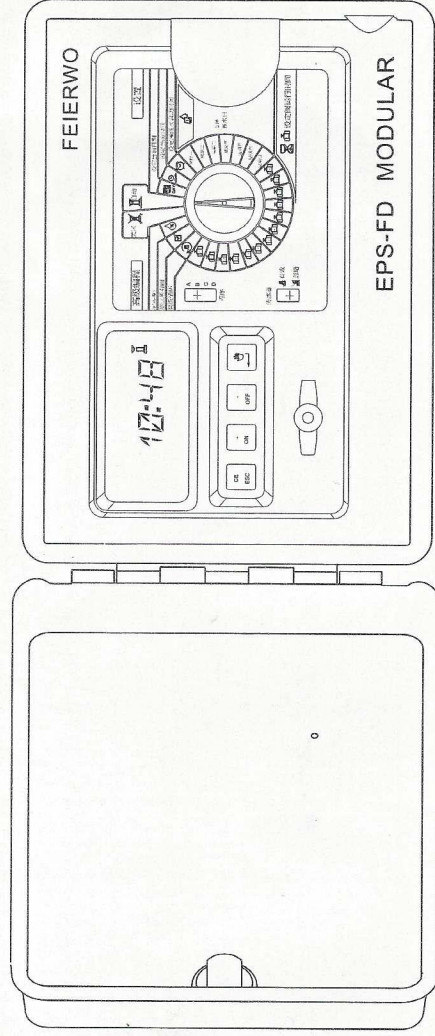


EPS-13 MODULAR

Residentot and light commercial Irrigation controllers

Installatio, Progamming
& Operation Guide

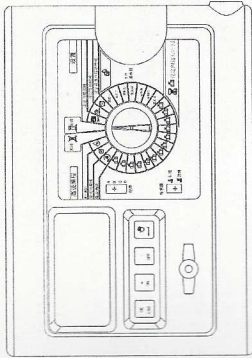
Endoor or outdoor
Versions



English

INSTALLATION

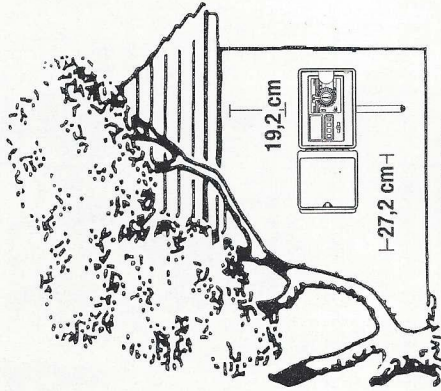
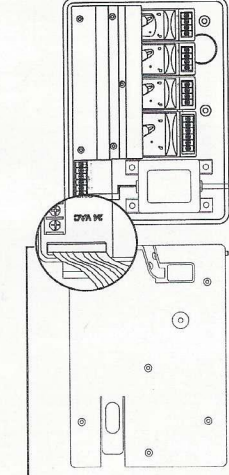
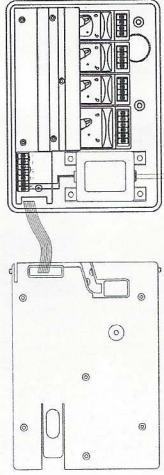
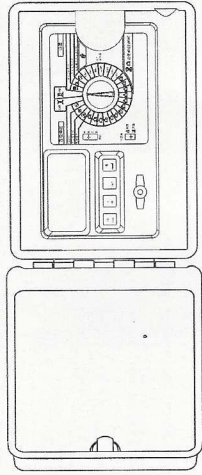
I. CHOOSE LOCATION



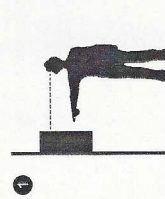
INTRODUCTION

The ESP Modular controller is an irrigation timing device for residential and light commercial use. The ESP Modular controller (ESP-4M) is for indoor and outdoor use.

