



Version: A0

**Group Wireless Moisture-Controlled Solar-powered Auto  
Irrigation Controller system  
GG-002B**

# User Manual

NOTE: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by ANC Technology could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum 20 cm between the radiator and your body. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC

ANC Technology

Technical Support number: 1-877-822-3958

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## **1. Introduction**

The group irrigation system GG-002B, uses one central controller which controls up to 40 field irrigation zones. Each zone is assigned an outdoor wireless solar powered soil moisture sensor and valve controller. Wireless communications are used between the main controller and accessories in the field. Solar power dramatically reduces installation cost, is good for environment, easy to use, and good for Agriculture/Garden automatic irrigation. This manual describes the installation and operation of the system.

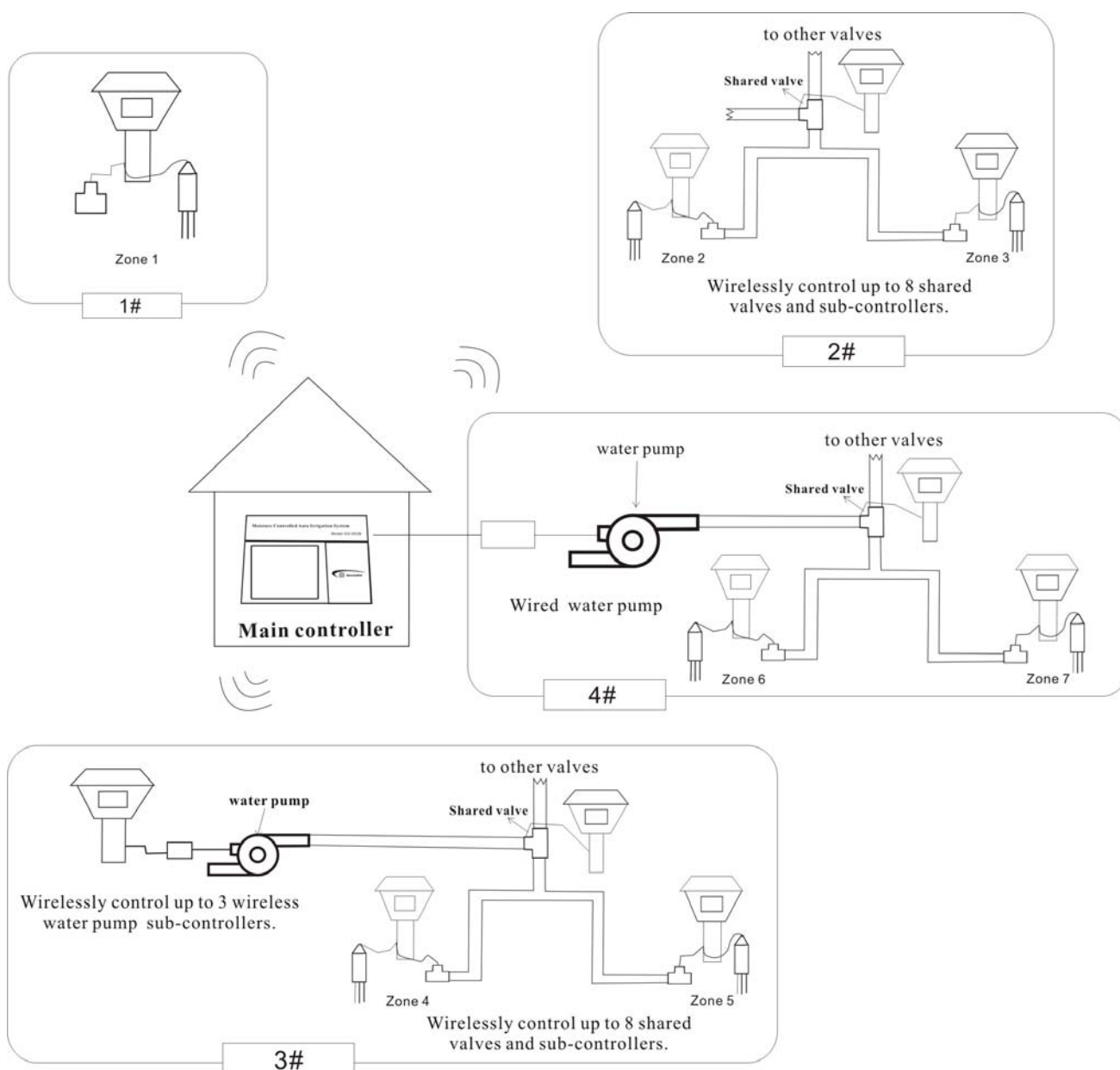
## **2. How it Works**

The main controller wirelessly controls soil moisture sensors and valve controllers in the field that have been registered by the user to the main controller. The main controller periodically asks for information from moisture sensors, the sensors respond and send back field information which include current moisture level, dry/wet control levels, communication status, and battery level. The main controller then analyses the data and issues open/close commands, if needed, to realize automatic irrigation. The LCD display on the controller shows the field information.

This system can control up to 4 water pumps and 4 shared valves. Of the 4 pumps, one is wired to the main controller, the other 3 are wireless controlled pumps using an

accessory wireless pump controller. These accessories can structure the system as: (1) Water pumps; (2) Shared valves, which are valves that supply more than one zone; (3) Irrigation zones; three structure levels, to realize auto irrigation control.

### 3. Operating Diagrams



These diagrams show different configurations of pumps and shared valve connections. The controller will be set up to match these configurations.

Water source→ Zone valve + sensor.

Water source→ Pump→ Zone valve + sensor.

Water source→ Shared valve→ Zone valve + sensor.

Water source→ Pump→ Shared valve→ Zone valve + sensor.

## **4. Specifications**

### **4.1 Group main controller**

LCD provides user information and prompts for data entry.

Keys used to select display options and enter data

Power supply required: 12VDC, 1A

Idle current:  $\leq 100\text{mA}$

Wireless range, open space: 2m-500m

Operating frequency range: 902MHz-928MHz

Operating temperature range:  $-5-50^{\circ}\text{C}$

Relative humidity:  $< 90\%$

Dimension: 230mm\*230mm\*80mm

Relay Contact closure for external pump control:

### **4.2 Solar controller for moisture sensor**

Power supply: Solar panel 130mm\*130mm 9V DC, 200mA

Battery: 1.2V\*6 AAA, Rechargeable NMH, 800mA/h

Idle current: 1mA

Wireless range, open space: 2m-500m

Operating frequency: 902MHz-928MHz

Operating temperature range: 0-50° C

Relative humidity: <90%

Solar controller will go to sleep when battery in the range of: 6.7 – 6.9 V

Solar controller will turn off when battery reaches: 6.3 V.

### **4.3 Solar controller for magnetic valve**

Power supply: Solar panel 130mm\*130mm 9V DC, 200mA

Battery: 1.2V\*6 AAA, Rechargeable NMH, 800mA/h

Idle current: 1mA

Wireless range, open space: 2m-500m

Operating frequency: 902MHz-928MHz

Operating temperature range: 0~50° C

Relative humidity: <90%

Solar controller will go to sleep when battery in the range of: 6.7 – 6.9 V

Solar controller will turn off when battery reached: 6.3 V.

### **4.4 Solar controller for moisture sensor + magnetic valve**

Power supply: Solar panel 130mm\*130mm 9V DC, 200mA

Battery: 1.2V\*6 AAA, Rechargeable NMH, 800mA/h

Idle current: 1mA

Wireless range, open space: 2m-500m

Operating frequency: 902MHz-928MHz



Operating temperature range: 0~50° C

Relative humidity: <90%

Solar controller will go to sleep when battery in the range of: 6.7 – 6.9 V

Solar controller will turn off when battery reached: 6.3 V.

## **4.5 Solar controller for pump**

Power supply: Solar panel 130mm\*130mm 9V DC, 200mA

Battery: 1.2V\*6 AAA, Rechargeable NMH, 800mA/h

Idle current: 1mA

Wireless range, open space: 2m-500m

Operating frequency: 902MHz-928MHz

Operating temperature range: 0~50° C

Relative humidity: <90%

Solar controller will go to sleep when battery in the range of: 6.7 – 6.9 V

Solar controller will turn off when battery reached: 6.3 V.

## **5. Explanation of Terms**

Dry control level: When moisture reaches this level, irrigation will begin.

Wet Control level: When moisture reaches this level, irrigation will stop.

## **6. Features**

1. Remotes are solar powered, low power consumption design.

2. Wireless communication, easy to install, good for outdoor application.
3. High precision self-learning patented technology, applies to any soil condition, covers large area.
4. Two irrigation modes: Soil moisture control or moisture control and forbidden irrigation period.
5. Big LCD display, for ease of operation and data.
6. The shell is water, and sun resistant.
7. The system has build in clock and calendar.
8. Manual valve control, easy for customer to handle emergency event.
9. Can reset system ID to make sure there is no disturbance between systems.
10. Can set up maximum number of zones for simultaneous irrigation to guarantee enough water pressure.

## **7. Notes for Installation**

1. Please don't put main controller in a metal box, or have big solid object in the way. If possible, try to put/hang the main controller high to assure good wireless communication range.
2. All wireless devices in the field must learn the system ID, and field dry/wet control moisture levels must be set before operation. Assemble the devices and set (learn) their ID before placing in the field. The devices timeout unless learning ID is successful, keep the devices 2m from the main controller to prevent RF signal overload.
3. All solar controllers must be installed at locations with maximum sun exposure.
4. These valves open and close rapidly. Use pressure relief valves as necessary to prevent pipe breakage and water hammer.

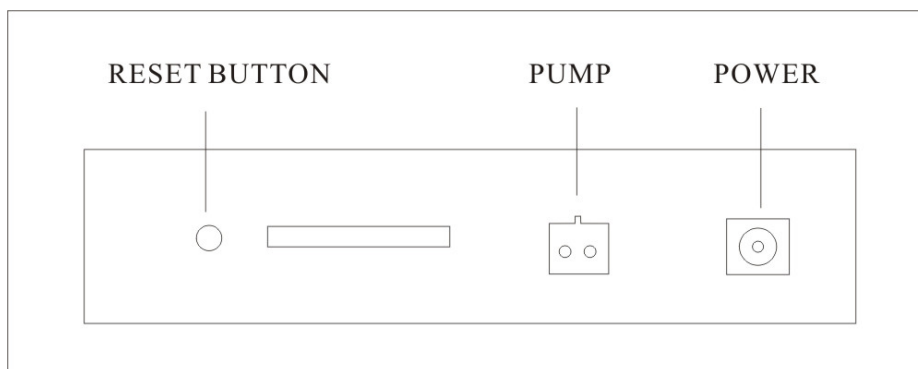
5. Protect pipes and valves from freezing weather if necessary
6. Install the system components as described in section 9

## 8. Initial Setup

### 8.1 Group controller front and rear panel illustration

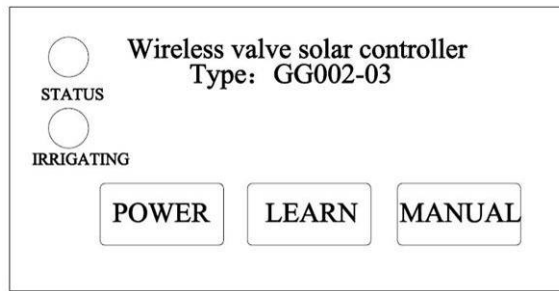


Main Controller keypad/LCD illustration

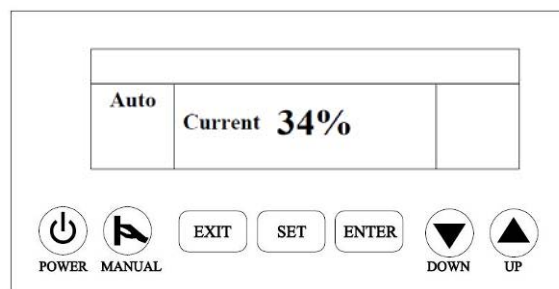


Main Controller rear connection illustration

## 8.1.1 Solar controller panels



Keypad of solar controller for magnetic valve



Panel of solar controller for moisture sensor or

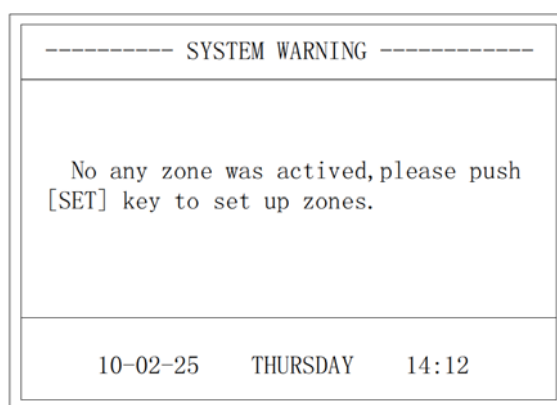
Solar controller for moisture sensor + magnetic valve

## 8.2 How to Operate

### 8.2.1 How to Operate the group main controller

Connect the supplied power adapter to the ac power line and rear panel of the main controller.

