

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.

The term "IC:" before the certification/registration number only signifies that the Industry Canada Technical Specifications were met.



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WIRELESS EAGLE™ 500/700 SERIES ROTOR

**WIRELESS ROTOR HANDHELD
WIRELESS ROTOR LISTENING DEVICE**

OPERATIONS MANUAL

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INTRODUCTION

New Paging Feature Simplifies Expansion Needs

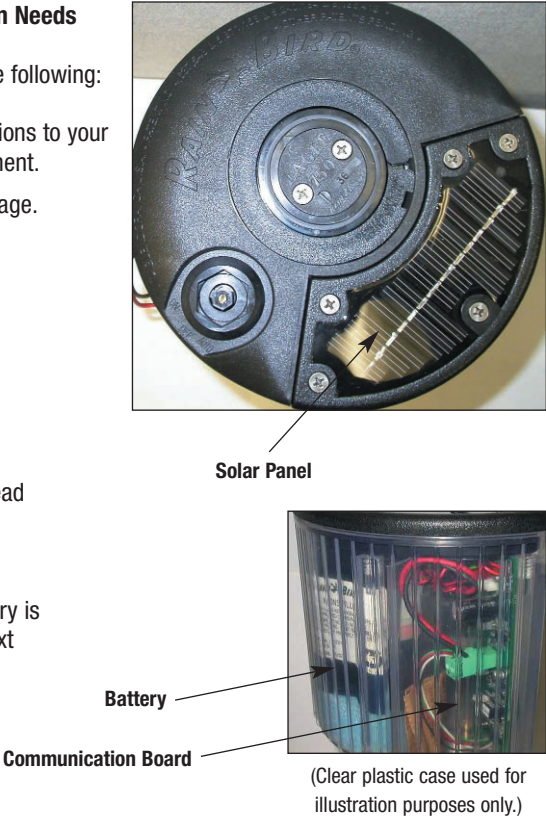
The Wireless Rotor from Rain Bird offers the following:

- Quick and easy to retrofit or make additions to your course, even as an emergency replacement.
- Reduced risk of collateral lightning damage.
- No wire or satellite costs.
- Reduces turf damage.
- Easy conversion from a block system.

The Rain Bird Wireless Rotor

This unique rotor has an enclosed sealed-lead rechargeable battery.

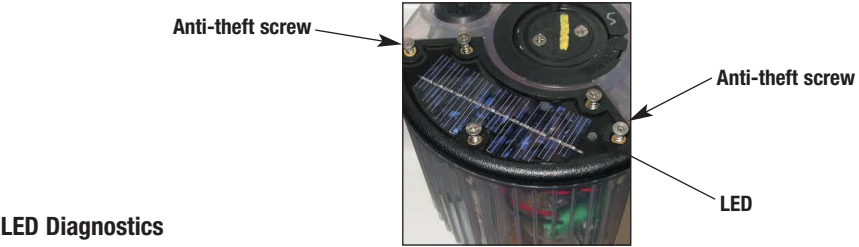
The battery level is maintained by the solar panel at the top of the rotor case. The battery is positioned in the enclosed compartment next to the communication board.



MAINTENANCE

The Wireless EAGLE 500/700 series Rotor is an exclusive Closed-Case design. All of the superior characteristics of the EAGLE rotor are featured in this product, including the Rain Bird standard top-serviceable features. For performance data and maintenance information, please refer to the EAGLE Series Rotor catalog.

Special screws have been used to assist in the prevention of theft and to maintain the integrity of the sealed battery/communication board. Please contact Rain Bird for assistance when the battery needs servicing or any troubleshooting is required.



LED Diagnostics

The Rotor enters a diagnostics mode following a successful configuration or by receiving a specific command from the Handheld Device.

