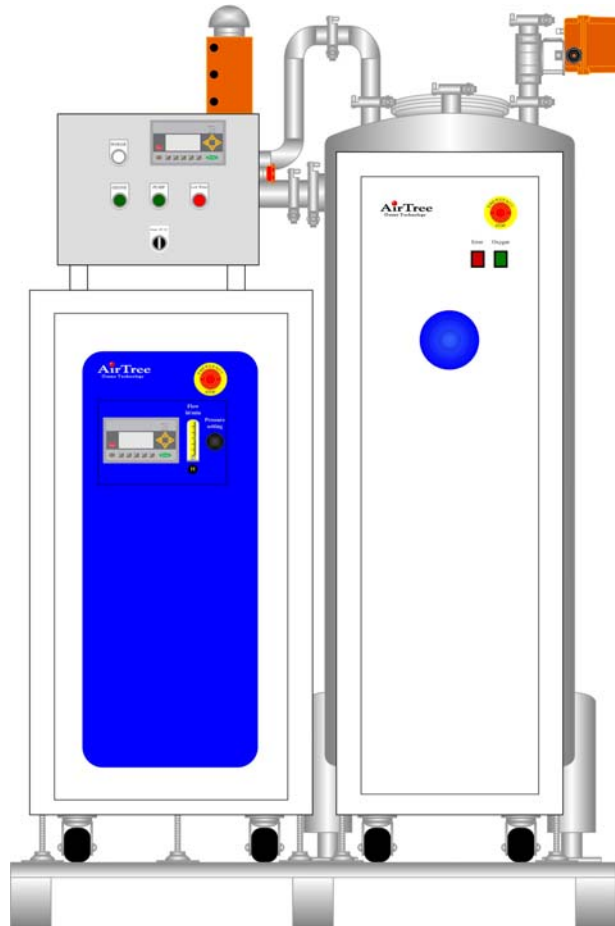


# Ozonated Water System

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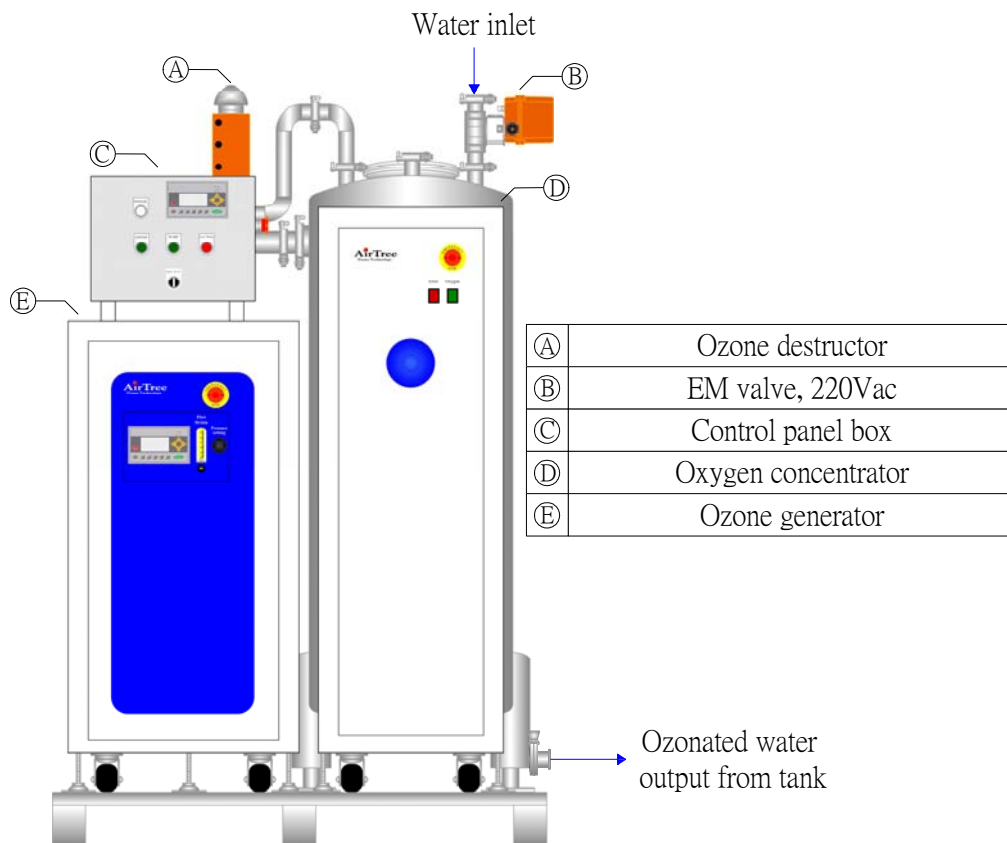
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## 1. Ozonated water system