Power on the main controller, from initial conditions for a new installation, the LCD will show “No zone is active” After initializing is complete. The user can push “Menu” key to enter set up. For instructions about how to setup or change operating parameters, see sections 9.0-9.9.



After setup is completed, turn power on, the main controller will scan all the zones every 5 minutes, perform operation according to field information and show the field information on the LCD for each zone.


Field Information, Zone								
Moisture Sensor #	1	2	3	4	Pump			
Battery Level					Shared Valve			
Communication					Rain Detector			
Current Moisture				%	Running Mode			
Wet Control %				%	Failure Information			
Dry Control %				%				
Valve #	1	2	3	4				
ValvesStatus								
Battery Level								
Communication								
[4]-Scan All Zones Now					[▼▲]-Browse Zone Information			
10-02-15			MONDAY		14:18			

Following are instructions to set up the main controller with each device controller. All settings may be made from the main controller after the device ID's have been learned. Proceed with device learning with each device placed near the main controller first.

### 8.2.2 Solar controller for moisture sensor set up

Please make sure to setup system ID for all the accessories with the main controller first. The setup procedure for ID of all wireless devices is the same. Learning system ID is only performed once. Do this with the remote controller close by, but not closer than 2m. Install the device in its remote location after system ID is learned.

Note: On wireless moisture sensor,  (manual) key is unused.

After installation, or before installation if the sensor has not been registered to the system ID, push “” key to turn power on, then continue depending on the displayed results:

1. “Failure” is displayed on the screen, as shown below, beeps two times every 3 seconds will be sounded, which means ID, or dry/wet moisture control levels are not setup. The system will not work if any items above are not setup. If the moisture sensor controller ID is not set up, perform device registration first, with the main controller
2. Power on is normal, shown below, which means ID code and dry/wet levels are setup. The system will start operating. User also can push “Set” key to do ID code, dry/wet setup again, details reference following instructions.

When operating, as shown below, the Moisture controller will show current moisture, setup dry control and wet control levels in sequence every 3 seconds.

<b>Auto</b>	<b>Current 34%</b>	

3. Push “Set” key, LCD will show the setup menu,

<b>Learning Adjust</b>		
<b>Auto</b>		

Flashing items may be selected to enter and set, push Up/Down key to browse, push “ENT” to enter the menu, push “Exit” to exit. If no key is pushed in 20 seconds, the system will automatically exit from the setup. Push any key will reset the exit countdown for another minute.

Note: in setup, if no key is pushed in one minute, controller will automatically exit to normal operation.

#### 4. Menu for “Learning”

<b>Learning</b>		
<b>Auto</b>		<b>System ID</b> <b>Dry.Level</b> <b>Wet.Level</b>

Push “Set” key, “Learning” will flash, push “ENT” to learn, “Learning” will stop flashing. The items flashing now may be selected for learning.

Push Up/Down key to browse, push “ENT” to enter the menu, push “Exit” to exit. If no key is pushed in one minute, the system will automatically exit from the setup.

## 5. Learning system ID

Push Up/Down key to browse, when “System ID” is flashing, push ENT” to enter, “System ID” will stop flashing, the controller will to send out the wireless learning signal to the main controller. The device learning the system ID should be located near the group controller, but will work from 2 m to the maximum distance. Set the main controller to learn ID for the desired operating zone the moisture sensor will operate in. The main controller will show learning information on the screen. The moisture controller will beep two times meaning learning succeeded, and return to “System ID” flashing.

## 6. Learning dry control level

Do this when the soil is at the desired dry level. Otherwise set the relative moisture % as described in this section, step 9.

Push “Up/Down” key to browse, when “Dry. Level” is flashing, the middle of the LCD shows current moisture level, push “Ent” key, followed by three beeps, which means the dry control level has been successfully learned.

## 7. Learn Wet control level

Do this when the soil is at the desired wet level. Otherwise set the relative moisture % as described in this section, step 10.

Push “Up/Down” key to browse, when “Wet. Level” is flashing, the middle of the LCD shows current moisture level, push “Ent” key, followed by three beeps, which means the wet control level has been successfully learned.



### 8. Adjusting Dry/Wet control levels

The wet/dry levels are also displayed and may be adjusted on the main controller.

Push Up/Down key to browse, when “Adjust” is flashing, push “Ent” to enter, then “Adjust” will stop flashing:

		<b>Adjust</b>
<b>Auto</b>	<b>Set</b>	<b>Dry.Level</b> <b>Wet.Level</b>

### 9. Adjusting dry control level

Push Up/Down key to browse, when “Dry. Level” is flashing, push “Ent” key to enter adjust “dry control” level as below:

		<b>Adjust</b>
<b>Auto</b>	<b>Set</b>	<b>34%</b> <b>Dry.Level</b>

Push Up/down key to adjust dry control level, push “Ent” to confirm. Beep two times means successful adjustment, new control level replaces old control level and controller returns to previous menu as below:

### 10. Adjusting wet control level

Push Up/Down key to browse, when “Wet. Level” is flashing, push “Ent” to enter, as

below:

		<b>Adjust</b>
<b>Auto</b>	<b>Set</b>	<b>55%</b>
		<b>Wet.Level</b>

Push Up/down key to adjust wet control level, push “Ent” to confirm. Two beeps means successful adjustment, the new control level replaces old control level and the controller returns to previous menu.

#### 11. Error in Dry/Wet control levels

If dry control level is greater than wet control level, the controller determines this an error. When exiting setup “Failure” will be displayed on the LCD left side, and beeps every 3 seconds to remind user check and correct the Dry/Wet control levels.

### 8.2.3 Solar controller for magnetic valve set up

Please make sure to setup system ID for all the accessories with the main controller first. The setup procedure for ID of all wireless devices is the same. Learning system ID is only performed once. Do this with the remote controller close by, but not closer than 2m. Install the device in its remote location after system ID is learned.

After installation, or before installation, but within 2 and the maximum communications range, push “☺” key to turn power on, then continue depending on the displayed results:

1. Both LEDs do not light up, the controller continuously beeps, which means the system ID is not learned yet. After successfully learning ID by following step Reference 9.11, “Status” LED will flash every 3 seconds.
2. “Status” Light is up and flashing every 3 seconds. Which means work status is normal, waiting for command from the main controller.
3. “Irrigating” LED light up, which means is irrigating.

Note: User can manually control the valve using the manual key on the controller to toggle the irrigation state.

Push and hold the power key over about 3 seconds then beep will shut down the controller power. If the controller is irrigating, will close the valve first before shutting down the controller.

#### **8.2.4 Solar controller for moisture sensor + magnetic valve set up**

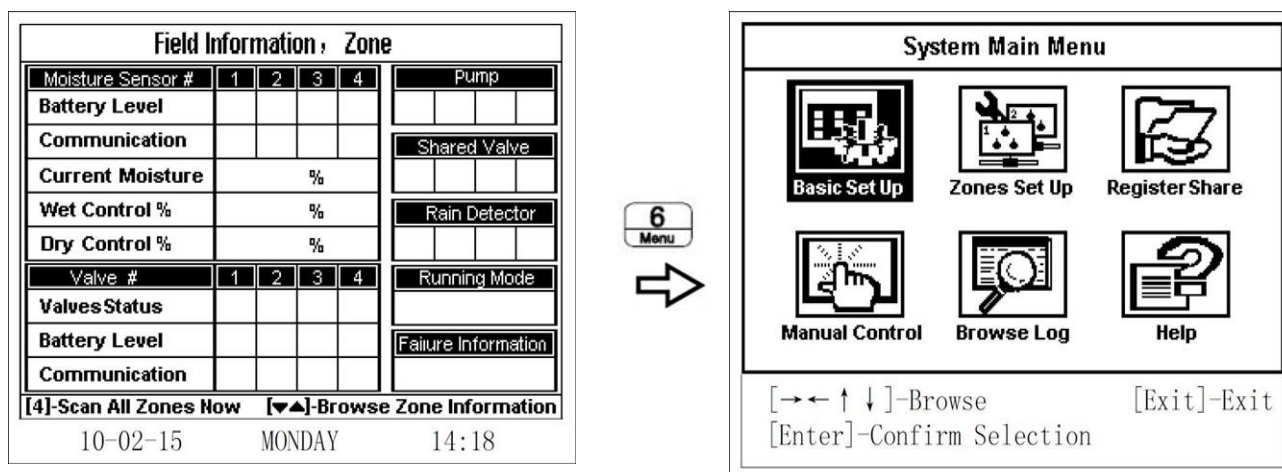
The same to solar controller for moisture sensor.

#### **8.2.5 Solar controller for pump set up**

The same to solar controller for magnetic valve.

## **9. System set up**

## 9.0 How get into Group controller set up



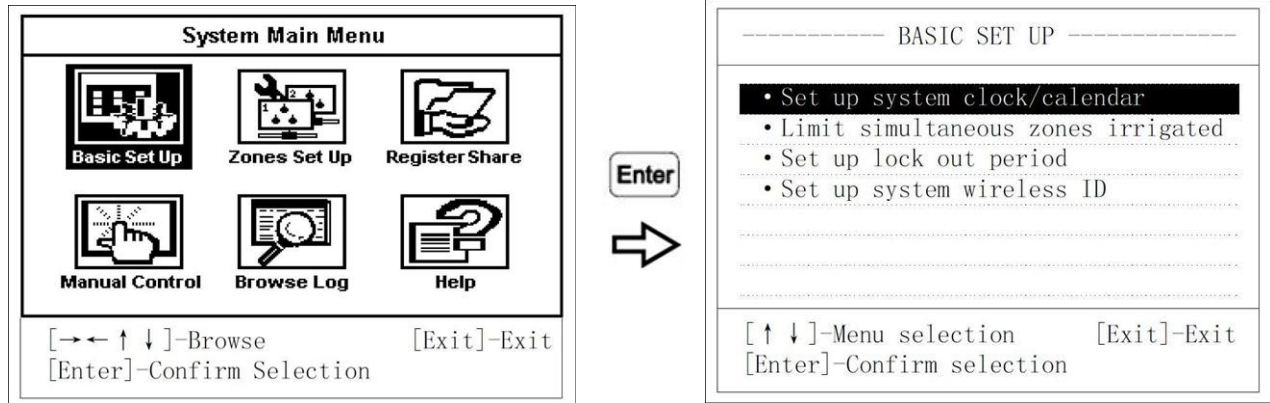
Push **[Menu]** key, to display the system main menu **[System Main Menu]**, push “→、←、↑、↓” key to browse selections; push **[Enter]** key to enter; push **[Exit]** key to exit from menu. **[System Main Menu]** has 6 submenus:

1. **[Basic Set Up]** Details see 9.1
2. **[Zones Set Up]** Details see 9.2
3. **[Register Share]** Details see 9.3
4. **[Manual Control]** Details see 9.4
5. **[Browse Log]** Details see 9.5
6. **[Help]** Details see 9.6



Note: Please remember to save after completing setup.

