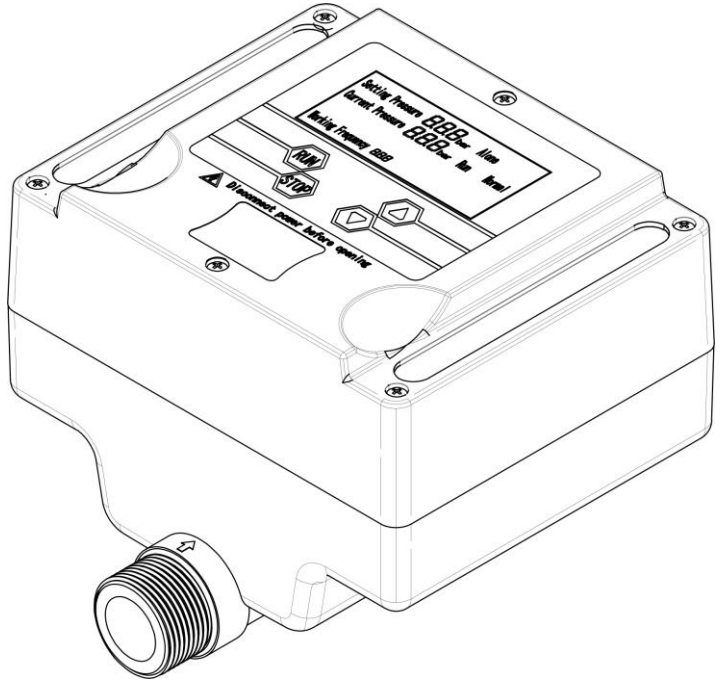
VF Constant Pressure Water Supply Controller



This manual provides instructions installation, operating parameters, routine maintenance, fault diagnosis, safety notes etc. Applicable only for water pump. Please read the manual carefully before installation and operation for your personal safety.

Contents

Chapter6 Pump group on-line

6.1 Pump group on-line function

Instructions of Connection and Operation for Multiple Pump Connection

1、We can connect maximum 6 sets of variable frequency water pumps.Connection for 6 sets of VFD water pumps: Connect the 485 socket terminal of the display board with the 2P cable. The 485+ and 485- of the first inverter terminal are connected respectively to the 485+ and 485 - of the second inverter terminal, and then connect the second inverter to the third inverter, the third inverter to the fourth inverter, the fourth inverter to the fifth inverter, the fifth inverter to the sixth inverter in the same way. Please respect this connection order and connect them correctly, the positive wire is connected to the positive wire, the negative wire is connected to the negative wire.

2. When all the cables are well connected and all the variable frequency water pumps are powered on, set those 6 inverters to the stop state by pressing the “stop” button, and then operate each inverter according to the following steps 3 and 4 to set the machine number.

3. Press the “UP” and “DOWN” button of the first inverter simultaneously for 3 seconds to enter the subdirectory, then press the “UP” button to P022, then press the “RUN” button to confirm, press the “UP” button again to set the parameter to 1. This inverter is the No. 1 machine (this VFD water pump is the host, and the other 5 are the slaves). (P022 is set for the position number)

4. Set the other 5 inverters according to step 3, set the second inverter to 2 (the second is the No.2 machine), the third to 3 (No.3 machine), the fourth to 4 (No.4 machine), the fifth to 5 (No.5 machine), and the sixth to 6 (No.6 machine).

5. Enter the subdirectory of the first inverter again and adjust it to P023, set the cycle time according to your requirements, the adjustable setting range is 1-72 hours. For example, if it is set to 24 hours, set the parameter to 24. (P023 is the cycle time setting. Please note that if you want P023 works ,the parameter of P024 should be one less than the total quantity of inverters in the multipump connection. For example, if you connect 3 inverters, P024 must be 2; If you connect 2 inverters, P024 must be 1).

6. Enter the subdirectory of the first inverter again and adjust it to P024, set the parameter to 6 (indicating 6 inverters to be connected), set to 2 if you want to connect only 2 inverters, and so on (this is the case when you don't need P023 cycle time fonction; if you need cycle time fonction, the parameter should be one less as indicated in step5). (P024 is the number of machines to be connected).

7. All the above settings done, disconnect all the inverters from the power supply. Then connect all the inverters to power after 2 minutes .

8. When you see the “GROUP” indicator light of one of the inverters is always on (this inverter is the host, the other 5 are the slaves, and the “GROUP” indicator light of the slave is flashing). If all “GROUP” indicator lights on the panel of those inverter are on, the connection signal is normal.

