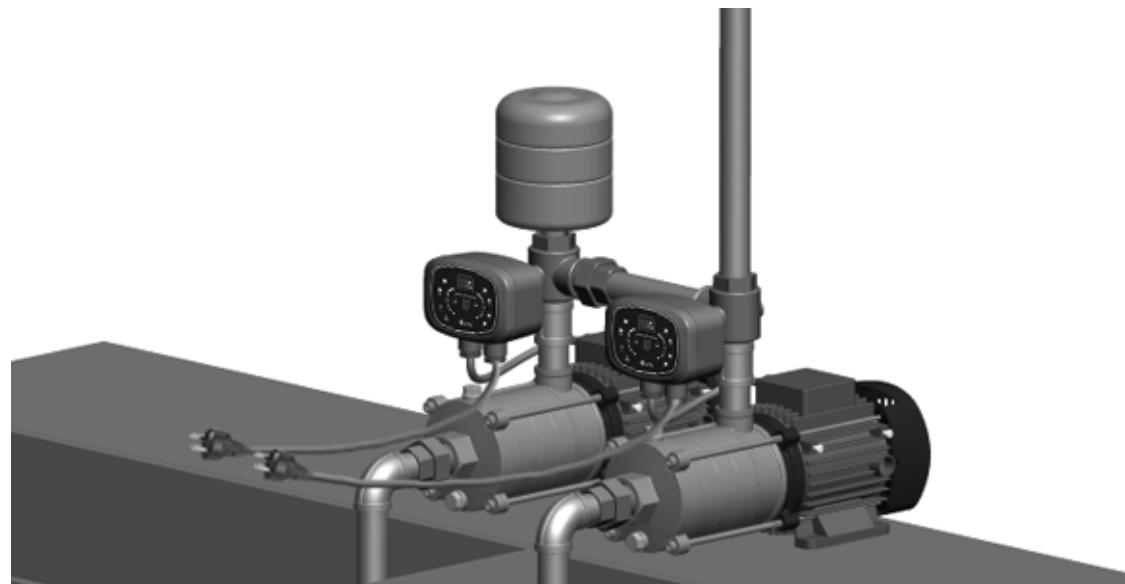


Instruction Manual for Electronic Pressure Controller

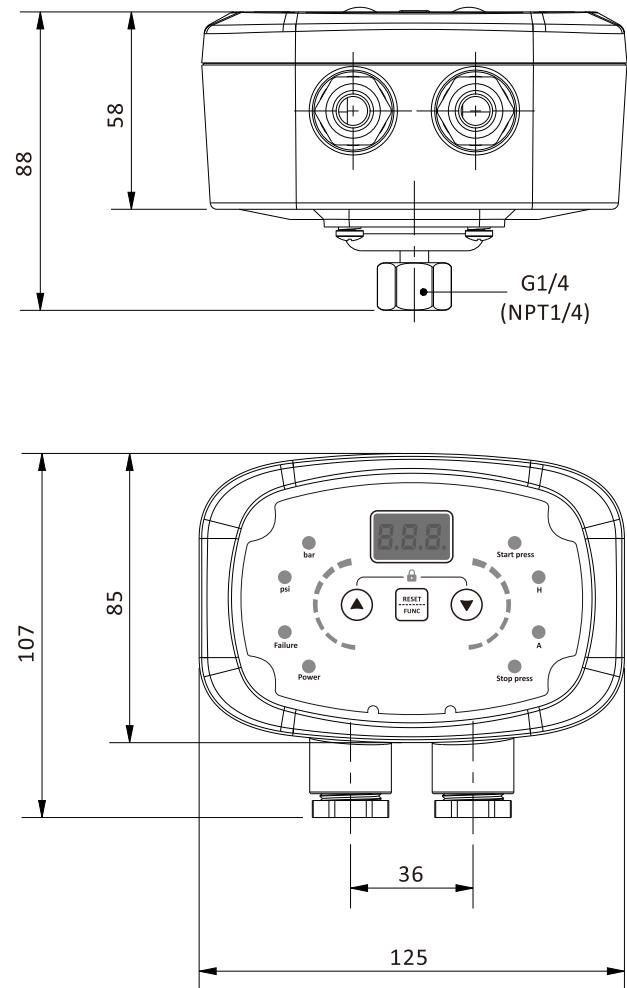


Please read the instruction manual carefully before operating the product and
follow the instructions strictly in application.
Please keep the manual properly for future reference.