## 9.1 Basic Setup

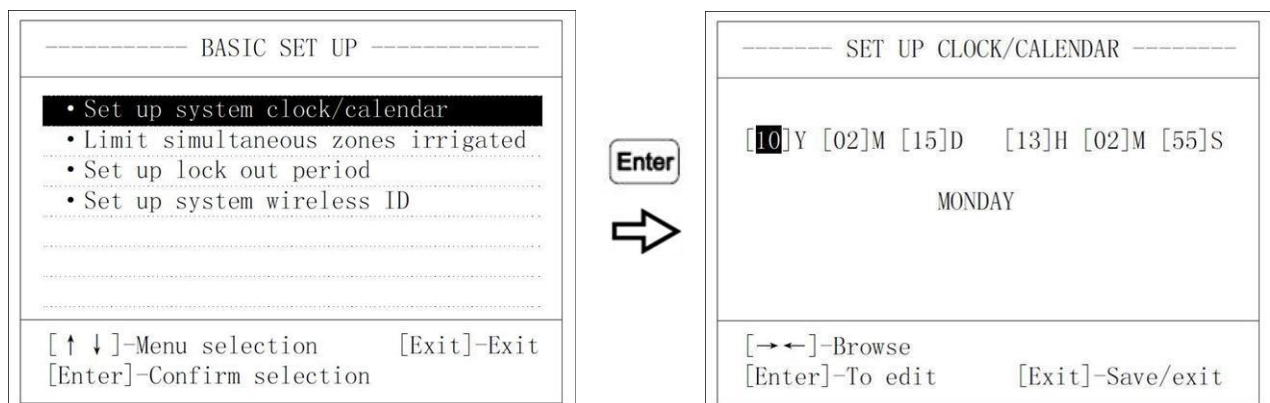


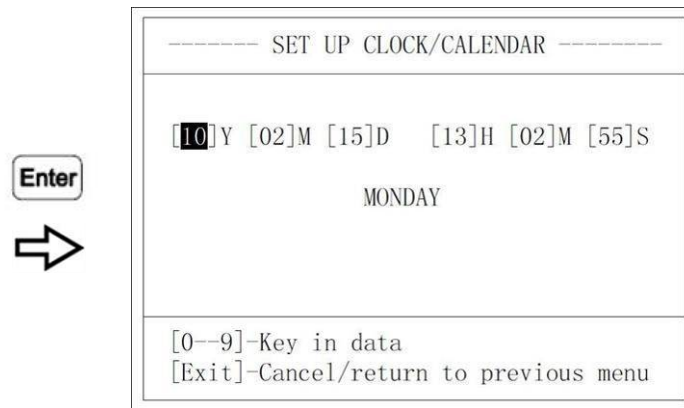
In the [System Main Menu], choose [Basic Set Up], Push [Enter] to begin the setup.

[Basic Set Up] has 4 choices:

1. [Set up system clock/calendar] Details see 9.1.1
2. [Limit simultaneous zones irrigated] Details see 9.1.2
3. [Set up lock out period] Details see 9.1.3
4. [Set up system wireless ID] Details see 9.1.4

### 9.1.1 Calendar and clock setup





Choose **[Set up system clock/calendar]**, Push **[Enter]** key.

There is blank space if it is first time setup, or current setup is shown. Push “→, ←” choose, push **[Enter]** key enter setup; Push **[Exit]** to exit and return to previous menu.

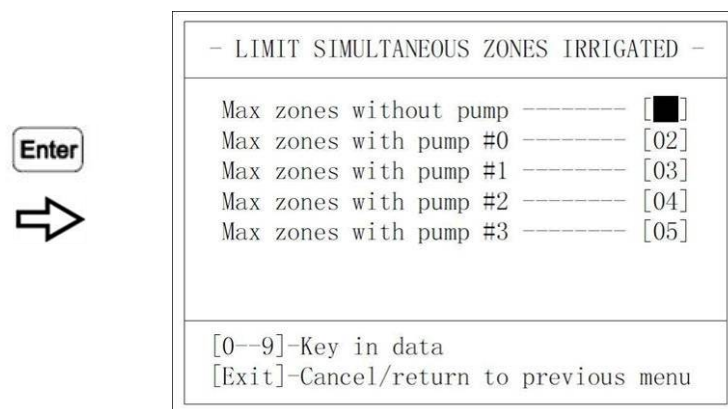
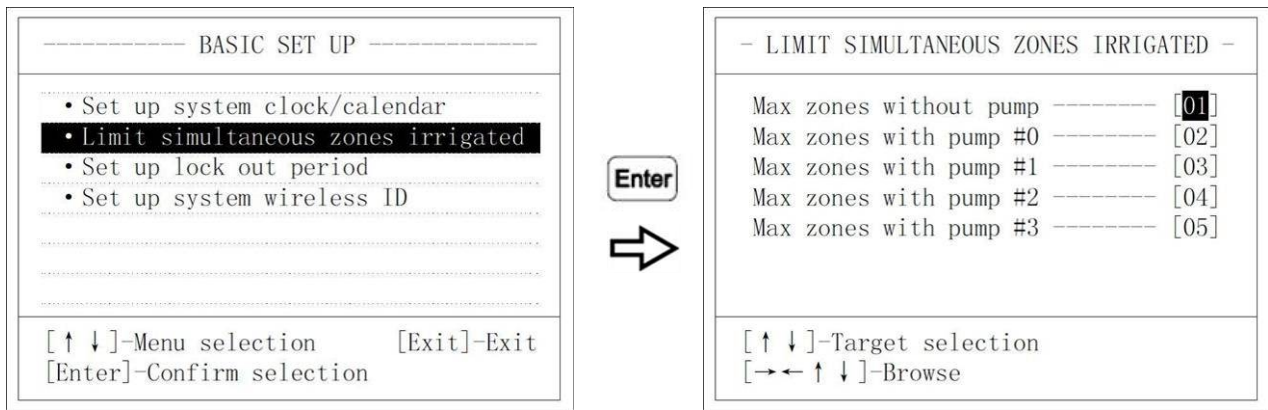
Notes: Please input time format, month should be between 01-12, time uses the 24 hour format. If not in the range, the system will have one long beep to remind the user to redo the setup.

Example: As shown at above illustration, **[10]Y [02]M [15]D [13]H [02]M [55]S**

Which means **(20) 10 Year 02 Feb 15 Day 13 Hour 02 Minute 55 Second**

### 9.1.2 Maxim number of simultaneously irrigated zones

This limit is to make sure there is enough water pressure for all the irrigating zones. User sets up the maximum number, then irrigation of zones exceeding this limit will wait. First zone requesting irrigation will be scheduled to irrigate first, when the limit allows.



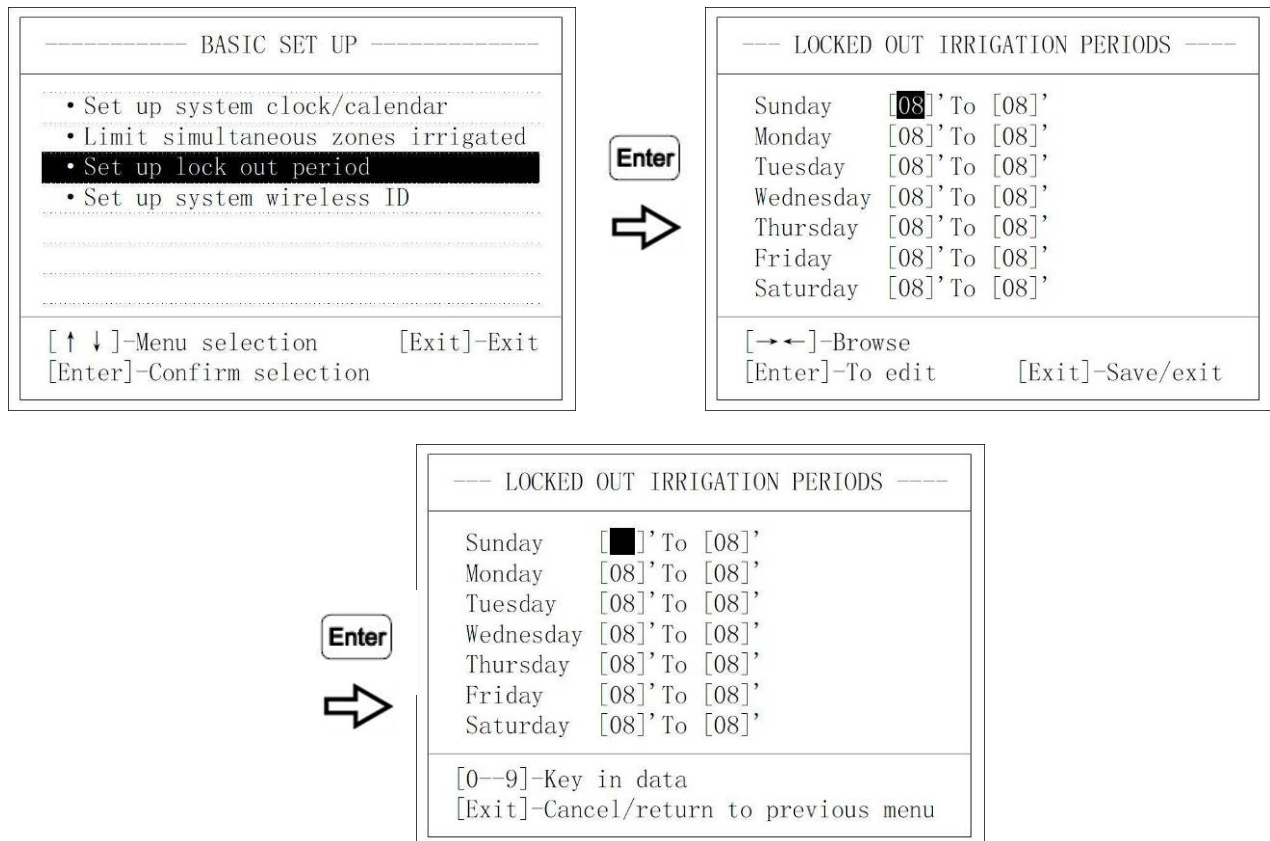
Choose [**Limit simultaneous zones irrigated**], push [**Enter**] to enter.

The display will show a blank if it is the first time. Otherwise the previous setup is displayed. Push “↑、↓” to choose, push [**Enter**] again to enter setup; push [**Exit**] to save and return to previous menu.

Note: please setup the limit in the range of 1-40. If the setup range is over 40, the system will sound a long beep and remind the user redo the setup.

### 9.1.3 Forbidden irrigation period setup

This setup is for lawns, gardens, special crop requirements and regulatory requirements. The main controller will not issue an open valve command until moisture level and forbidden irrigation period conditions are both met.



Push **[Set up lock out period]**, push **[Enter]** to enter.

Display shows blank if it is first time; otherwise the previous value is shown. Push “→, ←, ↑, ↓” to choose, push **[Enter]** key into setup. Push **[Exit]** key save and return to previous menu.

Note: Please set correct time period, finish time should be later than start time; setup time must be within 0 and 23. If setup is wrong, there is a long beep to remind you there is a mistake and redo the setup.