LED Action	State Description
Stays on Continuously	Battery Level Too High
Continuously Flashing	Battery Level Good
2 Flashes then 3 sec delay	Battery Level Low
Always OFF	System Shutdown
1 Flash then 3 sec delay	Solar Panel Error
Continuously Flashing	Solar Panel Good

THE WIRELESS HANDHELD DEVICE

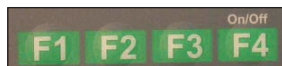
The Wireless Handheld Device provides operating capability in the field, performing a number of functions without having to send a page through the central control computer. Prior to being able to communicate with a Wireless Rotor using the Central Control, the Rotor must be configured With the Handheld Device.



The Handheld Device is powered by two AA Batteries. To preserve the life of the batteries, several power management features have been implemented. If the Handheld Device remains idle for longer than 10 minutes, the unit will be shut off automatically. Additionally, the backlight feature of the LCD Display screen will only remain active for 10 minutes. After 10 minutes, the LCD Display screen will return to its normal mode of operation.

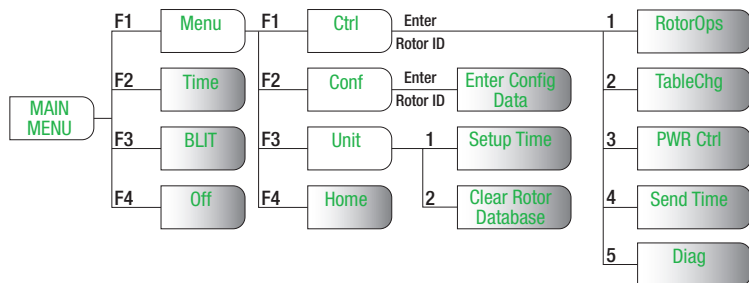
To turn the Handheld Device on, momentarily press the F4 Function key. (Handheld may take up to 30 seconds to show the main menu.)

To turn the Handheld Device off, momentarily press the F4 Function key from the Main Menu.



Handheld Menu Structure

Following is a graphical representation of the Menu Structure for the Handheld Device:



Home – Main Menu



Keypad



- F1 – Menu
- F2 – Time (Shows current time/date set in the handheld)
- F3 – BLIT (Backlight)
- F4 – OFF

Menu – Sub-Menu



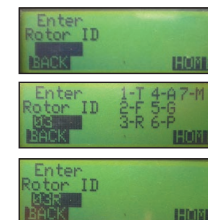
- F1 – Ctrl (Control)
- F2 – Conf (Configure)
- F3 – Unit
- F4 – Home (Returns to the main menu)

Entering the Rotor ID

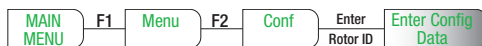
To configure and control the Wireless Rotors, a logical address must be assigned to the rotor in the Handheld. This will be the same identification used in the Central Control Software.

The Rotor ID consists of the hole #, the area handle, and the station. Both the hole # and the station entries are configured for two-digits. For example, hole #3 – rough - station 11 would be entered as 03311 as shown below:

1. Enter "03" on the keypad for the hole #.
2. Once the hole number is entered, the numerical equivalent for each of the area handles will be displayed. Select the corresponding number on the keypad.
3. To complete, input the station number "11" and then press <enter> on the keypad



CONFIGURING A ROTOR



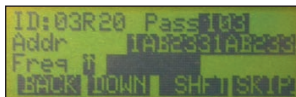
Prior to being able to perform any of the functions for *Controlling a Rotor*, the Rotor configuration data must be input into the Handheld and then transferred into the Rotor with the use of a magnet. The configuration data for the Wireless Rotor requires that the Capcode and Frequency be converted into hexadecimal code. Rain Bird will supply the converted codes. In addition to assigning a logical address to each Rotor as discussed in the *Entering the Rotor ID* section, a unique PassCode must also be assigned. This three-digit numerical code allows each rotor to determine whether or not a particular command from the Central Control Software or Handheld pertains to itself.

