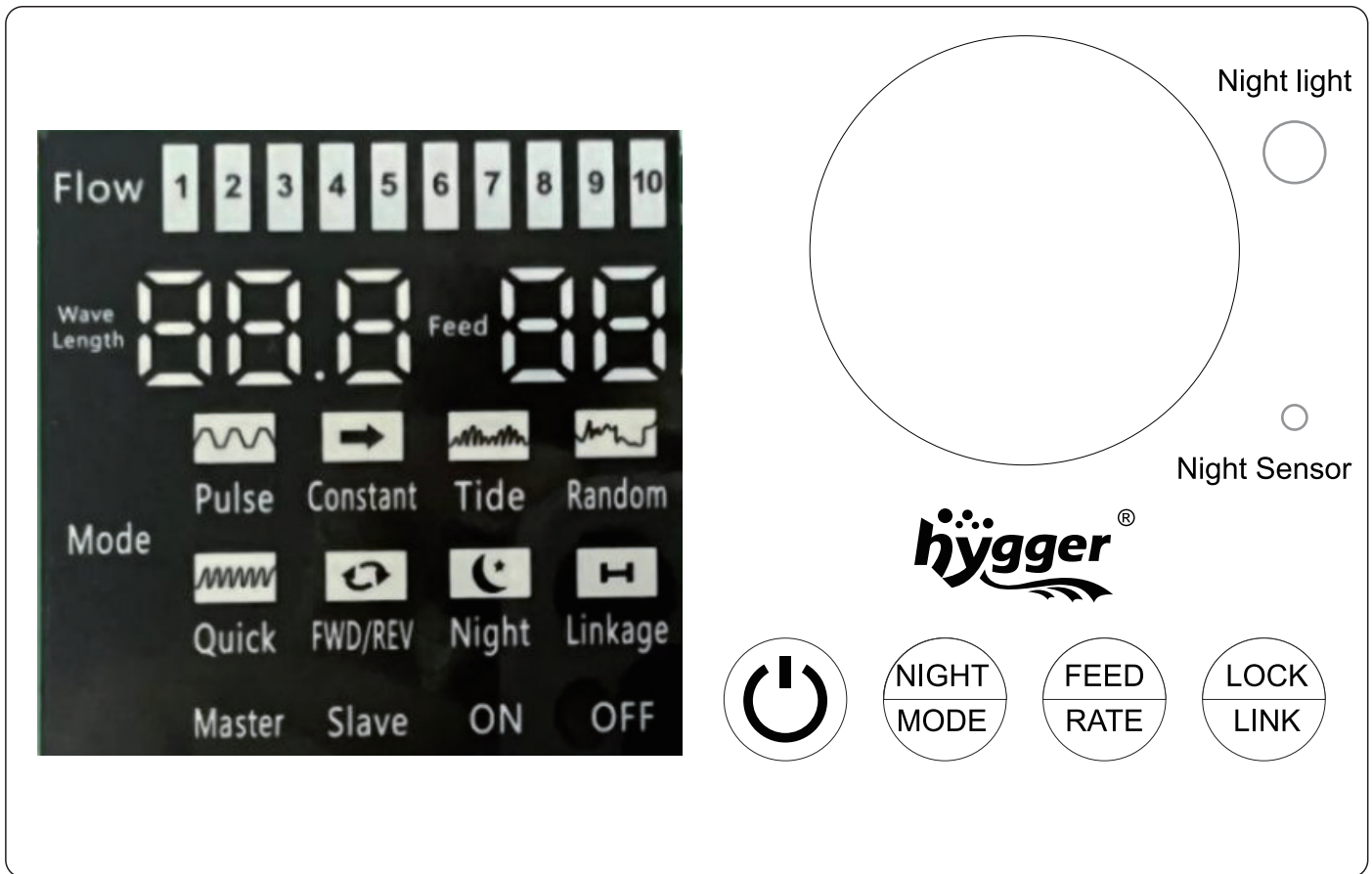
- ⑦ Water shortage protection: In the event of a water shortage, the wave pump operates at a reduced speed. It stops for 5 seconds during a water shortage operation. After 5 cycles of this behavior, the pump enters water shortage protection mode and ceases operation, with the controller panel displaying the error code E09. To resume operation, the pump must be re-energized once water is restored.
- ⑧ Power-off memory function: The controller automatically reverts to the mode set before power is turned off when it is powered on again.