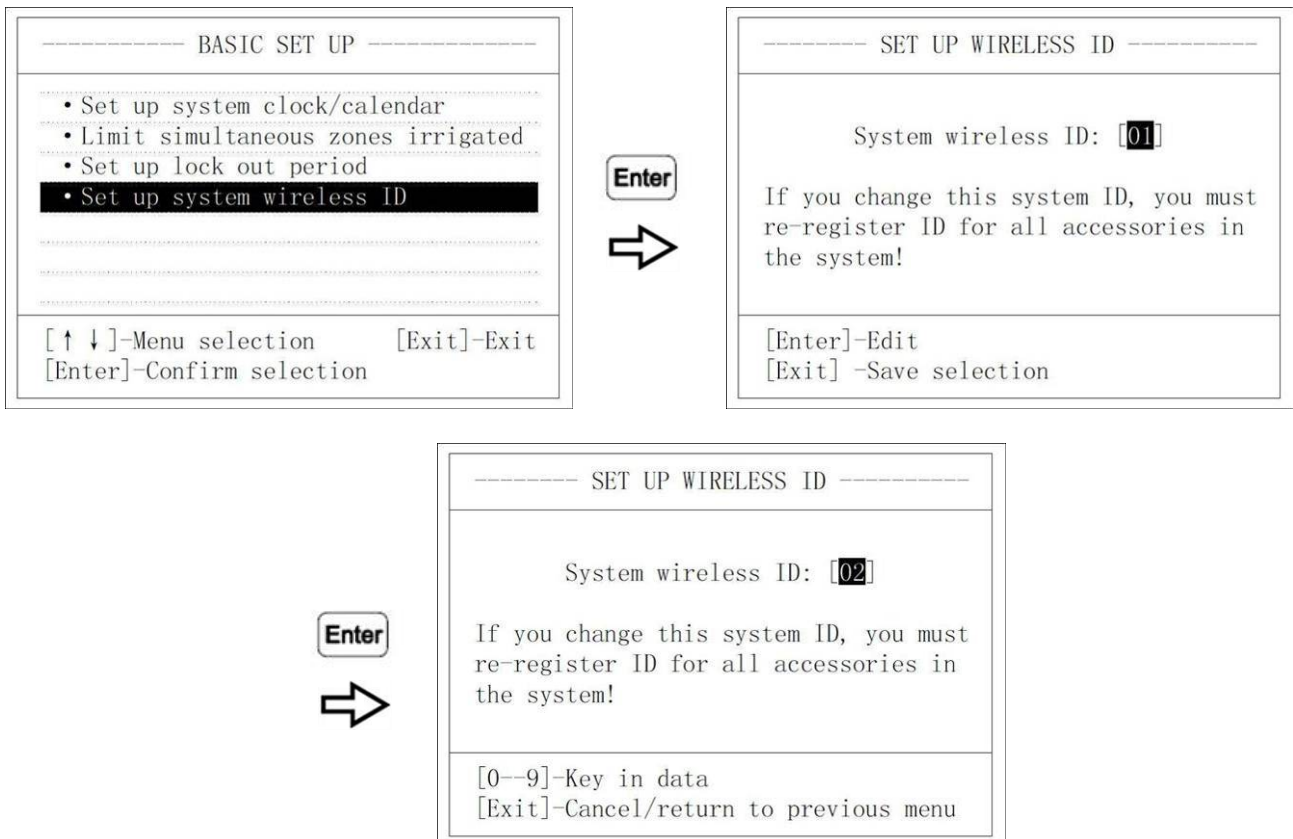
Above illustration show, from top down in order is Sunday to Saturday. One week 7 days, every day can set different forbidden irrigation time, one period only for one day, from hour to hour.

### 9.1.4 System ID setup

The whole system uses the same ID to do wireless communications. Factory default has



ID is the same for all systems. User can, through main controller, change the system ID. When adding field accessories, main controller will issue ID and zone number to the accessory, then save and keep by the accessory. ID format: **XX**, Range: **00 – 99**. To have two systems located each other operate properly; assign one of them a different ID.



Choose **[Set up system wireless ID]**, push **[Enter]** key to enter.

Display shows blank if it is first time, or previous setup value.

Push **[Enter]** key to enter ID setup, push **[Exit]** to save and return to previous menu.

## 9.2 Irrigation zones setup

This system can set up to 40 wireless zones. Field irrigation accessories including wireless moisture sensors with solar controllers, wireless magnetic valves with solar controllers, wireless water pumps with solar controllers, and wireless shared valves with

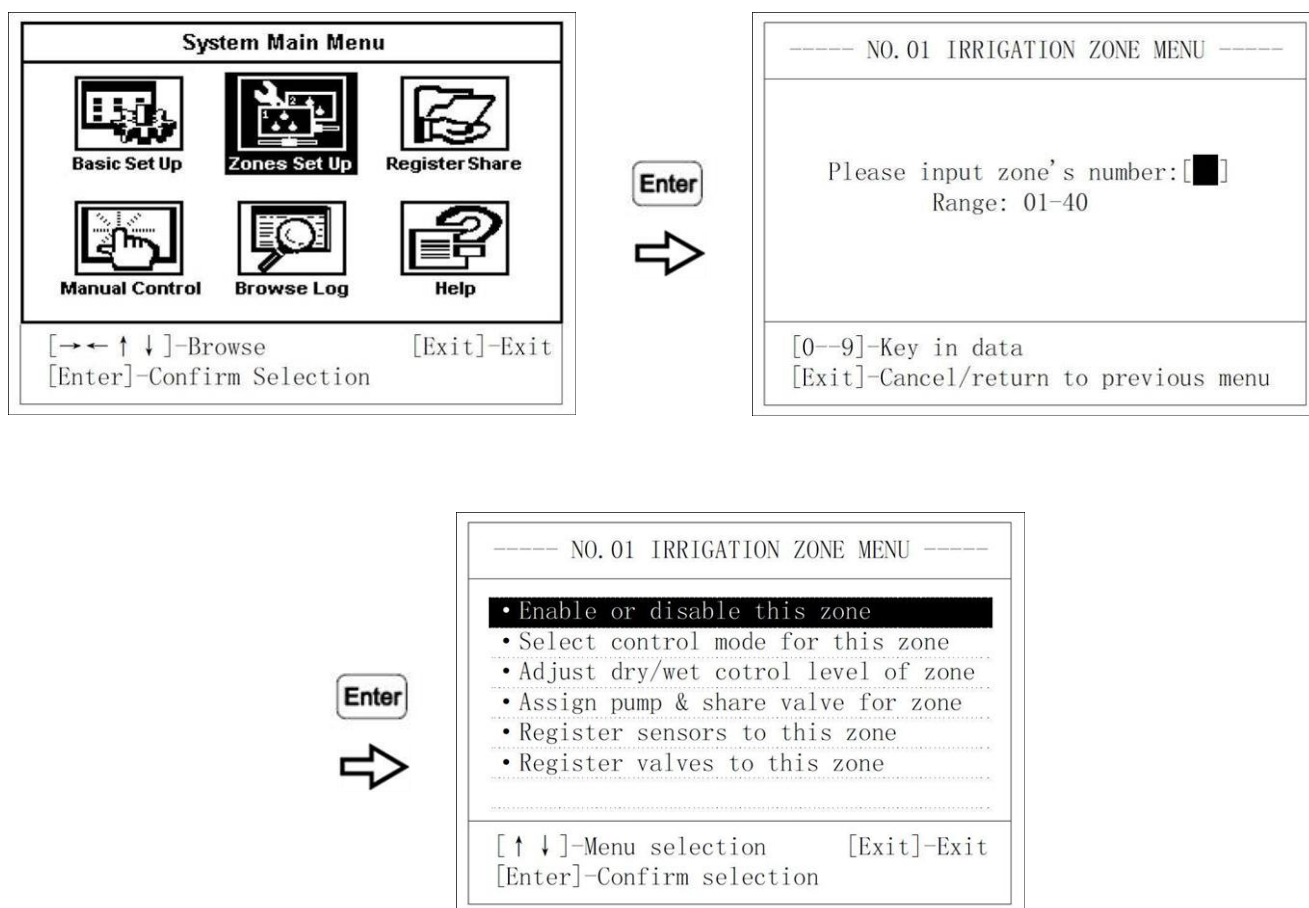
solar controllers.

User can choose and combine accessories according to the irrigation system design.

Designate zones for each valve and moisture sensor(s), and then register these devices to the zones. Record the zone each device is in and the devices position in the system.

Check that the devices respond properly to the controller, that control moisture levels can be set and read by the controller, and valves open and close on command. Then install the devices in the field.

Push **[Enter]** to enter zones set up, push **[Exit]** to save and exit to main menu.



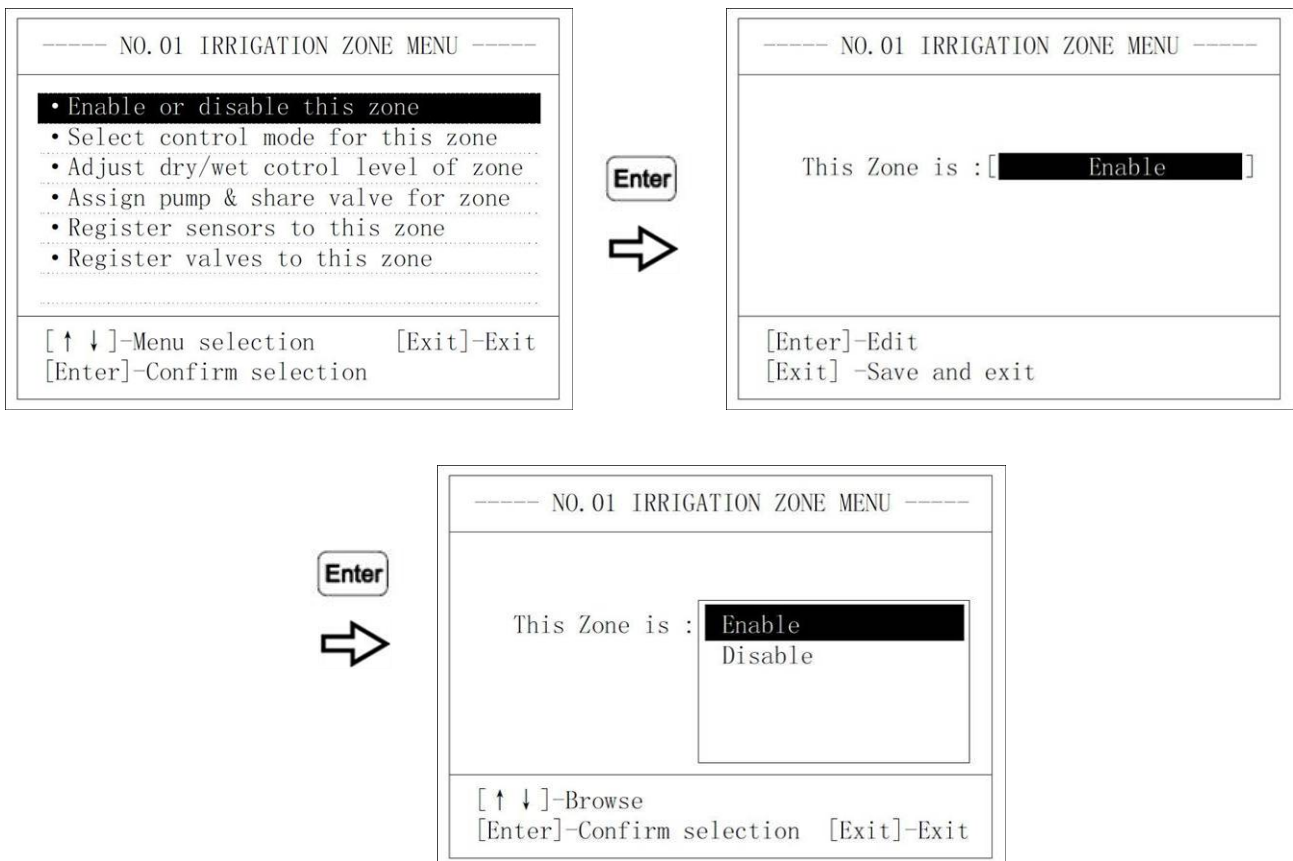
In the **[System Main Menu]**, choose **[Zones Set Up]**, push **[Enter]** key to enter, and then input zone number for the to zone set up.