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9 . Dimensions



1. Product introduction and application

It is an electronic pressure switch with digit tube which can be used to control the start and stop of single-phase pumps up to 2.2kW . The starting and stopping pressure of the unit can be set through the user panel. With the features of convenient and simple wiring and separately adjustable starting and stopping pressure, the unit completes different users' needs.

It can be used independently or in applications where two synchronous pumps operate coordinately as a set. The unit provides display in bar, psi, and A as well as protective functions such as overload, dry-running , frequent pump start and stop, sensor displacement and overpressure.

Typical applications

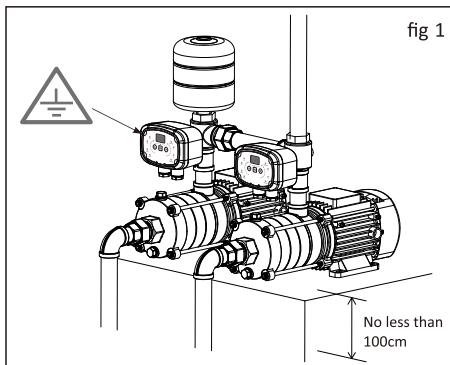
- Family housing
- Apartment
- Holiday inn
- Farm
- Well water supply
- Greenhouse, garden, agricultural irrigation
- Rainwater reuse
- Industrial factory

2. Safety precautions

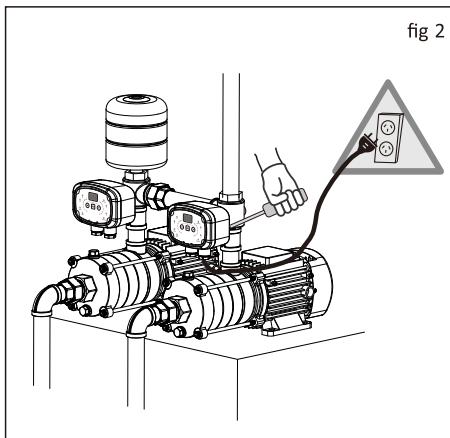
A. Grounding: make sure that the power outlet must be reliably grounded to avoid the risk of electric shock due to leakage.

If the power cable is not reliably grounded, draw a separate ground wire of no less than 100cm from the pump terminal or motor housing and lay underground as per Figure 1. It is strictly forbidden to connect the ground wire to such hazards as gas pipes that may cause explosion.

Do not place the power outlet and plug in the place that may gain access to water.

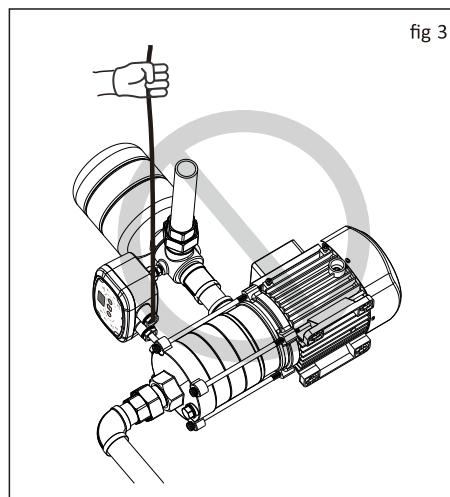


B. Any installation and service to the electronic pressure controller through opening the housing shall only be carried out after the removal of power supply and consequent two minutes for internal discharge. (Figure 2)



C. The electronic pressure controller is not intended for immersion or submersion applications and is suggested for an indoor use only. In case of an outdoor installation, it is suggested to use some kind of shelter.

D. It is strictly forbidden to move the electronic pressure controller by dragging the cable as it will cause falling off of the internal wire leading to short circuit. (Figure 3)



E. The electronic pressure controller is only suitable for pumping safe media as water and is strictly prohibited to pump flammable or explosive media.

F. To avoid personal or property damage which would fail the warranty, any installation, wiring and setup of the electronic pressure controller must be completed by professionals.

G. In case of necessity to lengthen or replace power cable, make sure to use cables equivalent to or more than the original specifications. Take care that cables must be reliably fastened, waterproofed and well insulated.

H. The manufacturer won't assume any legal responsibility for any faults due to unauthorized modification or alteration to the electronic pressure controller and its application.