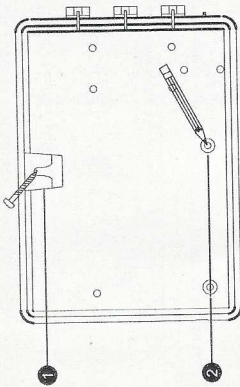
The basic unit supports four valves and a master valve/pump start relay. With the addition of optional internal modules, the ESP Modular can support up to 12 valves, an auxiliary valve, and a master valve/pump start relay.



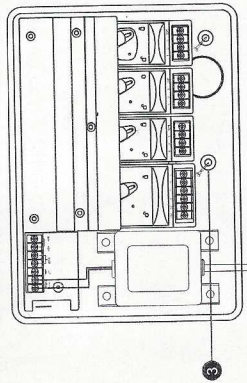
OUTDOOR WALL MOUNT



I. MOUNTING THE CONTROLLER

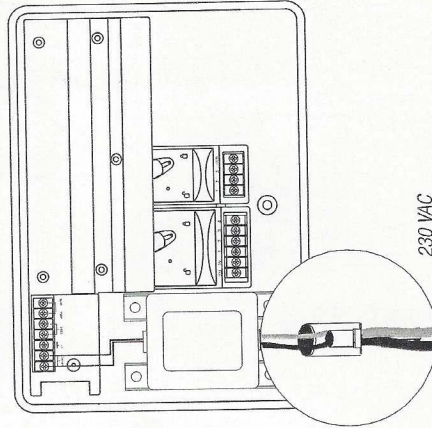
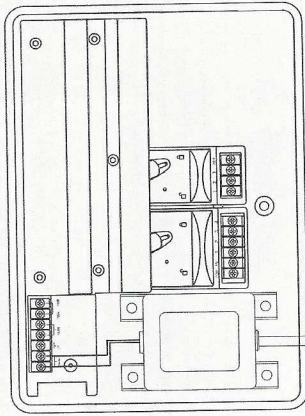


- 1 Install appropriate fastener for type of wall for keyhole slot. Hang the controller by the keyhole slot.
- 2 Level the controller & mark position(s) of one or more of the lower mounting hole(s).



- 3 Drive the appropriate fastener(s) into the lower mounting hole(s). Verify that the cabinet is secure.

III. WIRING - POWER



230 VAC
Fits 1,3cm conduit fittings.

WARNING: To prevent electrical shock make sure all supply power is OFF before connecting these wires. Electrical shock can cause severe injury or death.

NOTE: Indoor units and 240VAC (Australian) units do not require a conduit because the cable is already installed.

CAUTION: All electrical connections and wiring runs and wiring runs must be made according to local building codes.

- 1 The EPS Modular controller has an internal transformer that reduces supply voltage (120VAC in U.S. models; 230VAC in international models; 240VAC in Australian models) to 24VAC to operate the valves connected to the controller. You will need to connect power supply wires to the transformer's three wires.

- 2 Must be connected to provide additional electrical surge protection

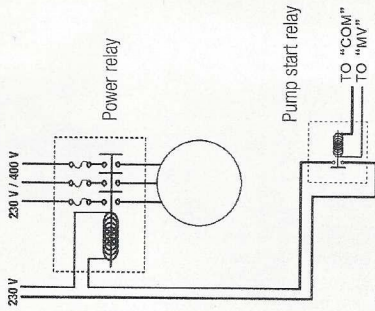
IV. WIRING - ELECTRIC VALVES

The ESP modular supports station capacity of up to two 24VAC, 7VA solenoid valves per station plus a master valve or pump start relay.

Note: Complete this section only if your system requires a master valve or pump start relay. The controller does not provide main power for the pump.