Note: Please input correct zone number, the number should be between **01-40**.

The [Irrigation zone menu] has 6 items:

1. [Enable or disable this zone] Details see 9.2.1
2. [Select control mode for this zone] Details see 9.2.2
3. [Adjust dry/wet control level of zone] Details see 9.2.3
4. [Assign pump & shared valve to zone] Details see 9.2.4
5. [Register sensors to this zone] Details see 9.2.5
6. [Register valves to this zone] Details see 9.2.6

### 9.2.1 Enable or disable this zone



Choose [Enable or disable this zone], push [Enter] to enter.

Display will show a blank if it is first time, or current status. Push **[Enter]** key again to revise, push **[Exit]** save and return to previous menu.

### 9.2.2 Choose irrigation control mode



Choose **[Select control mode for this zone]**, push **[Enter]** key enter.

Then display will show blank if it is first time or current status. Push **[Enter]** key again into edit, push **[Exit]** key to save and return to previous menu.

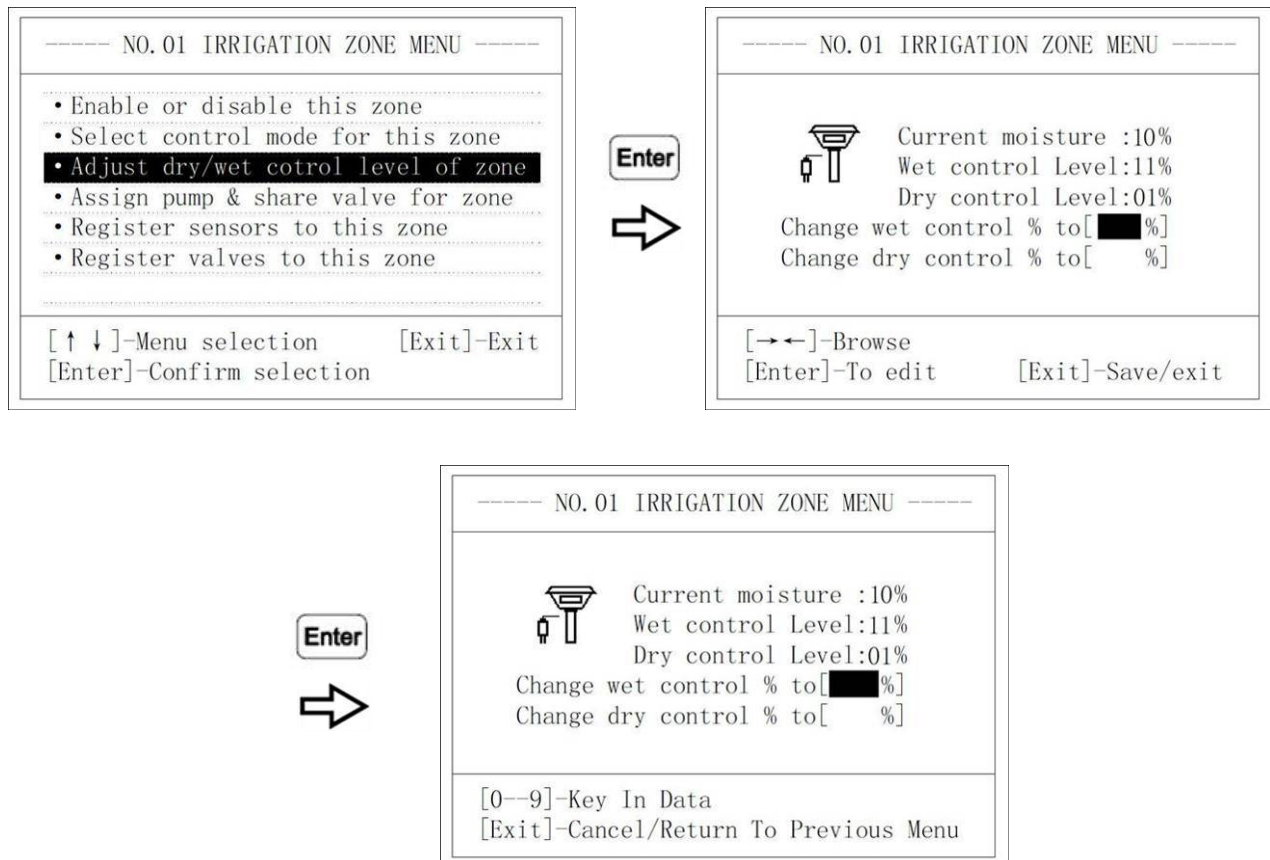
There are two kinds of irrigation control modes to choose from:

1. **[Moisture control]**
2. **[Moisture + Lock out]**

If irrigation mode **[moisture + Lock out]** chosen, main controller will not open valve

until both moisture and lock out period requirements are met.

### 9.2.3 Dry/Wet control levels adjustment



Choose **[Adjust dry/wet control level of zone]**, push **[Enter]** to enter.

Then current moisture is displayed. and dry/wet control levels. Push **[Enter]** key again to adjust; push **[Exit]** to save and exit.

Notes:

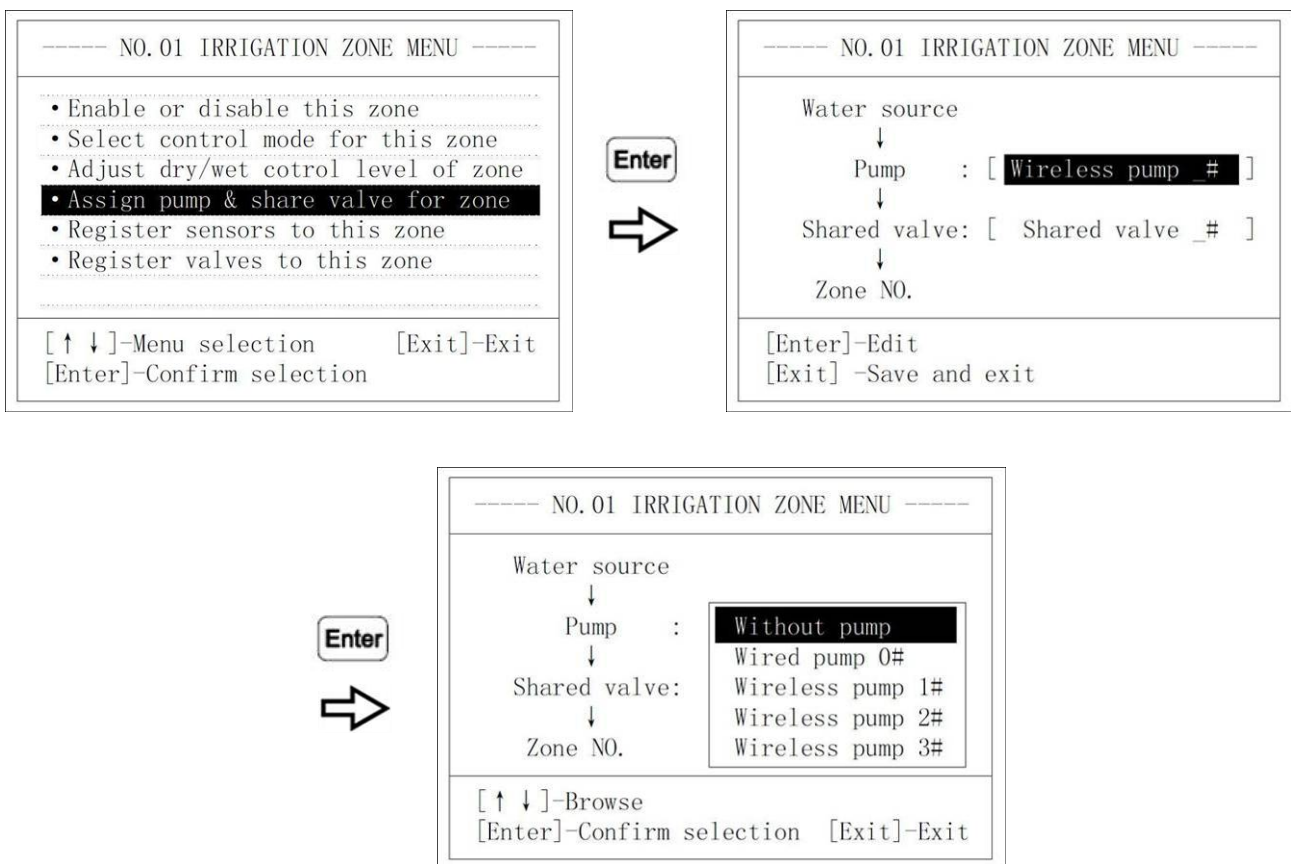
1. Please input a valid wet/dry range; wet control level should be greater than dry control level. If there is an error, the system will beep long to remind user to redo the set up.
2. When adjusting dry/wet control levels, first make sure related accessories are in

normal operation and have no other problems.

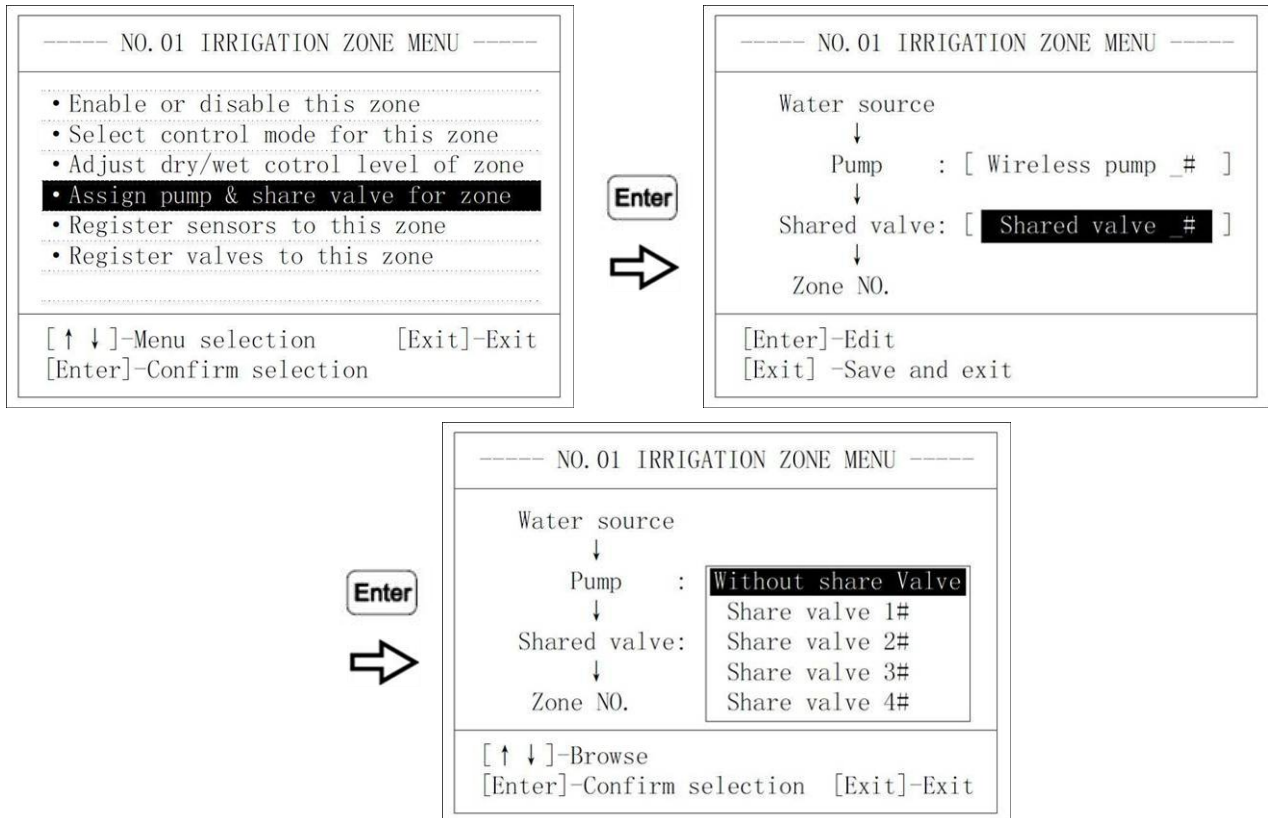
After revising wet/dry control levels, exit from the main system menu, the revised control levels will show on the zone information page, the moisture sensor controllers in the field also will show new revised control levels on their LCDs.