Note: It is best to configure the rotor prior to installation

1. Enter the Rotor ID as shown in the *Entering the Rotor ID* section.



2. At the Configuration Data Screen, begin by entering the PassCode using the keypad. After entering the third digit, the cursor will automatically move to the Address line.



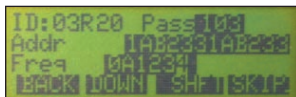
3. Enter the Address information provided by Rain Bird. After the last character has been entered, the cursor will automatically move to the Frequency line.

Some addresses and frequencies contain the characters A-F. To enter one of these characters, press the Shift <F3> followed by the number 1-6, where 1 represents A and 6 represents F.

If other Rotors have been previously programmed into the Handheld, you can scroll through each address by continuously pressing the Down <F2> key until the correct address is found. Once the correct address is found, press <enter>  on the keypad.

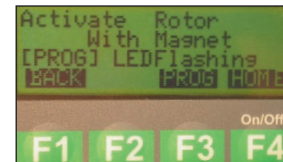
4. Enter the Frequency information provided by Rain Bird.

After the last character has been entered, press <enter>  on the keypad. Remember to use the Shift <F3> followed by the number 1-6 to enter A-F.



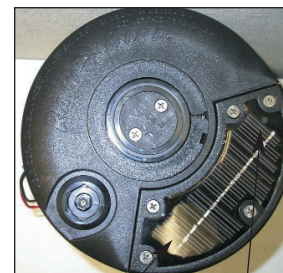
5. The Handheld is now ready to configure the Rotor.

Once the “Activate Rotor With Magnet” screen appears, activate the rotor by passing a magnet across the LED display area of the Solar Panel. The magnet should pass over the LED once with the surface of the magnet slightly brushing along the top of the solar panel.



Observe the flashing of the LED on the Solar Panel. Once the LED begins to flash approximately once every second, press the Prog <F3> key on the Handheld.

After approximately 30 seconds, the solenoid should click twice to indicate that the Rotor has been successfully configured.



Solar Panel

LED

6. By default, the handheld will prompt for the next Rotor ID to be configured. To enter another Rotor ID, return to step 1 of this section. If finished, press the Home <F4> to return to the main menu.

CONTROLLING A ROTOR



The Handheld provides the ability to manually turn on/off irrigation, program a default schedule, control power modes, synchronize the clock, and initiate diagnostic modes with a configured Rotor. If a Rotor has not been previously configured, return to the [Configuring a Rotor](#) section.

In order to control a rotor, enter the Rotor ID as shown in the [Entering the Rotor ID](#) section.



Within the RotorOps menu, the Rotor can be manually turned on or off.

To turn the Rotor Off, press <1> on the keypad.

To turn the Rotor On, press <2> on the keypad and enter a duration. The duration is a three-digit value representing the number of minutes to irrigate (240 minute maximum).

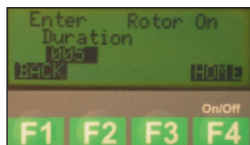
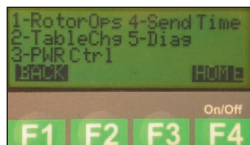
For example, <005> represents 5 minutes.

Press <enter>  on the keypad to send the schedule to the rotor.



Within the TableChg menu, the Rotor can be programmed with a default program, which would become active if communication with the Central Control Software is lost.

Select <1> for a one-time event or <2> for a reoccurring event on the keypad for a schedule type. If <1> is selected, then the default program will only occur one time. The reoccurring selection <2> allows a day of week schedule to be entered.



After the schedule type has been entered, select the day(s) for irrigation to occur. Press any numeric key on the keypad when the cursor is below a particular day to have that day included in the irrigation schedule. Press Skip <F4> to prevent a particular day from being included in the irrigation schedule.

After the day(s) have been selected, enter the start time (HH:MM) for the irrigation to begin in military time.

For example, 3:45 PM would be entered <1545>.