The Ozonated water system is a skid-mounted and plug- and –play system in which consists of 1) feed gas supply system, 2) ozone generator, 3) booster pump, mixer, 4) dissolving ozone sensor, 5) ozone destructor and 6) control panel box. The system is capable to provide ozonated water at desired dissolving ozone concentration with output capacity up to 15 cubic meter per hour.

The installation is as simply as to connect the water inlet to the system and the water outlet piping to the point of use, and electricity to the control panel box. The control panel box incorporates with a programmable logical controller and human machine interface (HMI) to provide easy access to start up and to monitor the operation status.



Water inlet

Ⓐ	Ozone destructor
Ⓑ	EM valve, 220Vac
Ⓒ	Control panel box
Ⓔ	Ozone generator
Ⓕ	Gas inlet flow regulation valve
Ⓖ	Back stream leaking valve
Ⓗ	Booster pump
Ⓘ	Ozone sensor, 0~2 ppm
Ⓝ	Butterfly valve
Ⓚ	Needle valve
Ⓛ	Needle valve
Ⓜ	Pressure sensor
Ⓝ	Butterfly valve

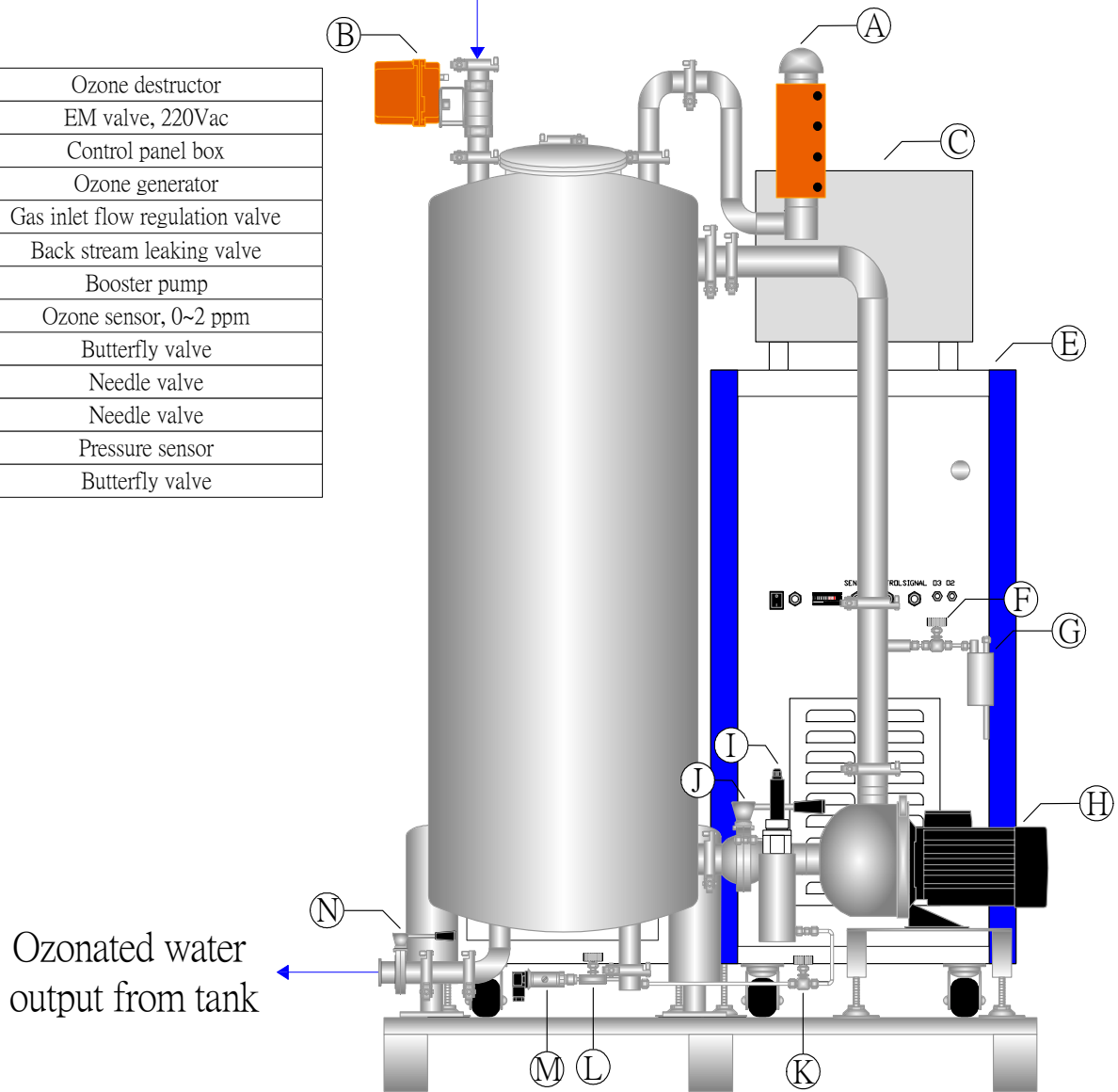


Figure 1 System block diagram

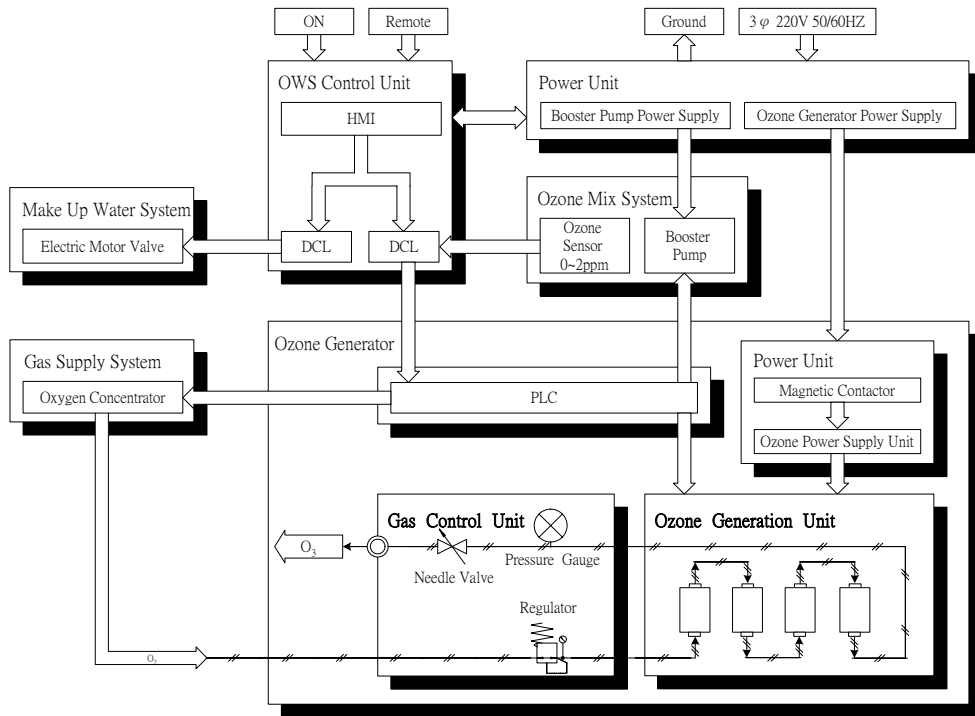
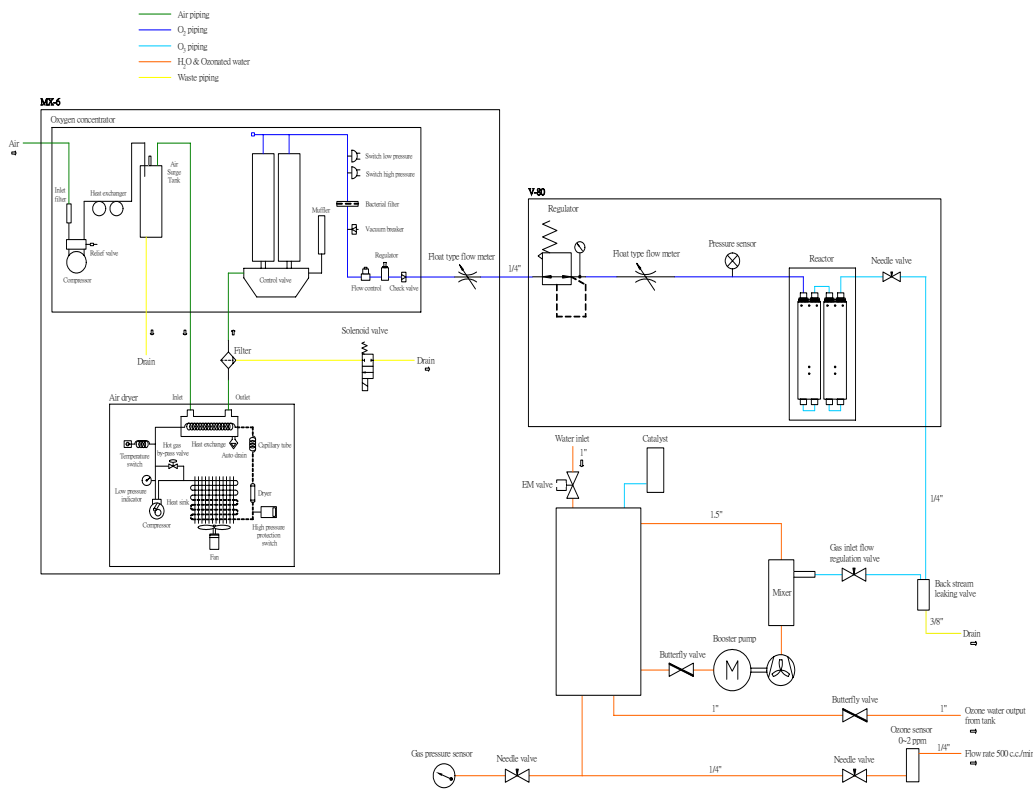