### 9.2.4 Assign water pump and shared valves to zones

Shared devices are assigned to zones by sequence number and device type, such as shared valve #3. Before they can operate, they must be registered, which assigns the sequence number and device type.







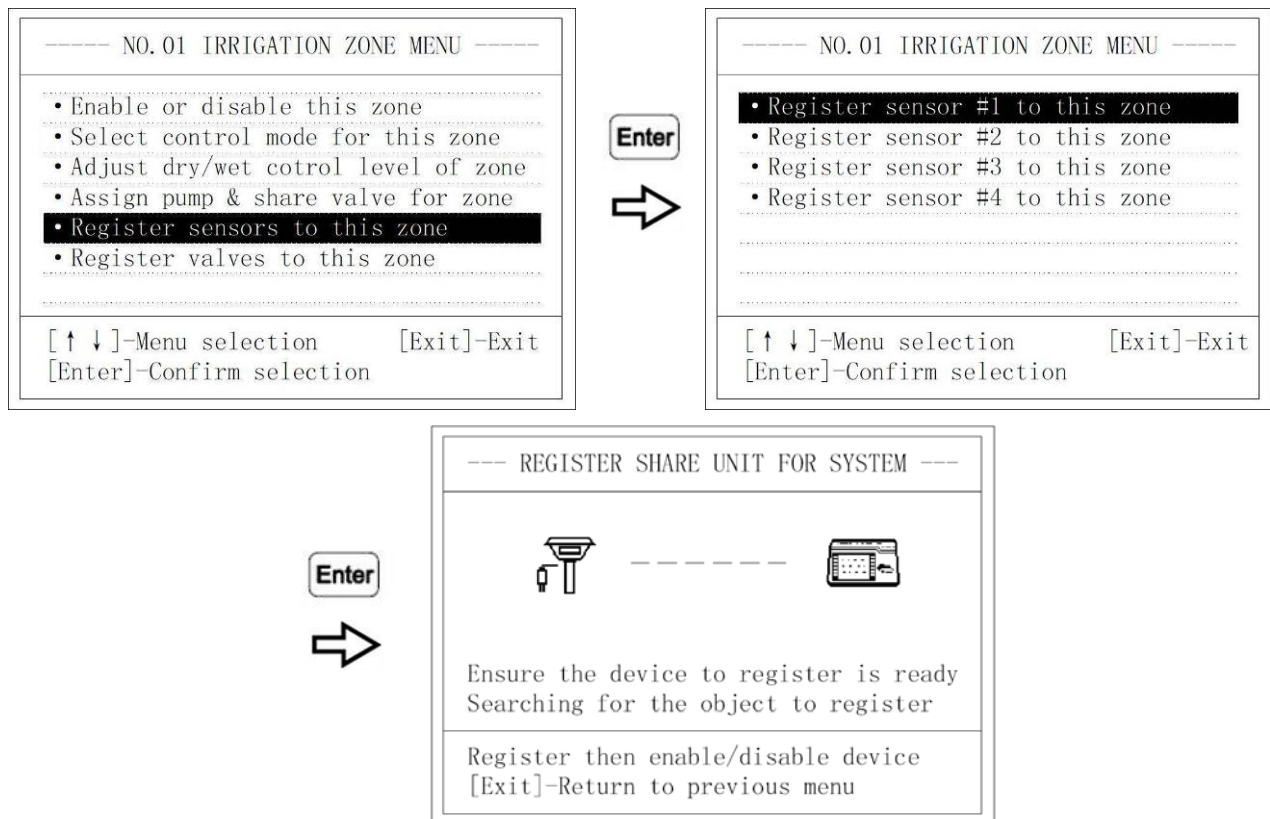
Choose **[Assign pump & shared valve to zone]**, push **[Enter]** to enter.

Then current water pump and shared valve information will be displayed. Push “↑↓” to browse, push **[Enter]** key to enter setup, push **[Exit]** to save and exit to previous menu.

Water **[pump]** has 5 choices:

1. **[Without pump]**
2. **[Wired pump 0#]**
3. **[Wireless pump 1-3#]**
4. **[Shared valve]**
5. **[Without shared valve]**
6. **[Shared valve 1-8#]**

### 9.2.5 Register moisture sensor controllers

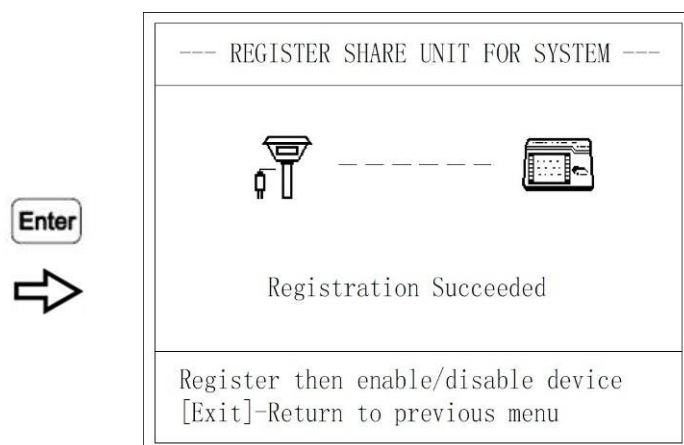


Choose **[Register sensors to this zone]**, push **[Enter]** to enter.

Note: The main controller will stay in learning for about 5 seconds; devices will stay in learning for one minute.

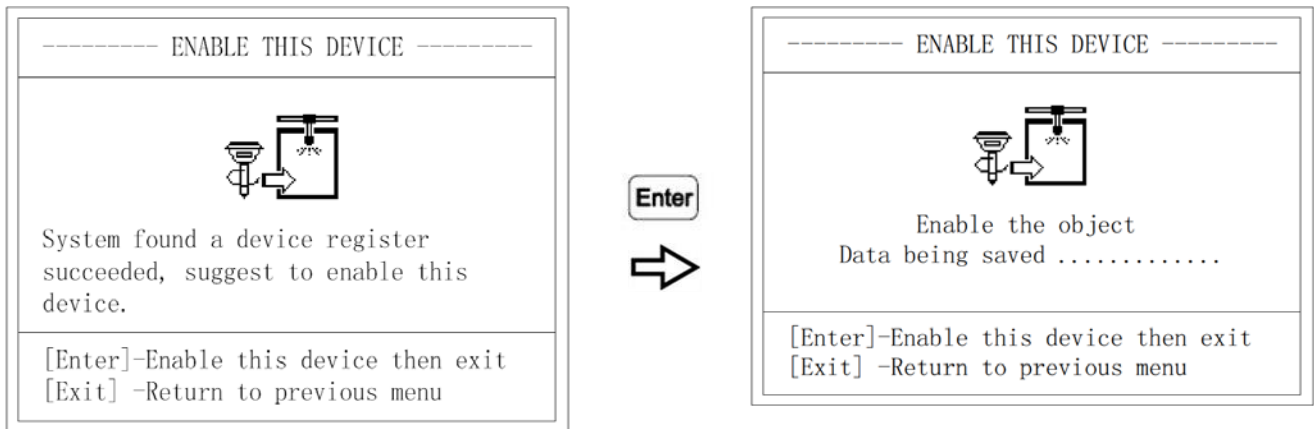
**[Register sensor to this zone],**

First set the moisture sensor controller to be used in this zone to learning, see 8.2.2.5, then push main controller ENTER key to register the sensor. If registration succeeds, the group controller will show:





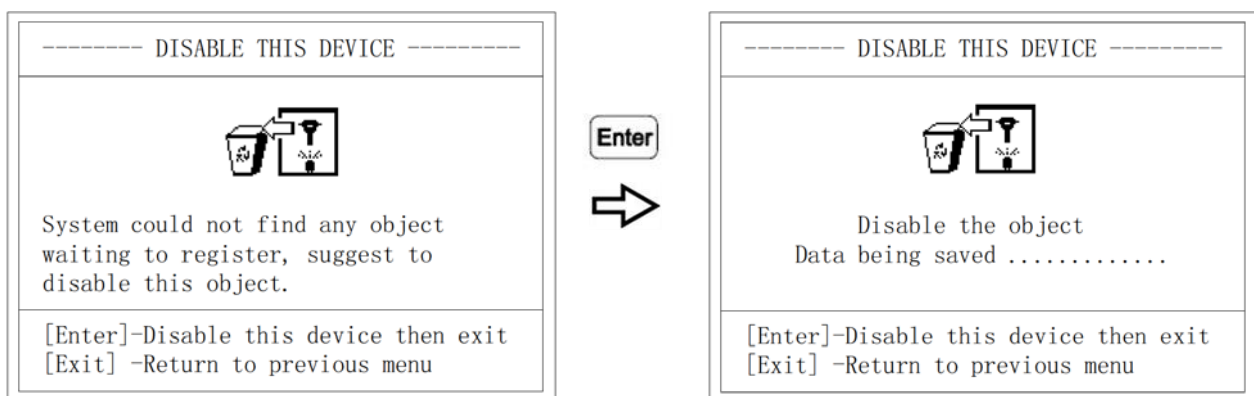
Then the system will ask the user to enable the accessory. Push Enter to enable, push EXIT to disable, a disabled device is not registered and has no ID in the system.



Note: If disable is chosen, to use the device start from registration again.