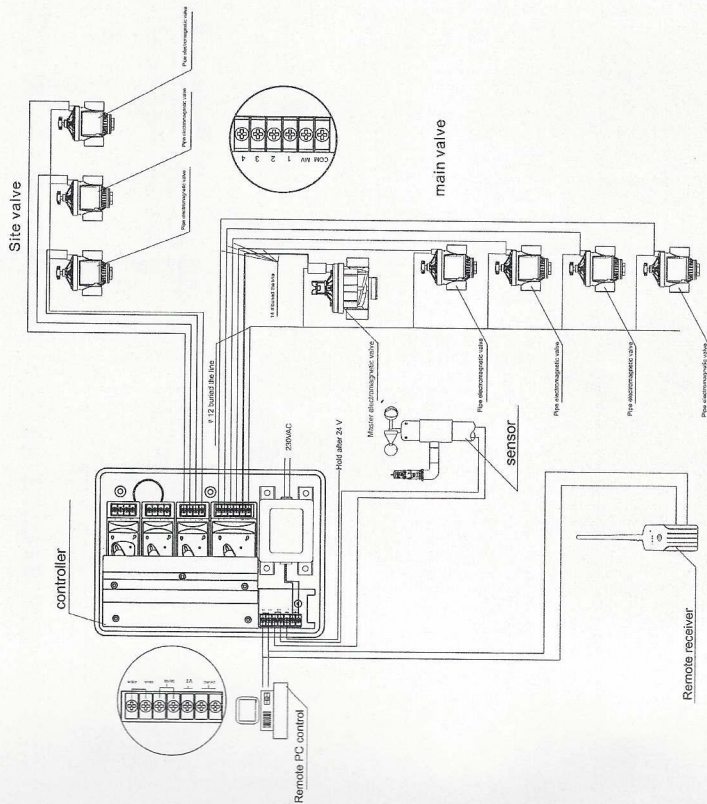
Valve Test Terminal

Valve Test Terminal (VT) provides a constant 24V output (with applied AC power) that can be used to quickly check station valve wiring.



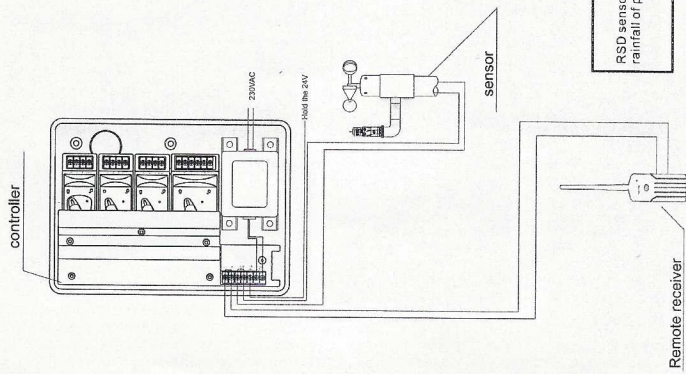
Pump Start

The terminal marked MV is used to automatically start a pump with a relay or to open a master valve. The MV terminal provides power only when one of the stations is operating.



Controller and electromagnetic valve connection between signal lines diagram

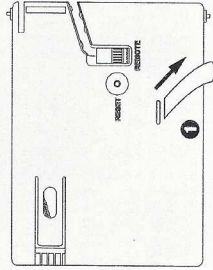
V. JUMPER SETTING FOR UNUSED STATIONS



VI. SENSOR OPTION

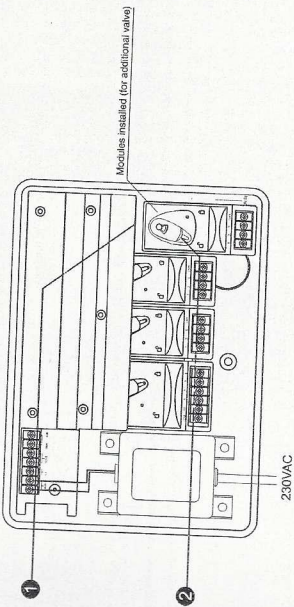
- 1 If you are not connecting a sensor to the controller, make sure the supplied jumper is installed on the SENS terminals.
- 2 Rain check or Moisture Sensors should NOT be connected between these terminals, but should only be connected in series with the COM terminal.