### 3. PRODUCT FEATURES

Model	Voltage	Flow rate	Size of the pump
HG166-25W	Input:100-240V/50/60Hz Output: DC 24V	2400GPH (9085L/H)	222*66*46MM
HG166-35W		2600GPH (9840L/H)	290*66*46MM
HG166-50W	Input:100-240V/50/60Hz Output: DC 24V	3500GPH (13247L/H)	333*66*46MM

Model	Suitable for fish tank wall thickness	Suitable tank (length)	Cord length
HG166-25W	≤12MM	≤40inch (100CM)	6.2+8.2 ft/ 1.9M+2.5M
HG166-35W	≤15MM	≤59inch (150CM)	6.9+8.2 ft/ 2.1M+2.5M
HG166-50W	≤19MM	≤79inch (200CM)	3.7+4.3+8.2 ft/ 1.15+1.3+2.5M

# CONTROLLER DIAGRAM



**1. Pulse Mode:** In this mode, the motor quickly ramps up to maximum power to create a strong thrust, generating waves, then immediately drops to minimum power before rapidly restarting to maximum power. This cycle repeats. The length of the waves can be adjusted with a knob; the higher the frequency, the shorter the waves, resulting in more pronounced wave creation. Wave size can be adjusted using the gear buttons. In this mode, the gear can be adjusted (1-10 levels), and the waveform can be adjusted (0.4-10 seconds).




**2. Constant Mode:** This mode provides continuous wave creation with a fixed waveform output. Adjust the gear to set the desired water flow rate. In this mode, the gear can be adjusted (1-10 levels), but the waveform indicator light will not illuminate, and the waveform cannot be adjusted.

**3. Tide Mode:** The motor starts slowly, reaching its maximum speed gradually, and then the speed decreases slowly, with the descent time being roughly the same as the ascent time. The cycle time can be adjusted via a knob, and the maximum speed can be regulated through gear settings. The speed variation follows a sinusoidal waveform. In this mode, the gear can be adjusted from 1 to 10, and the waveform can be tuned from 0.4 to 10 seconds.

**4.Random Mode:** This mode features powerful, rhythmless wave generation with random flow patterns, creating turbulent water flow. In this mode, the gear can be adjusted from 1 to 10, and the waveform can be tuned from 0.4 to 10 seconds.

**5.Quick Mode:** When Quick Mode is activated, the motor swiftly ramps up to its peak power, delivering a robust push to create intense waves. Once the wave is produced, the motor swiftly reverts to its lowest power, and this sequence repeats continuously. Please note: In this mode, the speed settings are adjustable from 1 to 10, while the waveform duration is set at a constant 0.6 seconds.

**6.FWD/REV Mode:** After initiating the wave pump, it cycles through forward and reverse operations in accordance with the waveform's magnitude. The waveform (i.e., the cycle) dictates forward and reverse running durations. The pump switches between forward and reverse operations, and the waveform size can be fine-tuned via a knob. In this mode, the speed settings range from 1 to 10, and the waveform duration is adjustable from 0.4 to 10 seconds.


**7.Wireless Connection Mode:** Connect two controllers separately. Press the NIGHT/MODE button  briefly until the eighth indicator light illuminates. Then, press the LOCK/LINK button  on one controller to set it as the Master; its indicator light will turn on. Next, configure the second controller by pressing the LOCK/LINK button , setting it as the Slave. With this setup, the Master controller is capable of managing one or several cross-flow pumps at once. The Master controller has the ability to adjust the speed from 1 to 10 and the waveform duration from 0.4 to 10 seconds.



**8.Night Mode:** Night light stays illuminated when activated. The mode engages automatically through a Night sensor that assesses ambient light levels. In low-light conditions, the wave pump defaults to the current mode's lowest flow rate (1st speed). Upon sensing sufficient light, the cross-flow pump resumes operation based on the preset speed and waveform. To deactivate Night Mode, press and hold the "NIGHT/MODE" button again.



**9. Feeding Mode:** Once activated, the wave pump will temporarily stop running. After a ten-minute interval, it automatically returns to the previous mode. To exit Feeding Mode prematurely and reactivate the pump, press and hold the "FEED/RATE" button







## Operation Guide



1. Press  briefly to turn the cross-flow pump on and off.



2. Press the NIGHT/MODE button  briefly to activate the NIGHT/MODE mode, indicated by the corresponding light. Press the FEED/RATE button  briefly to adjust the speed (1-10 speeds). For waveform adjustments between 0.4 to 10 seconds, simply rotate the circular knob.