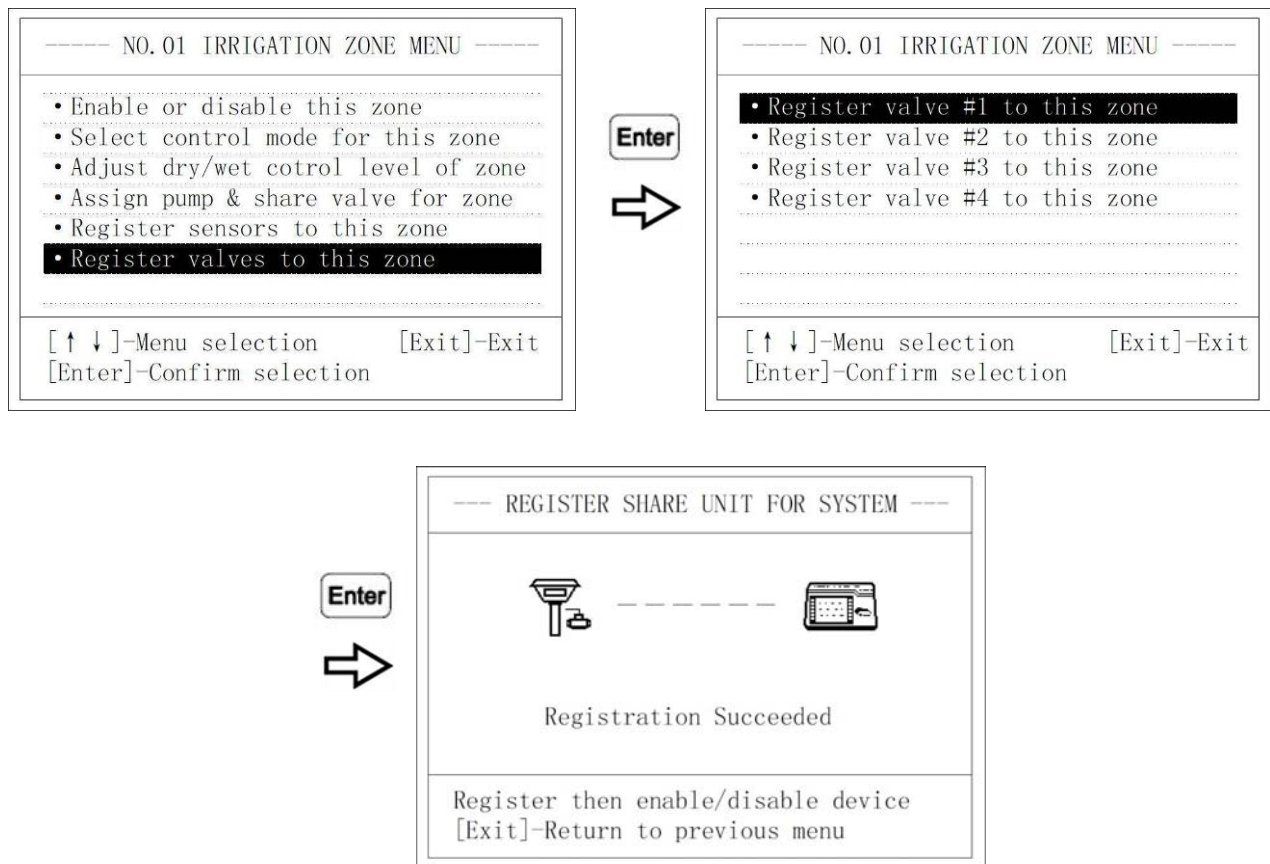
The failed registration display prompts “system could not find any device waiting to register, suggest to disable this device.” Push ENTER key to delete this sensor, or to register the sensor, make sure it is in “learning” ID and try again.

To delete a registered device, enter registration, register the device, it will fail registration, and then disable device.



Note: Make sure the sensor has not been registered before and is in ID learning mode, waiting to be registered. If the sensor was previously registered, disable the sensor from the zone it was registered in by entering registration then disable the sensor.

## 9.2.6 Register magnetic valve solar controller



Choose **[Register valves to this zone]**, push **[Enter]** key to enter.

There are 4 choices:

Note: The main controller will stay in learning for about 5 seconds; accessories will stay in learning for one minute.

### **[Register valve 1-4# to this zone]**

The steps to register magnetic valve controller are the same any device.

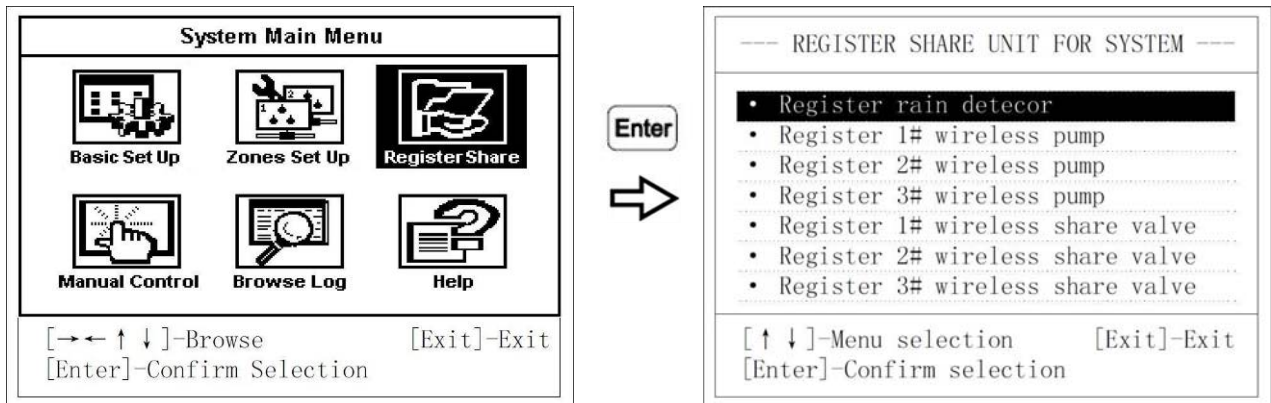
Note: make sure the magnetic valve controller has not been registered, and is in ID learning status, waiting for registration.

## 9.3 Register shared devices

Shared devices are registered to a sequence number and device type. Keep track each

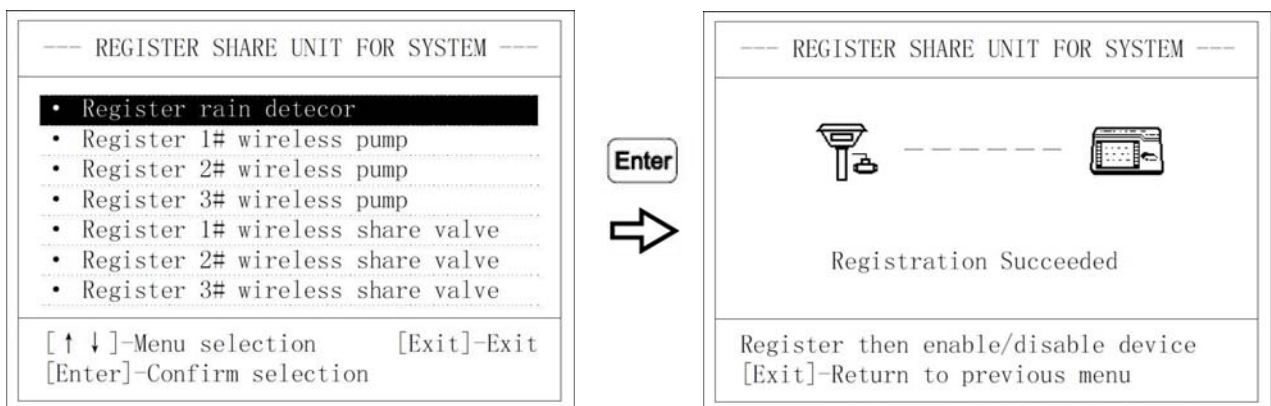
device and its sequence number and device type. To use the devices assign the sequence number and device type to a zone or zones.

They are assigned by the sequence number and device type to a zone.



In the [System Main Menu], choose [Register Share], push [Enter] to enter. There are 7 choices

1. [Register rain sensor]
2. [Register 1-3# wireless pump]
3. [Register 1-3# wireless shared valve]



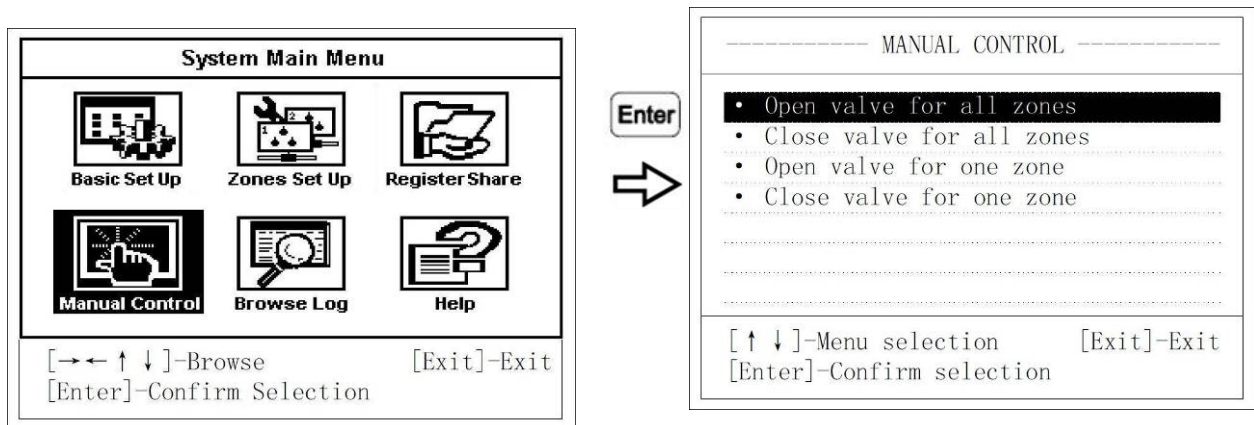
Please choose item to register, push [Enter] to register the device.

Note: The main controller will stay in learning for about 5 seconds, Accessories will stay in learn for one minute.

The method of registration is the same for any device.

Note: Make sure the accessory is in ID learning status, waiting to register.

## 9.4 Manual Control



In the [System Main Menu], choose [Manual Control], push [Enter] to enter. There are 4 choices:

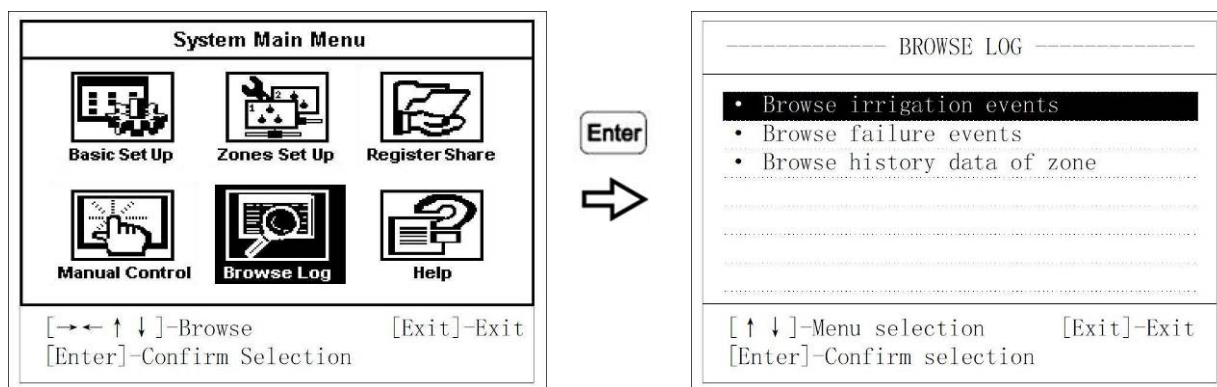
1. [Open valve for all zones]
2. [Close valve for all zones]
3. [Open valve for one zone]
4. [Close valve for one zone]

Push “↑↓” to browse, for all zones, push [Enter], to execute manual operation. To open/close one zone valve, push [Enter], at the next step, input the zone number then push [Enter] to execute.

After setting manual operation, the system will return to the previous menu. In normal operation, zone information will show valve status as locked with a padlock as an icon on the display, and show open/close current state. At the bottom of the screen a prompt shows how to unlock the valves.

Note: When manually opening/closing one zone’s valves, the system will check related shared valves and water pumps and automatically control them, this will also occur when pushing delete to unlock the manual status.)

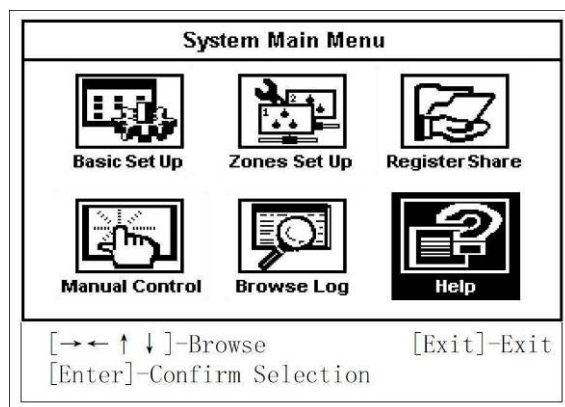
## 9.5 Checking history events



In the [System Main Menu], push [Browse Log], push [Enter] enter, there are 3 choices:

1. [Browse irrigation events], Maximum up to 115 events.
2. [Browse failure events], Maximum up to 50 events.
3. [Browse history data of zone], Maximum up to 1170 events.