Figure2 Piping diagram



## 2. Installation

### 2.1 Electrical installation :

#### 2.1.1 Earth grounding

The machine should be connected grounded terminal properly. During connecting the power supply, always connect the earth conductor with green/yellow color before the connection of other power conductor. A terminal for the connection of the external ground conductor is provided in the control panel box with marked “PE”. It should make sure that the “PE” terminal being connection before the system operation.

#### 2.1.2 Power supply: 220VAC, 3-phase, 50/60 Hz

The system needs a clean and consistent source of 220-240 V, three phase power in 50/60 Hz (depend on your request before order). During connecting the power supply, always connect the earth conductor with the yellow/green color wire before the other wiring. The appropriate wiring schematic and electrical rating must be used.

### 2.2 piping installation:

#### 2.2.1 water input piping:

Connect the water input connector with a stainless steel OD: 40mmx ID 34mm (material: e.g. 1.4571, 1.4435).

#### 2.2.2 water input pressure: the water input pressure at 1kg/cm<sup>2</sup>.

#### 2.2.3 ozonated water output piping:

Connect the ozonated water output connector with a stainless steel pipe OD: 40mmx ID 34mm (material: e.g. 1.4571, 1.4435).

Note: If necessary please add a delivery pump to increase the pump head. The material contact with ozonated water should be ozone resistant such as Stainless steel (e.g. 1.4571, 1.4435), Fluorised plastics( PTFE, PVDF, PFA).