7. Function description

1. Default starting and stopping pressure;
2. Water supply failure detection: It has the function of periodic water supply detection to prevent the pump from dry-running;
3. Low power standby mode and anti-touch protection;
4. Built-in pressure sensor possessing fast response and higher accuracy;
5. Regular water supply function enables a more flexible application;
6. A comprehensive digital display with real-time display in bar and psi;
7. User's panel consisting of 3-digit digital display, LED lights and keys;
8. Combined dry-run detection by both system pressure and currency in a more accurate way;
9. Frequent start and stop alarms: frequent start and stop will occur when the pressure tank is under-pressure, the controller will trigger an alarm and intelligently increase the time to reach maximum pump pressure;
10. Overload alarm;
11. Manual start and stop;
12. All alarms can be manually turned on and off, and the alarm conditions can be flexibly adjusted according to actual applications;
13. Operating modes: differential pressure, counter-differential pressure and synchronization operation;
14. EMC and electrical safety certification;
15. ROHS approval.

8. Common faults and solutions

Fault code	Fault description	Solution
Fault light flashing	Water supply failure	Press  button to restart when water supply is resumed.
OL	Motor overload	Check whether the wiring is correct and the pump is blocked.
EL	Pump dry-run	Stop the controller and check for proper water supply and damaged foot valve.
PE	Pressure sensor failure	Check if the sensor is connected properly and replace the faulty sensor.
	Frequent pump start and stop	Check for pipeline leaks and the pressure tank filling.
OP	Over pressure	Stop the controller and check whether the pump parameters are in line with the pressure controller range.

6. System start

1、When the controller is powered for the first time, it is in OFF mode. Hold  three seconds to unlock user's panel. Press  to start pump and press again to stop pump. Users can press  at any time to start or stop pump. The unit will continue to run in the previous mode once restored from power failure. Press  twice to lift alarm stop and reset the unit.

2、Standard parameter setting (code F1):

Hold  for three seconds after unlocking control panel to enter setting interface with code F1 on. Press  to enter next menu. For example, pressure setting code "00" will be shown and users can press  or  to choose code (00-15) and press  to enter parameters setting. e.g. set starting pressure (0.5-7bar) and press  to complete the setting. If any key is pressed down by mistake during setting and no function key is pressed, the unit will automatically exit setting process after parameters blinking for 10 seconds and continue to run with the parameters previously set.

3. Factory parameters setting (code F2)

Hold  for three seconds after unlocking control panel to enter setting interface with code F1 on. Press  to shift to code F2 and then press  to enter next menu. During the setting, users can press  or  to choose code (00~02) for controller reset, setting main control and setting code 01. Press  to complete the setting. If any key is pressed down by mistake during setting and no function key is pressed, the unit will automatically exit setting process after parameters blinking for 10 seconds and continue to run with the parameters previously set.

4. Water failure (E01)

When there is no water supply to the system, the controller will stop automatically for 10s after 20s running. The controller runs again for 40s after stopping for 10s. If there is no water supply, the controller runs for 40s and stops and turns to the dry-running protection status. The procedure will be repeated every 24hours to detect water supply and run once there is water.

5 Overload cycling (E02)

If motor overload is detected in the system, the controller will stop after running for 15s during the same time it will check whether the overload is eliminated. Once the alarm is removed, the controller operates again in normal working mode.



It is strictly forbidden to run the pump for a long time without water for the first running, otherwise the motor will get burnt due to overheat.

3. Technical parameters

Technical parameters	
Rated voltage	110-240V (AC , Single phase)
Frequency	50/60Hz
Maximum current	16A
Maximum power	2.2kW(3HP)
Starting pressure range (Cut-in)	0.5-7bar
Stopping pressure range (Cut-out)	1-9bar
Factory setting (Cut-in /cut-out)	2.2/5bar
Protection grade	IP65
Maximum water temperature	40°C
Maximum ambient temperature	60°C
Ambient Humidity	less then 90%
Net weight (cable excluded)	0.45Kg
Inlet thread	G1/4 (default) / NPT1/4

4. Installation

4.1 Pipeline installation

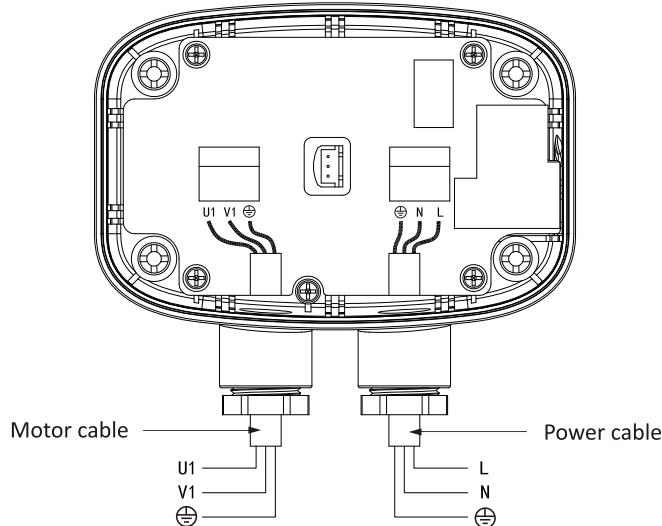
To ensure system stability, the pipeline needs to be equipped with four-way check valve and pressure tank. (The electronic pressure controller is installed at the G1 / 4 end of the four-way check valve).