3. Press the NIGHT/MODE button  briefly to activate the Constant Flow Mode, indicated by the corresponding light. Press the FEED/RATE button  briefly to adjust the speed (1-10 speeds). Note that waveform adjustments are not accessible while in this mode.



4. Press the NIGHT/MODE button  briefly to activate the Tide Mode, indicated by the corresponding light. Press the FEED/RATE button  briefly to adjust the speed (1-10 speeds). For waveform adjustments between 0.4 to 10 seconds, simply rotate the circular knob.



5. Press the NIGHT/MODE button  briefly to activate the Random Mode, indicated by the corresponding light. Press the FEED/RATE button  briefly to adjust the speed (1-10 speeds). For waveform adjustments between 0.4 to 10 seconds, simply rotate the circular knob.



6. Press the NIGHT/MODE button  briefly to activate the Quick Mode, indicated by the corresponding light. Press the FEED/RATE button  briefly to adjust the speed (1-10 speeds). Note that waveform adjustments are not accessible in this mode, the waveform duration is set at a constant 0.6 seconds.

7. Press the NIGHT/MODE button  briefly to light up the FWD/REV mode indicator and enter the FWD/REV mode. Press the FEED/RATE button  briefly to adjust the speed (1-10 speeds), and rotate the circular knob to adjust the waveform (0.4-10 seconds). In this mode, when the water flows in the opposite direction, the pump body makes a sound, which is the characteristic of this mode, not a product quality problem, please rest assured to use.

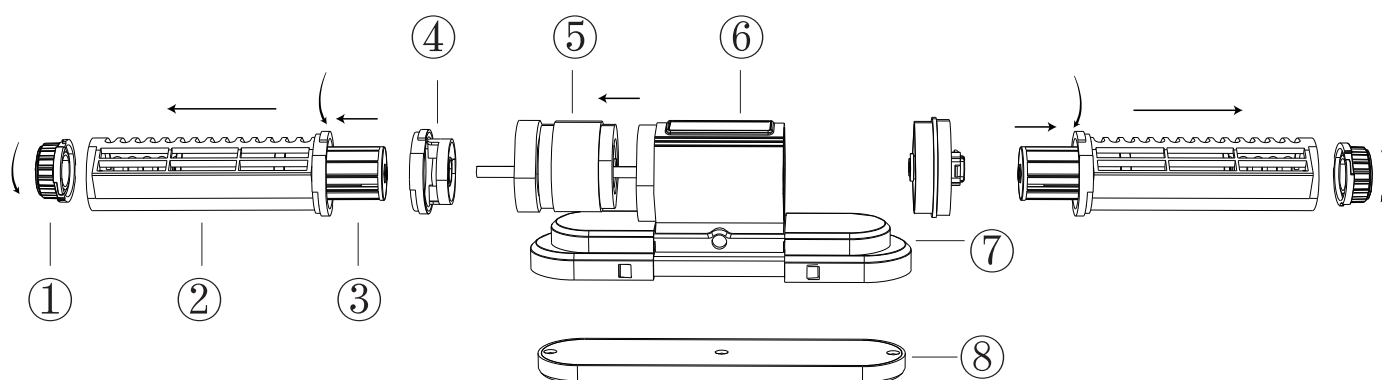
8. Press the NIGHT/MODE button  briefly to light up the wireless connection mode indicator (the eighth indicator light), activating the wireless connection mode for operation with two or more units. Briefly press the LOCK/LINK button  to set one unit as the master controller (permitted only one master per group) and another as the slave. In wireless connection mode, the "Master" and "Slave" indicator lights will flash, indicating the alternating wave generation by the two wave pumps, with the master unit dictating the speed and wave pattern. (If the wireless connection fails, the "Slave" indicator light will remain off, while the "Master" will continue to flash. Successful wireless connection is indicated by the continuous flashing of both "Master" and "Slave" indicator lights.)