### 3. Initial commissioning / Star-up

#### 3.1 Control panel box

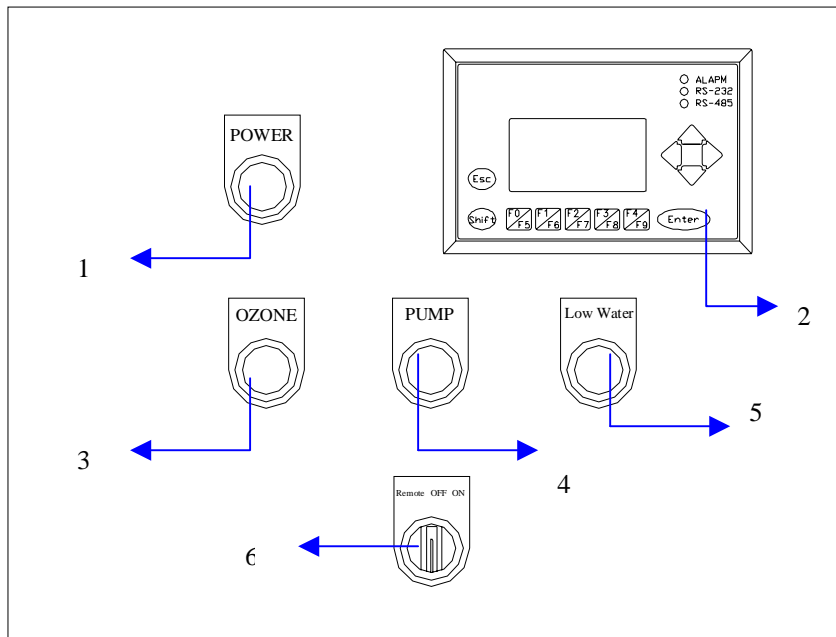


Figure 4 Control panel box

1. Power: power on/off indicator. The indicator lights on, when the power is turned on. The indicator lights off, when the power is turned off.
2. Operation interface panel: The interface to control and display the system operation status.
3. Ozone: ozone generator on/off indicator. The indicator lights on, when the ozone is on. The indicator lights off, when the ozone is off.
4. Pump: pump on/off indicator. The indicator lights on, when the pump is on. The indicator lights off, when the pump is off.
5. Low water level alarm: low water level alarm indicator.
6. Remote / Local switch: to select the operation mode. Set the switch to REMOTE to run the system at the remote mode. Set the switch to ON to run the system at local mode. Set the switch to OFF to shut off the system at local mode.

## 3.2 Start up

3.2.1 Install the piping of water inlet and water outlet.

3.2.2 Apply the electric power (220 Vac, 3-phase, 50/60 Hz, 30 amp full load).

3.2.3 Turn on the non-fuse breaker which is located in the control box.

3.2.4 Set the remote/ local switch to ON to run the system at the local mode. The power on indicator will be lit on.

3.2.5 Start up the ozone generator (refer to the ozone generator manual). The ozone on indicator will be lit on. After warming up the ozone generator, the ozone will be produced and pump will be started (pump on indicator lit on).

3.2.6 when the low water alarm indicator is lighted, the system will be shunt down. The electrical valve will open to add the make-up water in to the tank.

## 3.3 Turn off the system

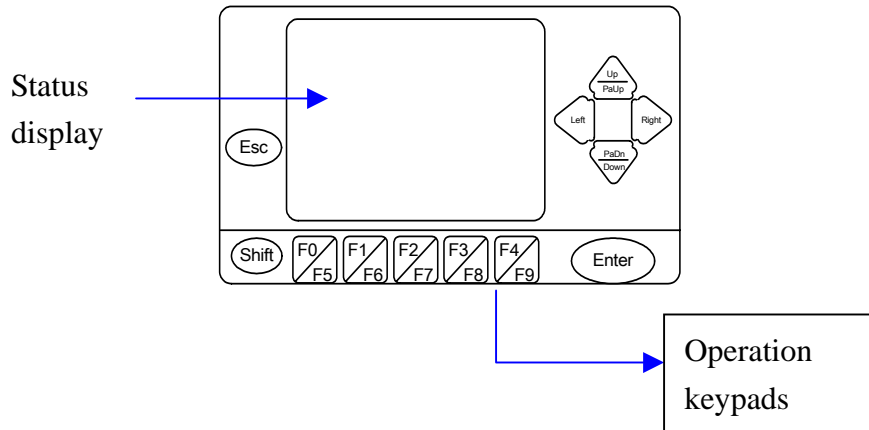
3.3.1 Turn off the electrical valve to close the valve.

3.3.2 Set the remote / local switch to OFF. The ozone generator and pump will stop running. The ozone on indicator and pump on indicator should be light OFF.


3.3.3 Turn off the Non-Fuse Breaker which is located in the control box. The power on indicator should light off.


#### 4. Operation interface

The ozonated water system uses the HMI as the operation interface. This screen displays operation status and keypads to access the parameters setting. These settings include the dissolving ozone concentration setting, low water level setting and high water level setting. If any fault or alarms have occurred, the error message will also be shown on the display.





##### 4.1 Keypads


 Press to cancel an incorrect input or exit a programming set up.


 Press to input a value or accept a programming command.

 Access to keys:     

 Used to constant 0, or 5 (shift +F0). It also is defined as the function for F0 and F5 (shift+0) in users page.

 Used to constant 1, or 6 (shift +F1). It also is defined as the function for F1 and F6 (shift+1) in users page.