4.2 System connection

4.2.1 Power connection

Standard connection for the electronic pressure controller

1. Power cable
2. Motor cable



Ensure that the rated voltage and frequency are in line with the requirements of the electronic pressure controller.

No	Name	General parameters, code F1
9	Timer start during pressure holding	Code: F1-08, 00: stand operation Unit: hour 01~99: press 01 (adjustable from 1-99 hour) to set timer start after pressure reaches maximum pump pressure and stops.
10	Delayed start Delayed stop ON/OFF	Code: F1-09, 00: OFF 01/02: ON (F1-03, F1-04)
11	Operation type	Code: F1-10, 00= NC (filling) 01=NO (emptying)
12	Dry-run threshold	Code: F1-11, default value: 0.2bar (Note: when this value is set, toggle the display unit to bar or PSI)
13	Reserve	Code: F1-12
14	Over load value	Code: F1-13, e.g.: 25A, unit: A
15	Dry-run value	Code: F1-14, e.g.: 2A, unit: A

5.3 Factory parameter

No	Name	Factory parameter, Code F2
1	System reboot	Code: F2-01, e.g.: 00, default setting 01, Press function key to reset the system and set the main control with automatic parameters. 02, Press function key to reset the system and set the secondary control with automatic parameters.

5.4 Failure code

No	Name	Failure Code, Failure LED normally on
1	Fault light flashing	water failure
2	OL	overload
3	EL	dry-run
4	PE	pressure sensor failure
5	OP	overpressure

No	Name	Function
5	Up key ▲	<ul style="list-style-type: none"> Press up key for parameter adjustment. Press up key during operation to shift unit in bar ,PSI and A.
6	Down key ▼	<ul style="list-style-type: none"> Press down key for parameter adjustment.