9. Please note that while operating the panel, only the buttons of the host panel work, you can't operate other slaves’ panel. Press the “RUN” button of the host inverter and pumps begin to run.

Chapter1 Introduction

Thanks for purchasing VFA-10L series AC Drive inverter!

We will provide thoughtful service to meet your needs!

1.1 Product Introductions

This VF constant pressure water supply system adopts the industry leading technique SPWM (Sinusoidal Pulse Width Modulation) and high-performance space vector, performs V/F VVVF (Variable Velocity Variable Frequency) Control.

Together with the advanced pressure sensing technique, it collects real-time pressure change of the pipeline and adjusts the revolving speed of the pump.

It makes the outlet pressure constant and thus saving water and electricity.

1.2 Applications

It can be used to increase water pressure in various occasions, such as tap water pressurization, residential neighborhoods, villas, barbershops, entertainment places and industries.

1.3 Product Advantages

1. Easy to operate,easy-to-use interface, no need of professionals to test or maintain.
2. Boasting advanced professional core techniques, complex PID algorithm control, pump drive control technique.
3. Stable and reliable performance, with comprehensive protection functions, such as water shortage, output short circuit, over current, low voltage, high voltage, bl ocked rotor and other protection technologies.
4. Compared with the traditional water supply methods, VF constant pressure water supply saves the energy up to 20%~60%, and achieves highly efficient energy saving.
5. It fully complies with the product safety and environmental protection manufact uring standards and requirements ofthe European Union, the United States and ot her developed countries.
6. This VF system makes water-using enjoyable, and improve the quality of life.

Chapter2 Notes for Safe Use

2.1 Instructions for Use

1.Please confirm carefully while opening the boxes: the device has no broken parts and the nameplate is the one you ordered.

2.Please read this manual carefully before installation and use.

3.Please check whether the goods are damaged due to careless transportation or not, don't access to power supply if they're damaged.

4.Before using, check the ground wire carefully. Make sure the grounding is appropriate and reliable.

5.Any failure to follow safety warnings can result in damages of goods, personnel injuries and other property loss, the factory won't be responsible or bear joint liability or pay any compensation for your negligence.

6. Definition of Safety

⚠ Case of failure to follow this instruction can result in death or severe injuries.

⚠ Case of failure to follow this instruction can result in minor injuries or property loss.

7、Safety Warning marks：

DANGER	1.Please install to metal and other non-combustibles, otherwise it might start a fire.
	2.Keep away from combustibles, otherwise it might start a fire.
	3.Keep away from explosive gases,otherwise it might explode.
	4.Make sure the grounding is appropriate and reliable, otherwise it might pose a risk of electric shock .
	5.Wiring operations should be done by professionals, otherwise it might pose a risk of electric shock .
	6.Choose and use the right power supply according to the instructions, otherwise it might pose a risk of electric shock and it might explode.
	7.Cut power before installation and maintenance, otherwise it might pose a risk of electric shock .
	8.Do not use wet hands to operate AC drive, otherwise it might pose a risk of electric shock.
	9.If the product is stored for more than 2 years, the voltage regulator should be used to boost gradually, otherwise it might pose a risk of electric shock and it might explode.
	10.Maintenance should start 5 minutes after cutting power when all the indicator lights are off,otherwise it might pose a risk of electric shock.
	11.Do not touch any components and parts on circuit board with bare hands when power is on, otherwise it might pose a risk of electric shock .
	12.Professionals are needed for replacing components, no metal objects are allowed to be left in the device, otherwise it might start a fire.
	13.The exposed parts of circuit should be wrapped up with insulation tape, otherwise it might pose a risk of electric shock.

Chapter5 Maintenance

5.1 Instructions for Maintenance

1.Professionals needed to do the maintenance.

2.During the operation, structures and specified performances of this appliance can't be altered. Otherwise, the company will not be responsible for any consequences.

3.In summer, good ventilation is needed. At the same time, goods should avoid direct sunshine and rain. In winter, keep it warm and away from combustibles.

4.Cut power when it's off work for long time.

5.2 Storage & Safekeeping

If need short/long time storage, follow these instructions:

- ◆ Keep it in dry, dust-free, good ventilation places and at required temperature.
- ◆ If it's kept in storage for more than a year, charging test should be made to wake up the capacitor.
- ◆ Any puncture tests are not allowed, they will shorten the service life of the AC drive inverter.

4.3 Operations and Instructions

4.3.1 Check before power on

1.Check if the input power and environment fits required conditions.