VII. BATTERY BACKUP

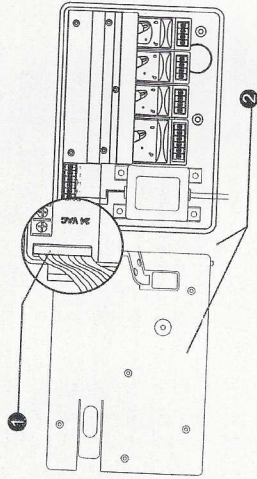


- 1 Pull to remove.

VII. INSTALLING MODULES (for additional valves)







IX. FINISHING INSTALLATION

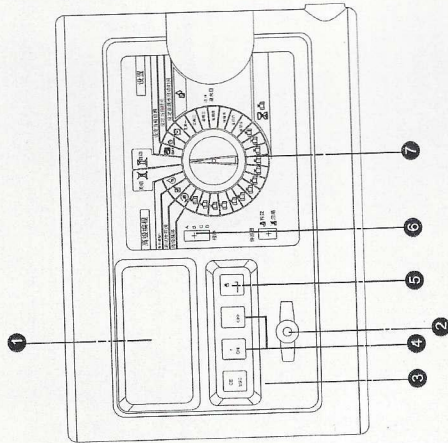


- 1 You can install optional modules in any position and while the controller is operational.
- 2 Insert module in any open slot, making sure lever is in the unlocked position.
- 3 Lock module in place by sliding lever to the right.

CONTROLS AND SWITCHES

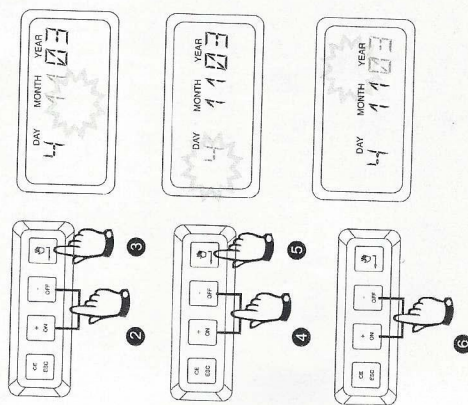
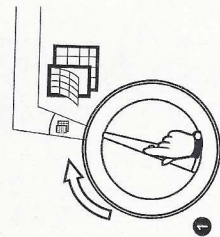
The illustration to the right shows the controls, switches, and indicators on the ESP Modular controller, including:

- 1 **LCD** — during normal operation, displays the time of day; during programming, shows the results of your commands; during watering, shows the valve that is watering and the minutes remaining in its run time.
- 2 **Alarm LED** — turns on when one of the following conditions occurs:
 - Watering is suspended by a sensor
 - The controller senses a valve short circuit
 - A programming error has been made
- 3 **EC, ESC** — Confirmed to return to
- 4 **Up-Down, ON-OFF Buttons** — used to adjust program settings up or down, or turn watering days ON or OFF.
- 5 **Manual Start / Advance Button** —  (Manual Start) is used to start an irrigation program or station valve(s) manually.  (Advance) is used to sequence through programming steps or set values.
- 6 **Program Slide Switch** — used to select watering program A B C D.
- 7 **Sensor Bypass Switch** — used to tell the controller to obey  or ignore  input from an optional sensor.
- 8 **Programming Dial** — used to turn the controller off and on, and for programming.