9. Press and hold the NIGHT/MODE button  for 2 seconds to activate the Night Mode, indicated by the illumination of the night mode indicator light. The system uses a photosensor to assess ambient light levels; under low-light conditions, the night function is triggered, causing the wave pump to run at the minimum flow rate for the current mode. As light levels rise, the system automatically exits Night Mode, reverting to the preset speed and wave pattern. To deactivate Night Mode, press and hold the NIGHT/MODE button  for another 2 seconds.

10. Press and hold the FEED/RATE button  to activate the Feeding Mode, pausing the wave pump operation. The default feeding duration is set for 10 minutes. To exit Feeding Mode prematurely, press and hold the FEED/RATE button  for 2 seconds, and the system will revert to the previous mode.

11. To lock your settings, once you've chosen the preferred mode, speed, and wave pattern, press and hold the LOCK/LINK button  for 2 seconds to lock in the wave pattern. To unlock and make adjustments, press and hold the LOCK/LINK button  once more to release the lock.

## Product Components and Disassembly Method



- ① Impeller Cover                      ② Deflector                      ③ Impeller
- ④ Rotor Cover                        ⑤ Rotor                        ⑥ Pump Body
- ⑦ Pump Body Magnet                ⑧ External Magnet

1. Carefully remove both the pump body and external magnet from the cross-flow pump simultaneously and place them separately.
2. Pull off the impeller covers from both ends of the wave pump by following the direction of the latch. (Disassemble in the direction of the arrow in the diagram)
3. The deflector can be removed from both ends of the pump body, along with the shaft sleeve, the shaft sleeve soft rubber, and the rotor can be disassembled from the pump body. (Disassemble in the direction of the arrow in the diagram)
4. The shaft sleeve and the soft rubber that secures the shaft sleeve can be removed from the outer end of the deflector. (Disassemble in the direction of the arrow in the diagram)
5. The rotor can be removed from the central shaft of the pump body. (Disassemble in the direction of the arrow in the diagram)
6. For reassembly, follow the steps in the reverse order.
7. Regularly clean the cross-flow pump as needed.

## 4. TROUBLESHOOTING

Fault	Display	Reason	Solution
Overvoltage on DC Line	E01	Input voltage exceeds 35V	Return for inspection and repair
Overvoltage on DC Line	E02	Input voltage is below 20V	Return for inspection and repair
Overcurrent on Phase Line	E03	Motor phase-to-phase current is too high	Return for inspection and repair
Step Loss Error	E04	Excessive Motor Operating Resistance	Return for inspection and repair
Phase Loss Error 0 (Speed Detection)	E05	Motor phase loss	Return for inspection and repair
Phase Loss Error 1 (Current Detection)	E06	Motor phase loss	Return for inspection and repair

Fault	Display	Reason	Solution
Drive Module Edge Fault	E07	Hardware failure	Return for inspection and repair
Drive Module Screen Fault	E08	Hardware failure	Return for inspection and repair
Low Water	E09	In the event of a water shortage, the water pump will operate at a reduced speed, cycling through 5-second intervals of operation followed by 5-second pauses. After this sequence repeats five times, the pump will automatically shut down for protection and flash the fault code E09	Fully submerge and restart
Current Detection Circuit Bias Voltage Error	E15	Hardware failure	Return for inspection and repair
Temperature Abnormality	E20	Motor drive module	Return for inspection and repair
Blockage	E12	Impeller is jammed	Dismantle, clean, and then reassemble

## 5. MAINTAINING

1. Regularly maintain the pump by cleaning it to ensure peak performance.
2. Should water come into contact with the controller, promptly dry it with a cloth to prevent water ingress.
3. Gently clean the blades with a soft cloth to remove accumulated dirt from the pump.
4. This pump is specifically engineered for indoor aquarium use and should not be employed for other applications. Always keep the controller and adapter dry to prevent water damage.

## 6. DISPOSAL

Do not dispose of this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary. This product has to be disposed of at an authorized place for the recycling of electrical and electronic appliances rather than being disposed of together with the domestic waste. Collecting and recycling waste is a way of saving natural resources. So, please consult with your local seller to make sure the product is disposed of in an environmentally friendly way.



## 7. PACKING LIST

- 1x Cross-flow wave pump (an inside magnetic holder is included)
- 1x Controller
- 1x DC Adapter
- 1x Outside magnetic holder
- 1x User manual

## 8. CONTACT INFORMATION

Contact us at [www.hygger-online.com](http://www.hygger-online.com)  
Email: [mago@hygger-online.com](mailto:mago@hygger-online.com)