2.Check if the VF system is installed securely.

3.Make sure the wiring is accurate before power on. If pump is three-phase water pump, make sure the direction of motor is right , if not,exchange UV with WV/WU.

4.3.2 Operation procedures

1. When power is on, the "Power" light indicator is on. Press " STOP " and actual pressure shows "0.0"bar,

setting pressure display area shows the setting pressure.

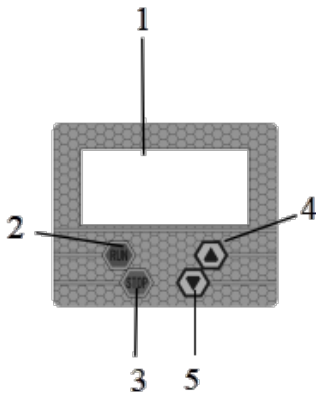
2. Open water outlet valve, press" RUN ", start the water pump.

3. The button of " STOP " can be pressed at any working condition to stop the pump.

4. Press" ▲ " or " ▼ " to check the setting working pressure. Press " ▲ " or " ▼ "to increase or reduce the working pressure.

5. Turn on the tap after setting the pressure. The AC drive inverter will adjust the speed according to water consumption situation. Check whether the pump is working properly and the real-time pressure is constant. If so,Installation is done. If not, debug it according to instructions and test again.

4.3.3 Buttons and their functions

Diagram	No.	Name	Instructions
	1	Display area	Display the current setting pressure value, actual pressure value of the pipeline, working frequency, workingst atus, system parameters, fault codes, etc.
	2	Starting button	Manually start the pump, press this button to exit the water shortage state
	3	Stopping button	Stop the pump manually, press this button to exit the water shortage state
	4	Increasing button	Increase the pressure value by 0.1bar each time
	5	Decreasing button	Decrease the pressure value by 0.1bar each time, and decrease quickly if pressed for long time

CAUTION	1.Must be installed in the place that can support the weight of this AC drive inverter, otherwise it might fall and cause injuries and property loss.
	2.Keep away from pipelines and places that can be splashed by water, otherwise it might cause property damages.
	3.Keep away from direct sunshine, otherwise it might cause property damages.
	4.Keep away from rain, otherwise it might cause property damages.
	5.Should be stored at room temperature, in place which is dry,cool and has good ventilation.
	6.In summer or at high temperature, good ventilation is needed to avoid condensate water or dew, otherwise it might cause property damages.
	7.Professionals are needed to install and maintain this AC drive inverter .
	8.Do not install or operate when the AC drive inventer is damaged or has missing components. Otherwise, it might start a fire and personnel might get hurt.
	9.Keep away from children. Put protection over AC drive inverter after installation and keep it out of the reach of children.

2.2 Required Environmental Conditions

The working environment of AC drive has a direct impact on its functions and service life.

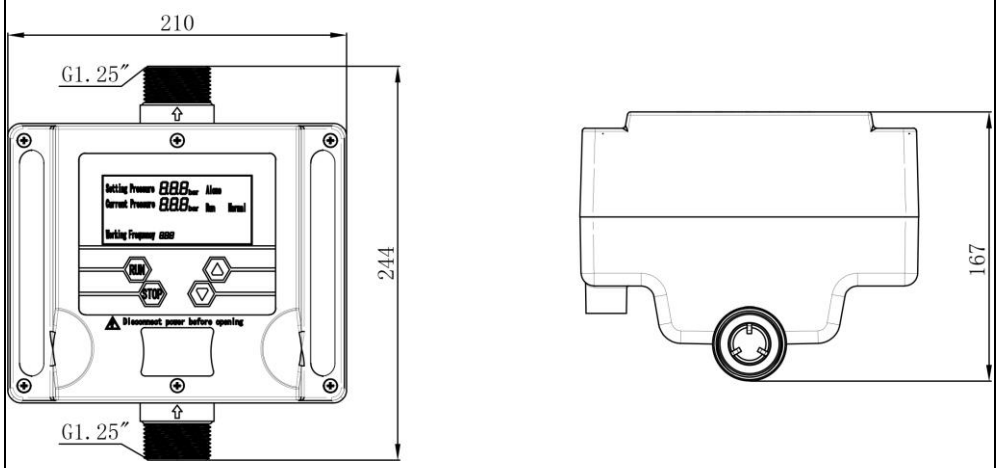
Thus the working environment must meeting those requirements:

- ◆ Required temperature range : -10℃～+40℃
- ◆ Keep away from corrosive and explosive gas.
- ◆ Must be installed in places which are dry and have good ventilation.
- ◆ Avoid dusts, cotton fibers and metal chippings getting into AC drive inverter.
- ◆ Indoor use only.
- ◆ Keep away from radioactive materials and combustibles.
- ◆ Avoid electromagnetic interference.