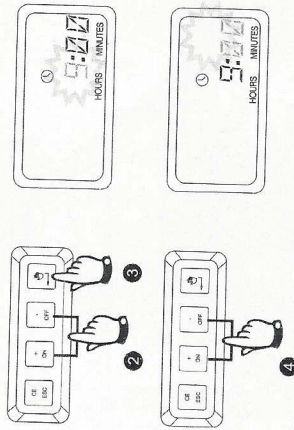
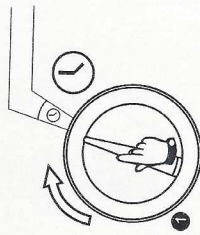


PROGRAMMING

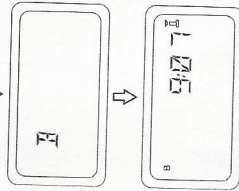
I. SET THE CURRENT DATE



II. SET THE CURRENT TIME



III. SELECT PROGRAM





V. SET PROGRAM WATERING START TIMES

To eliminate a watering start time, press \uparrow or \downarrow until "OFF" setting between 23:45 and 0:00H appears.

To set additional start times for this program, press \leftarrow to display next start time. Repeat as needed.

IV. SELECT WATERING CYCLE (continued)

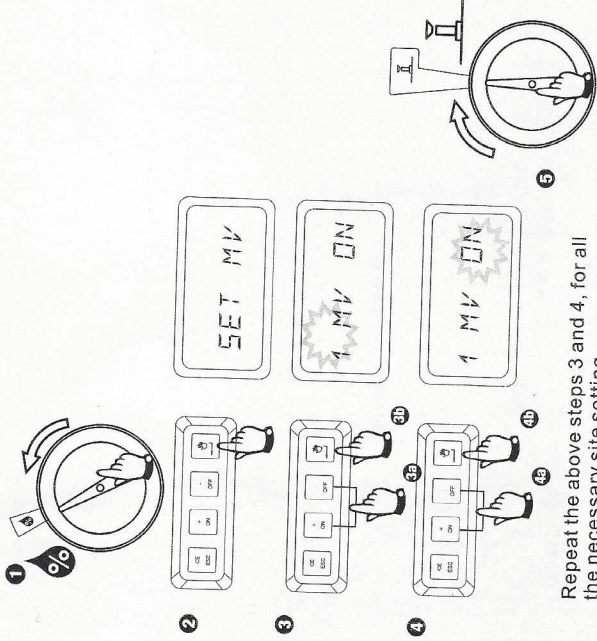
C. 1 31

\square = water cycle starts today
 1 = water cycle starts tomorrow
 2 = water cycle starts 2 days from today
 3, 4, ... = water cycle starts ___ days from today

English

Set the operation of pump/Lord control valves

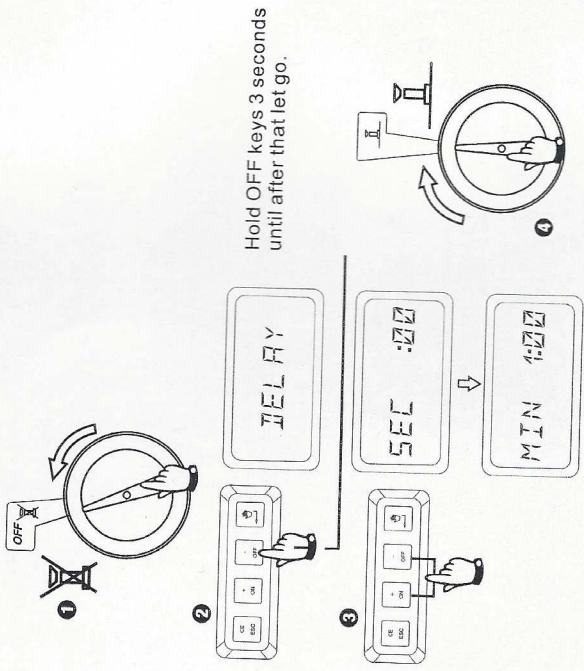
The Lord of the controller module have a Lord 0 control valve (MV terminal). Some systems will one booster pump connected to the main control terminals and need to be opened in certain areas, and other systems are not so. The default Settings said all the site's main control valves circuit located in the "ON" position (open). To the Lord control valves circuit/pump operation for programming, please