 Used to constant 2, or 7 (shift +F2). It also is defined as the function for F2 and F7 (shift+2) in users page.

 Used to constant 3, or 8 (shift +F3). It also is defined as the function for F3 and F8 (shift+3) in users page.





Used to constant 4, or 9 (shift +F4). It also is defined as the function for F4 and F9 (shift+4) in users page.



Press to increase the setting value or move screen to one page up.



Press to decrease the setting value or move screen to one page down.



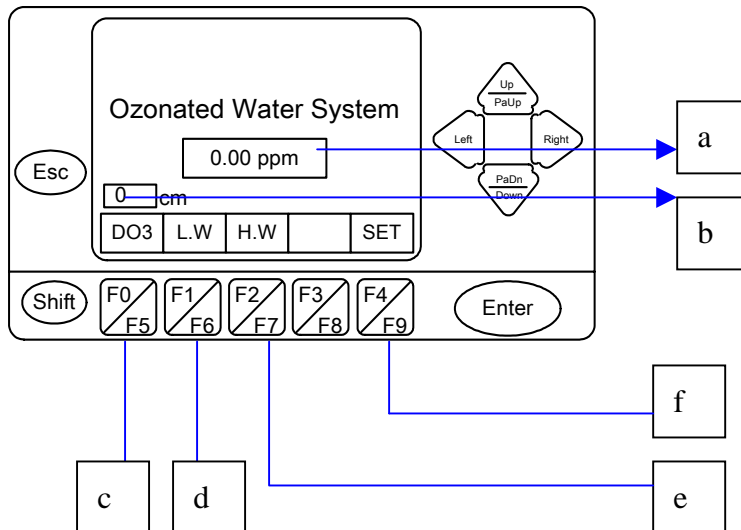
Press to shift the cursor to left direction (left direction key).



Press to shift the cursor to right direction (right direction key).


#### 4.2.1 operation main page


Figure 4-2-1





a) Display the dissolving ozonted water concentration value (ppm).

b) Display the water level value (cm).

c) Press  to set up the dissolving ozonted water concentration value.

d) Press  to set up the lowest water level value (cm) of tank to protect the pump from dry run.

e) Press  to set up the highest water level value (cm) of tank to prevent water over flow from the tank. When the water level reaches the setting value, the electrical valve will close to stop the water flow into the tank.

f) Press  and enter the password to access the technician menu page to change the factory default parameter setting value.

#### 4.2.2 Dissolving ozonated water concentration page: DO3 setting page

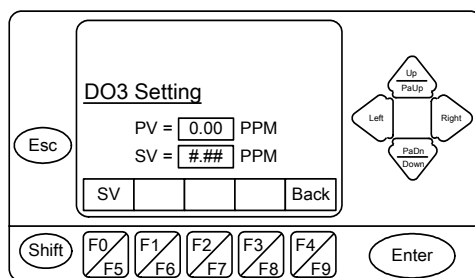



Figure 4-2-2 DO3 setting page

Press the  to enter DO3 setting page to set up the desired dissolving ozonated water concentration.

#### 4.2.3 Low water alarm setting page: set up the low water level value.

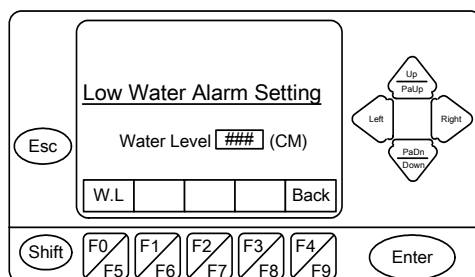



Figure 4-2-3 low water level setting page

Press  to enter the low water alarm setting page to set up the low water level value (cm). When the water is decreased to the low water level, the system will shunt down to protect the pump from

#### 4.2.4 High water level alarm setting page: set up the high water level value.

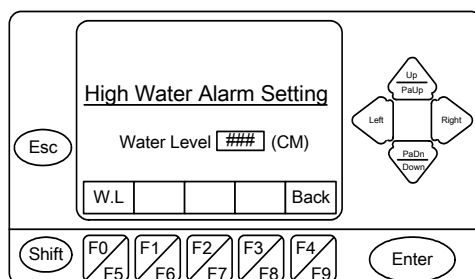



Figure 4-2-4 high water level setting

Press  to enter the high water alarm setting page to set up the high water level value (cm). When the water level reaches to the high water level, the electrical valve will close to stop the water flow in to the tank.