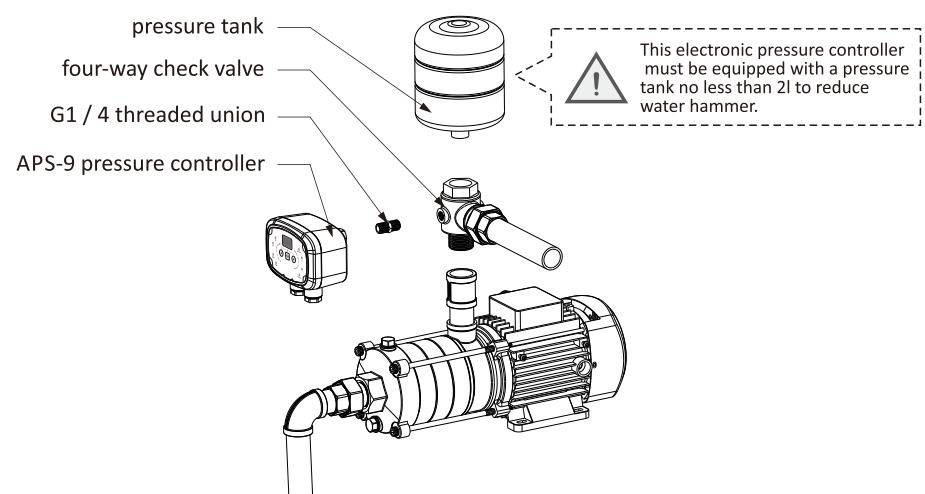
5.2 General parameters

No	Name	General parameters, code F1
1	Starting pressure	Code: F1-00, Start press-normally on
2	Stopping pressure	Code: F1-01, Stop press-normally on
3	Shift to show units (A/bar/psi)	Code: F1-02, 00: Unit in: bar 01: Unit in: psi 02: Currency unit: A
4	Delayed start	Code: F1-03, e.g.: 10S, unit: S
5	Delayed stop	Code: F1-04, e.g.: 10S, unit: S
6	Low power standby mode	Code: F1-05, 00: off, 01: on
7	Operation mode	Code: F1-06, 00: Operation 01: main control 02: secondary control
8	Minimum pumps pressure differential	<p>Code: F1-07, , default value: 2.5bar For example</p> <ol style="list-style-type: none"> 1. Operation model setting(F1-06): "01" as main control and "02" as secondary control. 2. Set starting pressure of main control 01(F1-00): the default value is 2.2bar and users can adjust as per actual application. 3. Set starting pressure of secondary control 02 as default value: no need for adjustment in pressure differential mode; 4. Set stopping pressure of the main control 01(F1-01): 4 bar(same for main control and secondary control); 5. Set stopping pressure of the secondary control 02 (F1-01): 4 bar(same for main control and secondary control). 6. Set minimum pressure differential of the two pumps (F1-07), default value, Users can adjust the value as per actual application. 7. The secondary control will only start when system pressure differential is more than 2.5bar and vice versa. 8. The pressure difference value determines the starting pressure value of the secondary control (02) with conversion formula shown as follows: For example: the stopping pressure value set by the main control (01) or the secondary control (02) minus the minimum pressure difference between the two pumps; 4 bar-2.5bar = 1.5 bar, 1.5 bar is the starting pressure value of the secondary control (02); 9. The starting pressure set by the main control (01) must be greater than the starting pressure of the secondary control (02) after conversion.

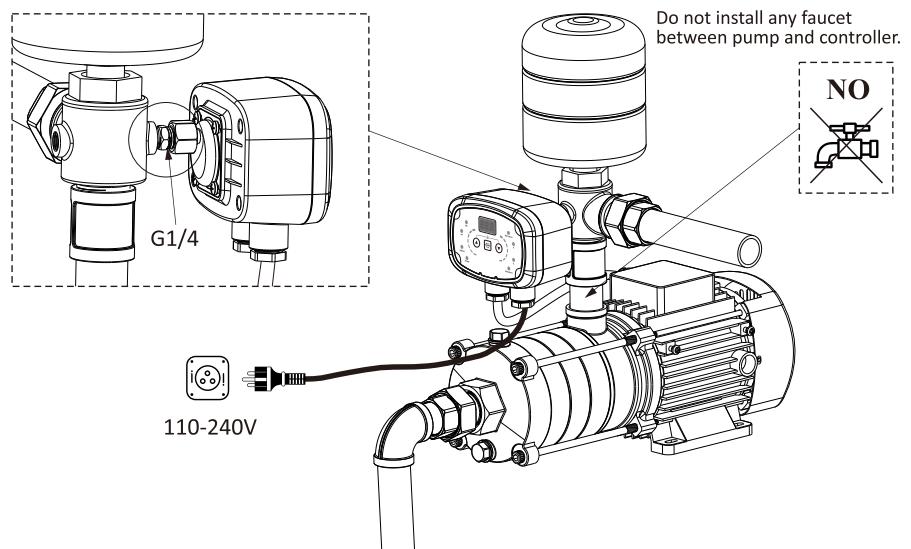
4.2.2 Single pump connection

Check pump ratings to make sure that input voltage and frequency of pump motor must be of 110-240V, 50 / 60Hz, and that power rating corresponds to the rating shown on the parameter label of this product.

The electronic pressure controller is mounted on a four-way check valve through a threaded union (G1 / 4).