Repeat the above steps 3 and 4, for all the necessary site setting

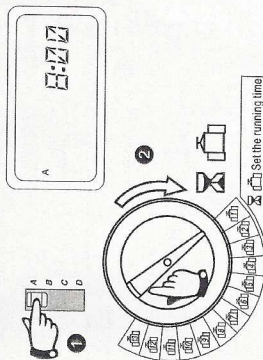
Programmable site delay between

This feature allows users to increase from a site shut down to the next site between open the time delay. For those who restore time slow pump station system or control valves closed slow system for, the function is very useful. Users can set up a general in all the time delay between site program. Delay set value range is 0 seconds (the default) to nine hours. Within five minutes, the delay can be 1 seconds for incremental Settings, longer delay set value increment is for 1 minute.

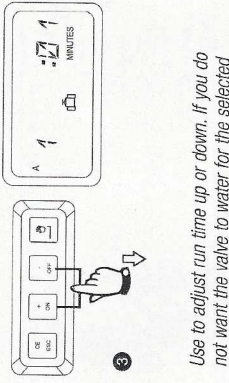


VI. SET VALVE WATERING RUN TIME

You can set any valve to run from 0 to 6 hours (1-minute increments for first 1 hour, 10-minute increments for the remaining.)



Note: If you turn dial to a valve number with no installed module, the message "NO 5 - 8", "NO 9 - 10", "NO 11 - 13" appears on the display.



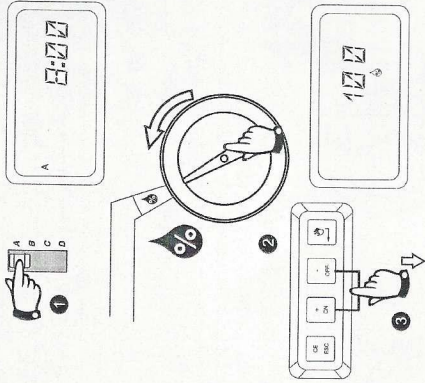
Use to adjust run time up or down. If you do not want the valve to water for the selected program, set run time to 0. Repeat 2-3 for the selected program. Repeat 1-3 as needed for programs B or C.

Caution: If all valve run times are set to 0, the alarm LED will turn on.

Installation, Programming and Operation Guide

VII. SET SEASONAL ADJUST % (Water Budget)

This function lets you increase or decrease the run times of all valves globally by a selected percentage. You can set the % from 0-200%. This setting will affect ALL programs globally.



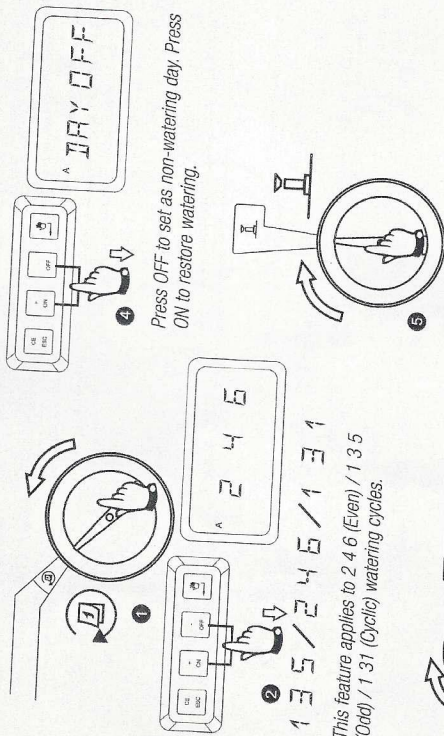
Use to adjust time up or down. Default is 100%.

Seasonal adjust % is calculated on the normal programmed run times for each valve. For example, if valve 1 is set to run for 10 minutes, and you set it to 120%, valve 1 will run for 12 minutes.