## 9.6 Help



In the [System Main Menu], Choose [Help], push [Enter] to enter.

## 10. How to Assemble



Fig.1



Fig.2

1. Open the package. Remove all the parts, verify all of the parts are included, Fig. 1.
2. Assemble the tube and the stake as illustrated Fig. 2.



Fig.3

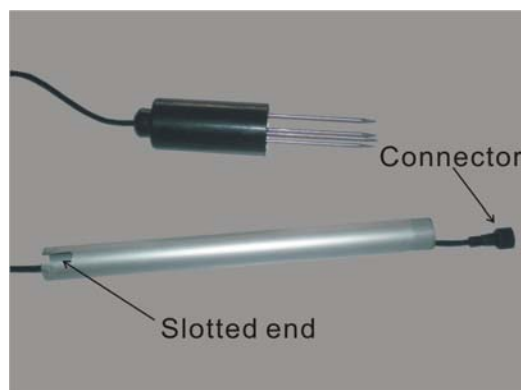


Fig.4

3. Magnetic valve cable and moisture sensor cable each are protected by a grommet, Fig. 3. Pass the valve cable through the grommet, the valve connection must pass through the grommet leading away from the controller.

4. Slide the two cables through the tube from the slotted end, Fig 4.

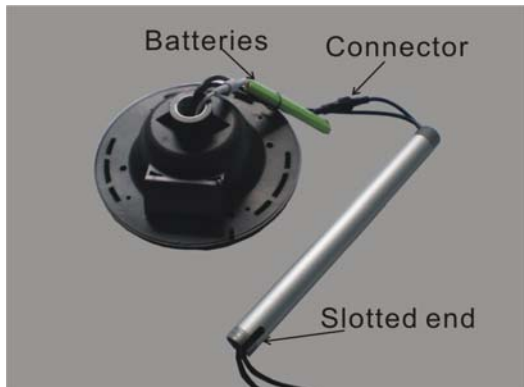


Fig.5



Fig.6

5. Install the batteries by connecting the mating connectors on the battery to the controller; tighten the retaining nut on the connector, Fig. 5.

6. Connect the mating connectors of the moisture sensor to the controller. Tighten the stain relief nut, Fig.6.

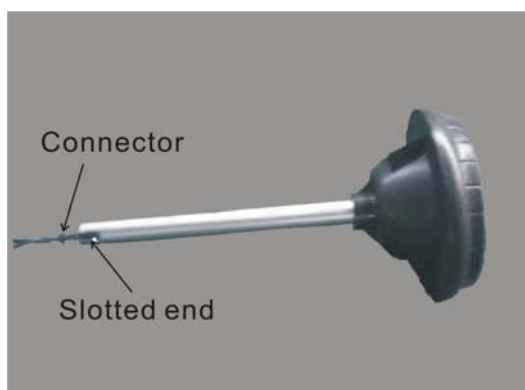


Fig.7

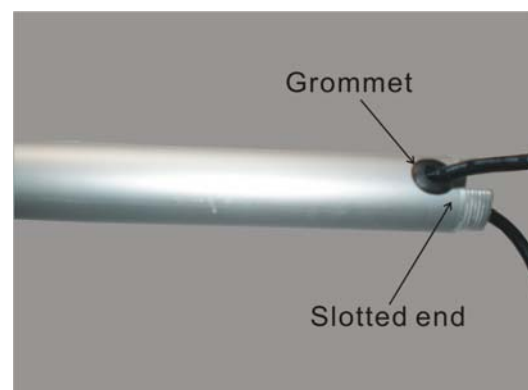


Fig.8

7. Thread the tube into the female insert on the controller, and tighten, making sure the cables do not bind in the shaft, Fig. 7.

8. Push the grommets containing a cable into the U shaped notch in the slotted end, Fig 8、 Fig9.





Fig.9

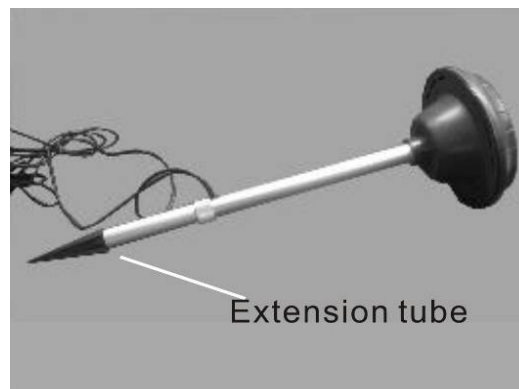


Fig.10

9. Thread the extension tube onto the main tube. This completes the hardware assembly.



Fig.11

10. Register the devices with the main controller before placing them in the field. This is to make it easier to register and verify they are set up correctly.

Note: The main controller will stay in learning for about 5 seconds, Accessories will stay in learn for one minute.

11. Choose the installation location; lay out water pipes, if necessary. Arrange and install sprinklers, if necessary, and connect the magnetic valve between the water source and irrigation pipes. Observe the direction arrow on the valve and make sure to install the valve so the water flows in the direction indicated. The valve requires a minimum



pressure to operate properly, keep pressure above about 5psi, 1/3 atmosphere. Place the controller in a location where it will be under full sun. Insert the moisture sensor in soil representative of typical moisture in the zone. The moisture sensor may be installed horizontally, vertically, or at any angle between. It may be buried to a depth where the wet level of the soil is to be measured; this is useful for trees, where irrigation periods may be for many hours. Connect the magnetic valve to the controller as shown on the illustration Fig11.

## 11. Frequently ask questions

1. Q: why does the LCD show “Irrigating”, but there is no irrigation occurring, or when the LCD does not show “Irrigating”, the irrigation is on?

A: Possibly one of the following:

A: For user wired valves at the time of installation, check the magnetic valve connection polarity, most probably the wires are reversed.

B: Check the magnetic valve controller, if used, is on and showing the correct state of irrigation. If the state is incorrect, there may be a communications problem, the controllers should show communications error, check for an obstruction between the main controller and the valve controller.

C: Manually turn irrigation on and off at the valve controller, listen for a click from the relay in the controller and from the valve.

If no sound is heard from the valve, check if the cable from the valve controller has been cut or broken. Check the connector in the extension tube, make sure it is clean, dry and the retaining nut is tightened.

1. Verify continuity of the valve solenoid with an ohmmeter, 2 to 6 ohms resistance is typical.

2. If a sound is heard from the valve, and water does not flow, make sure the water inlet

has pressure.

3. If a sound is heard from the valve, the valve may be stuck, remove the valve and check for an obstruction, If nothing is found, replace the valve.

4. If no click is heard from the controller, make sure the battery is charged. The main controller shows the battery charge. If the battery charge is OK, replace the controller. If the battery charge is low, and the solar exposure has been normal, replace the battery.

2. Q: Why after learning a new current wet level, does the system not stop irrigating right away?

A: Possibly one of the following:

A: If the moisture sensor is moved after learning the wet level, it may be incorrect. Should redo the learning process.

B: If water is manually added to the soil, then a wet level is learned; the learned level could be very high, since water could be temporarily accumulated on the surface. Use the displayed % reading as a guide to determine what reading is correct. If the learned value is too high, learn the moisture level again later when the soil dries to the desired level.

C: The LED “Irrigating” is off, but still the system is still irrigating. See FAQ 1, about valve problems.

D: On the main controller show this zone is irrigation, but has no problems as described at A and B. then maybe it is sensor problem, please reference question 5.

3. Q: How to determine if the moisture sensor is working normally?

A: Push “SET” key to begin set up, push up/down key to browse, when “Learning” is flashing, push “ENT” key to begin setup, when Dry or Wet is flashing, push “Ent” again, then the LCD will show the current moisture level. When the moisture sensor probe is in the air, the number should be 0, then put the sensor probe into water slowly, the moisture value will increase, this means the sensor is working normally. If the moisture

number does not change, either the connection to moisture sensor is bad, or the moisture sensor may be bad. Check if the cable from the valve controller has been cut or broken. Check the connector in the extension tube, make sure it is clean, dry and the retaining nut is tightened.

4. Q: When using multiple valves, why is there so little water flow?

A: Possibly one of the following:

A: Check and see if the Maximum number of simultaneously irrigated zones is too many. User should adjust until there is enough water pressure.

B: Check if the valve is jammed.

C: Check water pressure and pipe. If there is not enough water pressure, reduce the maximum number of simultaneously irrigated zones to increase water pressure.

5. Q: Main controller always shows communication failure

A: First make sure moisture sensor controller learned “ID”, and Dry/Wet levels, magnetic valve solar controller learned “ID”, all at normal operating states, and batteries are charged.

B: Check if the wireless distance is over the normal range, and if there any obstructions in the way. Communications is line of sight. Try adjusting the position until the failure disappears.

6. Q: Pushing a wireless magnetic valve controller key, there is only beep with no other response. Main controller shows failure for this zone.

A: After long time without sun, the battery starts to discharge. The controller first goes to sleep, saving power, in this condition it will beep if a key is pushed, but not operate.

If discharge continues, the controller will turn off to save power for automatic recharge. When sun comes out, the solar panel will automatically recharge the battery, but the user must manually turn the power on again at the remote controller.

7. Q: Wireless moisture sensor controller LCD is blank, has no response from any key, main controller shows failure. Wireless magnetic valve solar controller also has no LED indication, no response from key.

A: After long time without sun, the battery starts to discharge. The controller first goes to sleep, saving power, in this condition it will beep if a key is pushed, but not operate. If discharge continues, the controller will turn off to save power for automatic recharge. When sun comes out, the solar panel will automatically recharge the battery, but the user must manually turn the power on again at the remote controller.

8. Q: The main controller screen shows “Can’t open valve” or “Can’t close valve” with a long beep.

A: One hour after the system closes a valve, it will check if the moisture level is increasing. If the moisture does not increase, an error will be reported, possibly a pipe is broken, or magnetic valve has problem. If the sensor is buried deep, this could be normal and ignored. Screen will display the error, and system will beep to remind the user to take a look at the field.

One hour after the system closes the valve, if the moisture keeps increasing, or rain occurs after closing the valve, there will be a failure report also, the system will report pipe/valve failure, in the same way as a valve stuck open failure.

When the problems have been solved, the system will automatically return to normal

operation.

## 12. Packing list

GG-002B consists of one group controller and one zone subsystem

Group Controller GG-002B-MC

1. Main Controller
2. Power Supply (input 125Vac/50Hz, output 24Vac/1A), 220Vac input optional
3. Manual
4. Warranty card

Zone Subsystem, GG-002-S

1. Wireless solar magnetic valve
2. Wireless solar moisture sensor
3. Manual
4. Warranty card

## ANC Technology Limited Warranty card

**Dear Customer:**

**Thank you very much for choosing ANC products.**

- 1. This product has FCC verification and BV certification.**
- 2. Warranty period is one year. Beginning on day of receipt.**
- 3. Please keep your receipt and this warrantee card.**
- 4. Please verify contents are correct, see included items listed in the manual.**
- 5. For warranty repair, customer is responsible for shipping to ANC; ANC pays shipping to customer.**
- 6. Beyond the warranty period, or for damage caused by customer or for other than defects in material or workmanship, ANC offers repair service at customer's expense.**
- 7. Service phone: 021 5974-3993, in China; 1 805 530-3958, or toll free 1 877 822 3958 in North America.**

<b>Product</b>			<b>Type</b>	
<b>User name</b>			<b>Ship date</b>	
<b>Address</b>			<b>Serial #</b>	
<b>Tele</b>			<b>Purchasing date</b>	
<b>Fax</b>			<b>Zip code</b>	
<b>Repairing Record</b>	<b>Check date</b>	<b>Problem</b>	<b>What been done</b>	<b>Repairer</b>

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