Chapter3 Shape,Size,Parameter

3.1 Shape,Size,Parameter

0.75KW～1.1KW	1.5KW~2.2KW



3.2 Parameters

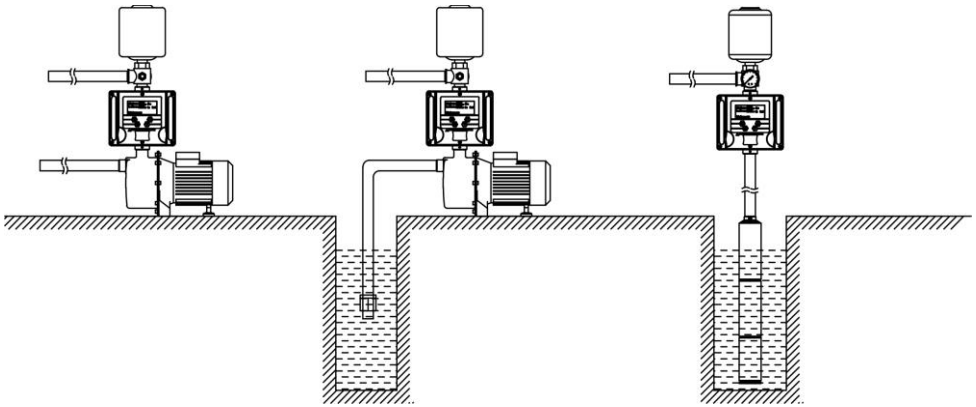
NO.	Item / type	0.75KW	1.1KW	1.5KW	2.2KW
1	Input power	Single-phase AC power supply or three-phase AC power supply			
2	Input voltage	110VAC or 220VAC or 380VAC			
3	Allowed voltage fluctuation	80V～140V(110V) or 160V～260V（220V） or 300V～450V（380V）			
4	Input frequency	50/60Hz			
5	Output voltage	110VAC or 220VAC or 380VAC			
6	Load type	Pump			
7	Output frequency range	20～50Hz or 20～60Hz			
8	Pressure sensor	24V,4-20mA			
9	Pressure setting range	0.5～9.0bar			
10	Pressure tank Setting requirements	Required not less than 2 liters inflatable pressure tank is needed (Preset pressure = 60% of the set pressure)			
11	Temperature range	0～+40℃			
12	Medium	Clean water within the temperature range of 0～+100℃			
13	Pressure needed to do self-starting	When factory setting pressure is less than 0.3bar			
14	Installation	Make sure the grounding is appropriate and reliable before using			

Chapter4 Installation, Test, Operating Instructions

4.1 Installation and Test

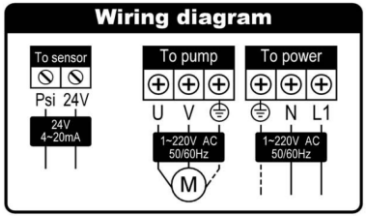
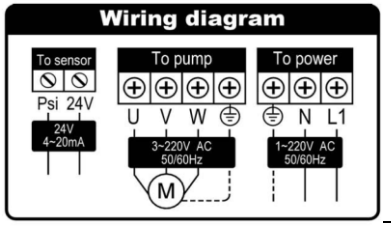
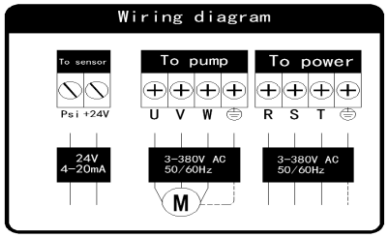
4.1.1 Single Pump Installation Diagram

Tap water Pressurization installation mode ↓	Self-priming pump Water supply installation mode ↓	Submersible pump Water supply installation mode ↓



4.2 Wiring operations

4.2.1 Wiring Diagram and Instructions

Single-phase in and Single-phase out	Single-phase in and three-phase out
	
Three-phase in and three-phase out	**Notes and Instructions**
	(1)The wiring job must be done by professionals (2)Wiring operation must be performed when power is off (3)Make sure the wiring is appropriate and confirm the voltage before power is on (4)Puncture tests are not allowed (5)Make sure earth terminal is connected (6)Panel must be installed before power is on