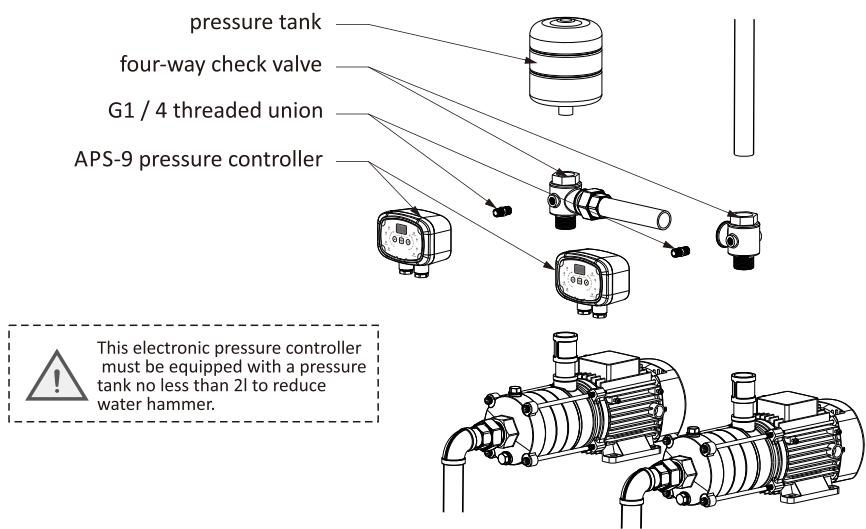
connection to single pump



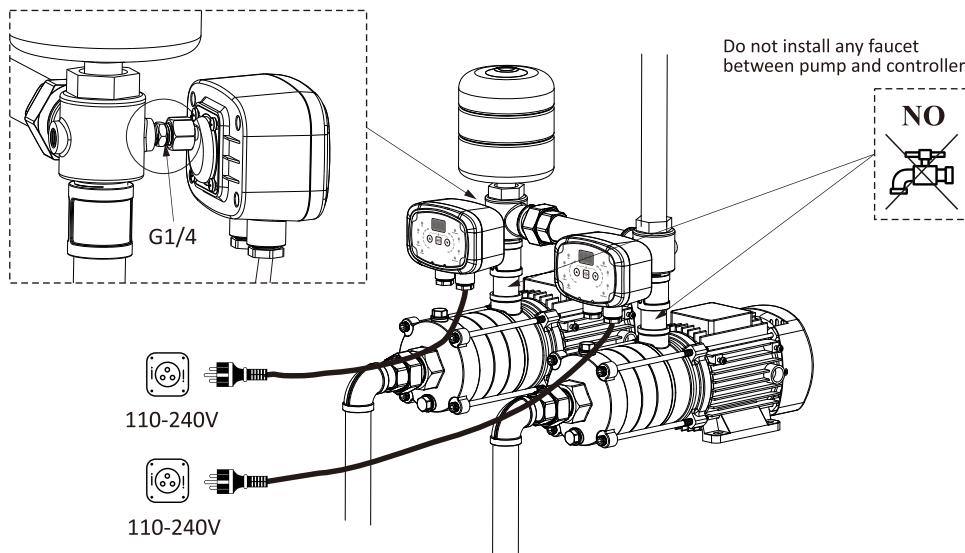
4.2.3 Two pumps connection

Check pump ratings to make sure that input voltage and frequency of pump motor must be of 110-240v, 50 / 60HZ, and that power rating corresponds to the rating shown on the parameter label of this product.

The electronic pressure controller is mounted on a four-way check valve through a threaded union (G1 / 4).

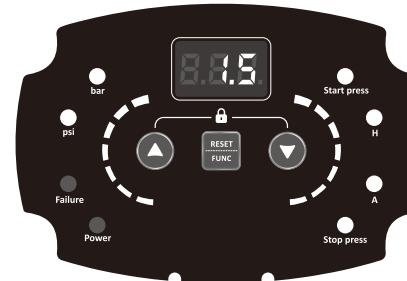


connection to two pumps



5. Menu settings

5.1 Panel function description



No	Name	Function
1	Indicator description	<ul style="list-style-type: none"> • bar-normally on, showing pressure unit in "bar" in digit tube, • psi-normally on, showing pressure unit in "psi" in digit tube, • A- normally on, showing real-time current in amperage, • Start press- normally on, showing starting pressure setting . • Stop press- normally on, showing stopping pressure setting • Failure- normally on in case of failures such as overload, dry-running, frequent start-stop, sensor displacement and over pressure, • H- normally on for timer mode . • Power- normal power supply, working instructions, etc. • " " Left frequency light showing pressure value, the higher level the larger value and light blinking indicates pump running. • " " Right frequency light showing current value, the higher level the larger value and light blinking indicates pump running. • " " Power-saving and anti-touch LED indicates that the unit has entered power-saving mode with LED lights and digital tube off and power LED on only. All keys are locked in this mode.
2	Led description	<ul style="list-style-type: none"> • Pressure indicator P_xx • Current indicator C_xx • Timer mode showing timing for startup • Value display during setting mode • Overpressure display: OP • Sensor abnormal display: PE • Overload display: OL (The default value of 0 indicates that the function is switched off. Overload value can be adjustable from 0.15-50A) • Water supply failure, current detection due to check valve blocking: EL. The default value of 0 indicates that the function is switched off. The current value can be adjustable from 0.15-50A)
3	Function Key 	<ul style="list-style-type: none"> • Hold key for three seconds after power on to unlock user's control panel. • Press power key to start pump and press the key again to stop pump.
4	Function Key 	<ul style="list-style-type: none"> • Hold key for three seconds after power on to unlock user's control panel. • Hold key for three seconds to enter parameter setting mode.