After the start time has been selected, enter the duration. The duration is a three-digit value representing the number of minutes to irrigate (240 minute maximum).

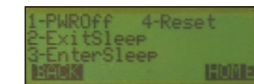
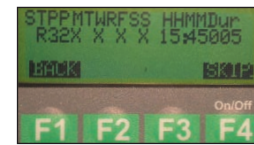
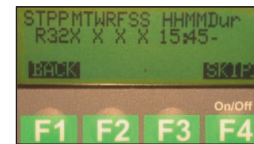
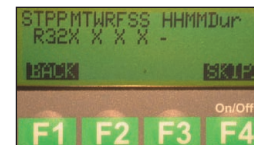
For example, <005> represents 5 minutes.

Press <enter>  on the keypad to send the schedule to the rotor.



Within the PWR Ctrl menu, the Rotor can be commanded to change between various power management modes and to reinitialize itself.

By selecting <1> PWROff, the Rotor will completely shut its internal power off. The unit will not be capable of communicating to either the Central Control Software or the Handheld in this mode. Additionally, the Rotor will not be capable of running any of the irrigation schedules programmed into it. For the Rotor to acknowledge this command from the Handheld, the user must provide the appropriate three-digit Security Password. A magnet will be required to reactivate the Rotor for operation.

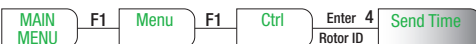


By selecting <2> ExitSleep, the Rotor will exit its Hibernation state and return to its normal mode of operation. This command will only be accepted by the Rotor if selected between 10:30 AM and 1:30 PM.

By selecting <3> EnterSleep, the Rotor will enter its Hibernation state. While the Rotor is in this state, it will not be capable of running any of the irrigation schedules programmed into it. While in this state, the Rotor will activate itself to listen for the ExitSleep command only between 10:30AM and 1:30PM. For the Rotor to acknowledge this command from the Handheld, the user must provide the appropriate three-digit Security Password. Alternatively, a magnet can be used to reactivate the Rotor for operation without the use of the Handheld.

By selecting <4> Reset, the Rotor will begin a sequence to reinitialize itself. This command should only be used in the case that the Rotor fails to respond to commands issued from the central control software of handheld.

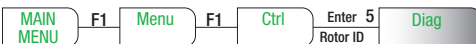
Send Time



By selecting Send Time, a command will be sent to synchronize the time within the rotor with the time within the handheld.

Note: Make sure the Handheld is set for the correct date and time prior to selecting Send Time.

Diag



Within the Diag Menu, the rotor can be commanded to enable and disable the display of the diagnostics using the rotor LED for the state of the battery and solar panel. Reference the table in the [Maintenance](#) section to differentiate between the various states of the battery and solar panel.

By selecting <1> Dis LED Batt, the rotor will disable the displaying of diagnostics on the LED for the state of the battery.



By selecting <2> En LED Batt, the rotor will enable the displaying of diagnostics on the LED for the state of the battery for five (5) minutes.

By selecting <3> Dis Solar, the rotor will disable the displaying of diagnostics of the LED for the state of the solar panel.

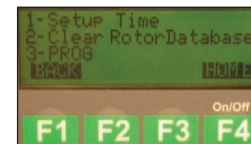
By selecting <4> En Solar, the rotor will enable the displaying of diagnostics of the LED for the state of the solar panel for five (5) minutes.

HANDHELD UTILITIES



To maintain consistency with the Central Control Software and the Wireless Rotors, the Handheld has been designed with several functions that have direct impact on the data and the ways that it is stored.

At this time, the Synchron feature is not available. This feature will allow the Handheld and Central Control Software Databases to be synchronized.



Setup Time



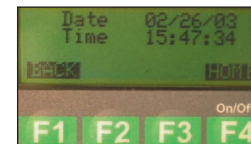
Within the Setup Time menu, the clock for the Handheld can be changed. The initial location of the cursor will be the first digit of the month. Enter the Date using a MM/DD/YY format.