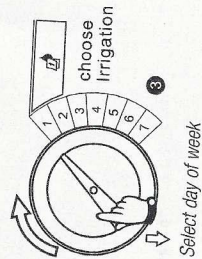
Caution: If a value other than the default 100% is entered, the % will be displayed in AUTO mode to indicate run time values are adjusted.

VIII. SET PERMANENT DAY OFF

For 2 4 6 (Even) / 1 3 5 (Odd) / 1 3 1 (Cyclic) watering cycles, you can set any day of the week as a non-watering day to accommodate restrictions or other requirements.

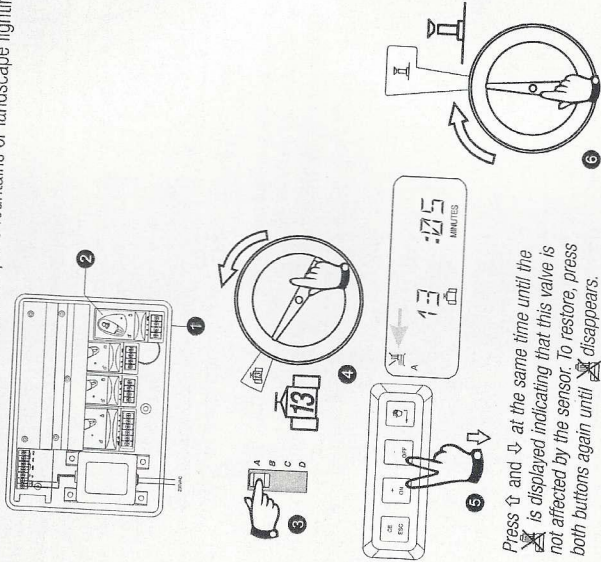


1 3 5 / 2 4 6 / 1 3 1
This feature applies to 2 4 6 (Even) / 1 3 5 (Odd) / 1 3 1 (Cyclic) watering cycles.



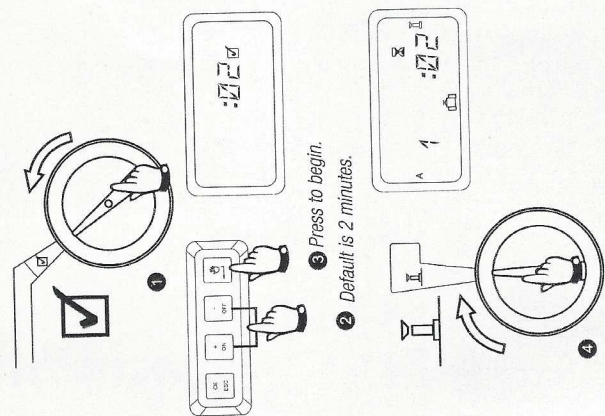
IX. AUXILIARY VALVE OPERATION

The Auxiliary valve terminal (valve 13) can operate as a normal station or can be programmed so that it is not affected by an activated sensor. When programmed this way, the auxiliary terminal can be used to connect non-irrigation equipment such as patio fountains or landscape lighting.



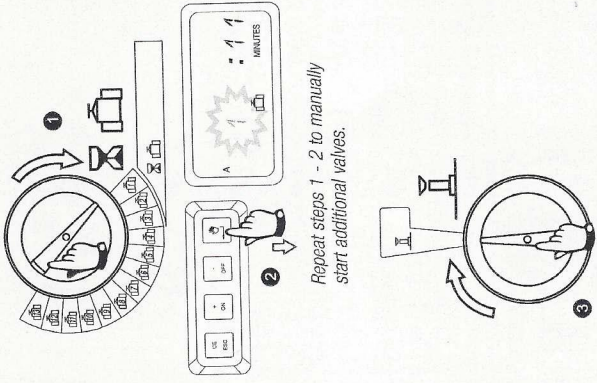
X. TEST ALL VALVES

This function will run all equipped valves in sequence for the amount of time set. Default is 2 minutes.