For example, February 26, 2003 would be entered as 02/26/03.

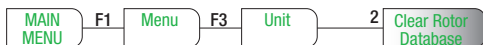
Once the Date has been entered, enter the new time (HH:MM:SS) in military format.

For example, 3:47pm 34 seconds would be entered as 15:47:34.

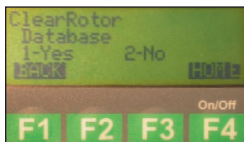
Note: Each field of the Date/Time requires two digits.



Clear Rotor Database

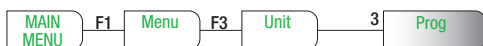


Within the Clear Rotor Database menu, the user must verify whether or not to clear the entire database on the Handheld. Press <1> for YES or <2> for NO on the Keypad



PLEASE NOTE: THIS FUNCTION WILL CLEAR ALL THE MEMORY FROM THE HANDHELD UNIT.

Prog



This feature will allow future enhancements to the handheld. This feature should only be activated by a Rain Bird representative.

RAIN BIRD MESSENGER SET-UP

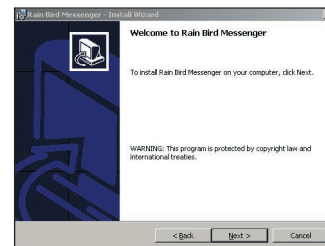
Install the software CD labeled Rain Bird Messenger. Please cancel all programs that are currently running. Confirm that Weather Watch is also closed if you are communicating with a Weather Station via a phone connection.

1. Double Click on the My Computer icon.
2. Double Click on the CD drive (usually the d or e drive).
3. Double Click on the yellow folder labeled Messenger.
4. Double Click on the yellow Setup folder and then on Setup.exe.
5. The following three screen shots will open. Please click the Next button on each screen.

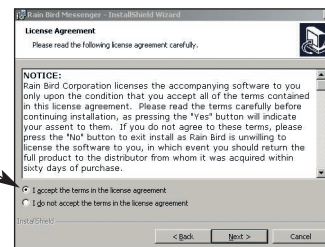
A.



B.



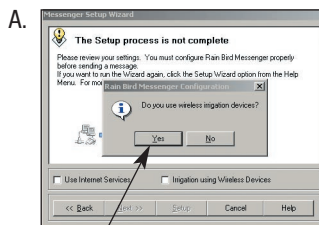
C.



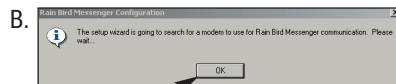
Please make sure to click in the circle to accept the license agreement.

6. Four more screens will follow. Please click next, install, or finish on these screens. These screens are completing the set-up Wizard for Rain Bird Messenger. If you do not have MicroSoft 2.5 Data Components on your hard drive then they will also be installed at this time.

7. The first few set-up screens indicate the amount of time it will take to complete the set-up. Please click Yes/OK for these screens.



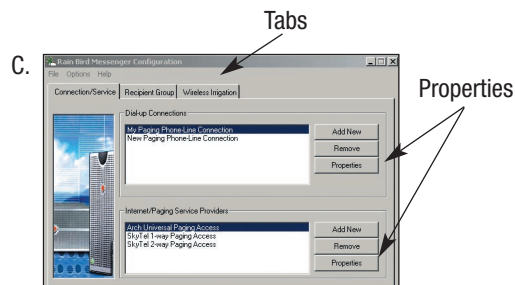
Click Yes



Click OK

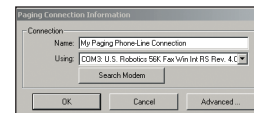
8. This screen will open after your modem is located. The screen will have the information already listed on it.

Highlight “My Paging Phone-Line Connection” and click on properties for Dial-Up connections.

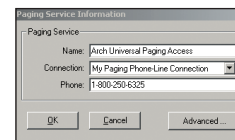


9. Confirm the COM port and modem information is correct and click OK.

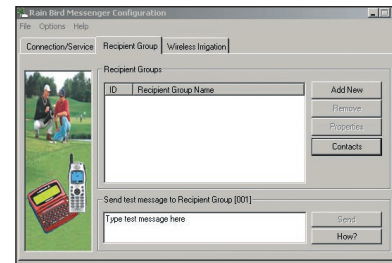
Next, highlight the paging service to be used (either Arch or SkyTel) and then click on the properties button for Internet/Paging Service Providers.



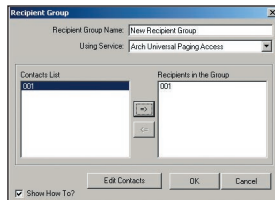
10. Confirm the information is correct and click OK.



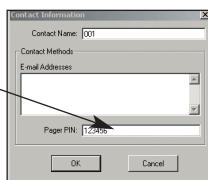
11. Next click on the Tab labeled Recipient Group. To set up a Recipient Group, click on the Add New Button.



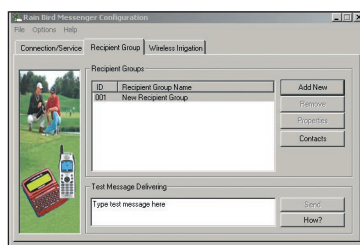
12. Click on the drop down arrow and select the Pager Service to be used. Click on Edit Contacts in order to enter the 001 in your contact list. Once 001 is in the contact list, make sure it is highlighted and click on the arrow pointing to the Recipient Group window to place it in there as well. Click OK.



Enter the PIN Number specific for your course



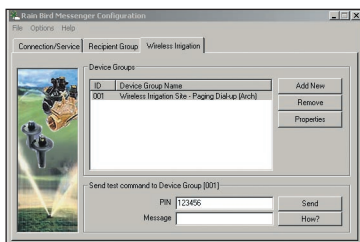
This is a completed Recipient Group.



13. Click on the Wireless Irrigation Tab. Please note that the Wireless Group (001) is already listed.

The Messenger Pager Set-Up is complete. Not every screen was captured.

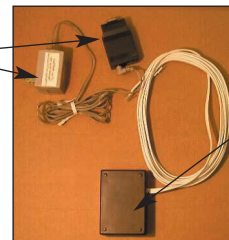
Please contact your Rain Bird representative for further assistance with Messenger set-Up process.



THE LISTENING DEVICE

The Listening Device connects to the computer and “listens” for the specific rotor data information unique to each individual site.

9-pin connector and external transformer



Listening Device unit with a 15' extension cable, which allows the unit to be mounted away from the computer.

The Listening Device connects to an available COM port on the computer via a nine pin connector. The unit will be pre-programmed by Rain Bird.

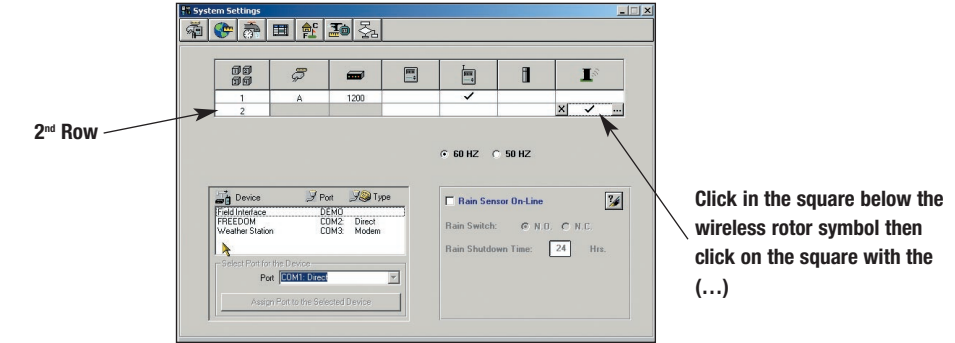
The purpose of the Listening Device unit is to “hear” the information unique to the course when a page is sent by the computer and then received by the rotor. This is done through the Cirrus/Nimbus II/Stratus II™ Central Control programs version 3.0.x or higher.

Following are the steps to complete within the Cirrus/NimbusII/StratusII software program(s) to set up the unit:

1. Open the System Settings Tables.

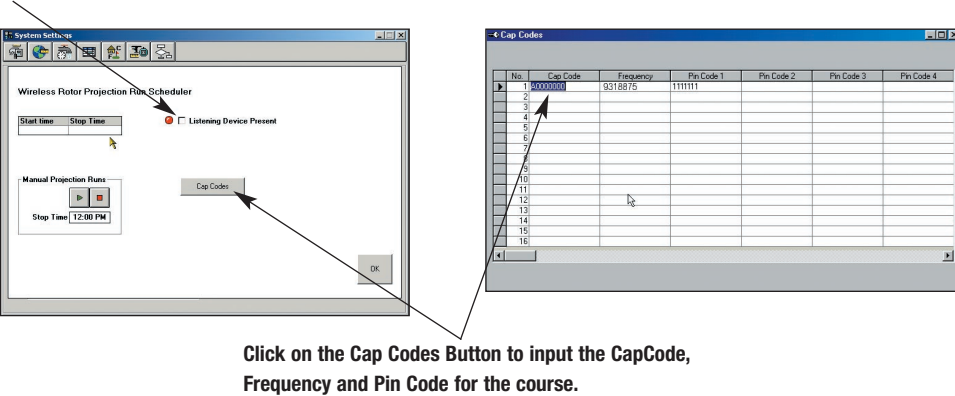


2. Click in the cell under the wireless rotor symbol. Always use the 2nd row down when setting up the wireless rotor. See picture on page 18.



3. After checking the box as indicated in Step 2, the following screen will appear:

Check in the Listening Device Present box to complete the setup of the listening device.



With the Listening Device unit active, the Central Control software will record the irrigation time(s) for each wireless rotor.

STATION DETAIL TABLE CONFIGURATION

Each of the wireless rotors must be configured within the station detail table of Cirrus/Nimbus II/Stratus II™ Central Control software in order to operate.

The table provides all pertinent data entered in relation to each rotor and its location.

This feature is accessed by clicking on the “Station Detail” icon located on the right side of the “Front Office” screen.



The “Station Detail” table will be displayed as shown below.

No.	Cap Code	Frequency	Pin Code 1	Pin Code 2	Pin Code 3	Pin Code 4
1	000000	931.5575	111111			
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

To add the wireless rotor information, click on the designated area and then click on the plus symbol.



Input the specific information as shown below.
The drop-down table information is input as shown on page 14.

Station Detail

Capcode

Enter Capcode

		G	T	F	A	P	R	M
101	A	1	1	1	1			1
102	A	1	1	1	2			1
103	A	1	1	1	3			1
104	A	1	1	1	4			1
105	A	1	1					1
106	A	1	1					1

Station Detail

PIN

Enter PIN

		G	T	F	A	P	R	M
101	A	1	1	1	1			1
102	A	1	1	1	2			1
103	A	1	1	1	3			1
104	A	1	1	1	4			1
105	A	1	1			1		1
106	A	1	1					1

Station Detail

Passcode

Enter Passcode

		G	T	F	A	P	R	M
101	A	1	1	1	1			1
102	A	1	1	1	2			1
103	A	1	1	1	3			1
104	A	1	1	1	4			1
105	A	1	1			1	1	1
106	A	1	1					1

Programming the Wireless Rotor

To create irrigation programs using the Cirrus/NimbusII/StratusII Central Control software, please refer to the operations manual for the specific Central Control software purchased.