3 Press to begin.
Default is 2 minutes.

XI. RUN VALVE(S) MANUALLY



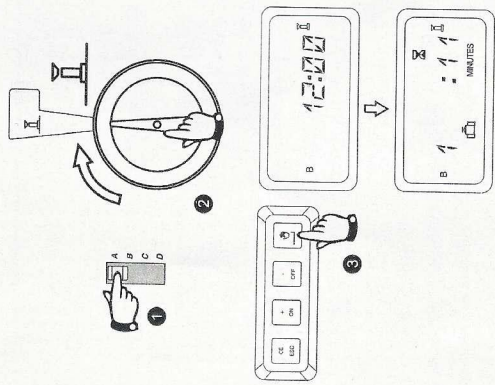
Repeat steps 1 - 2 to manually start additional valves.

You can adjust manual run time up or down.
To cancel, turn dial to for 3 seconds.
Return dial to .

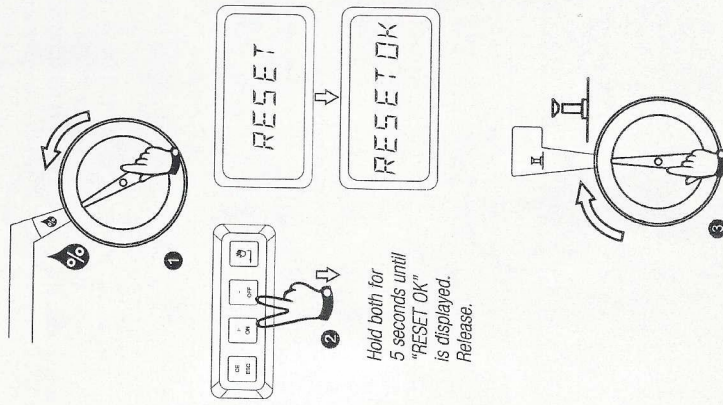
5 System will display current time after manual watering completes.

English







XII. RUN PROGRAM MANUALLY







XIII. CLEAR ALL PROGRAM INFORMATION







TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Program does not come on automatically.	<ol style="list-style-type: none"> Dial is set to OFF position. Start time has not been entered for the program. Today may not be a watering day for the program. Permanent Day(s) Off feature is preventing watering. Program's Seasonal Adjust percent is set to 0%. 	<p>Set the dial to AUTO.</p> <p>Turn the dial to  SET WATERING START TIMES and check the start times entered for the program. If the start time is missing, enter it as described on page 11.</p> <p>Select the program, and turn the dial to  ADVANCED CYCLES. Check the watering days for the program.</p> <p>If the Permanent Day(s) Off feature has been set properly, no correction is needed. To change the Permanent Day(s) feature, see page 13.</p> <p>Set the  Seasonal Adjust percent above 0%. See the instructions on page 12.</p>
Display shows a valve operating, but no watering	<ol style="list-style-type: none"> Sensor system is preventing irrigation. No sensor or jumper is connected to the controller's SENS terminals, and the sensor switch has been set to ACTIVE. 	<p>Turn the sensor switch to  BYPASSED. If watering resumes, the sensor is operating properly, and no correction is necessary.</p> <p>Turn the sensor switch to  BYPASSED. To prevent future occurrences, install the supplied jumper on the controller's SENS terminals.</p>
Valve does not come on.	<ol style="list-style-type: none"> No run time has been set for the valve. A short circuit in the solenoid or valve wiring has disabled the station. (ALARM LED on the faceplate is lit.) 	<p>Turn the dial to the valve number, and set the program switch to check the run time for the valve in each program.</p> <p>The display will show "# Err," where # is the valve number at fault. Identify and repair the fault in the circuit. If "MV Err" occurs, repair the fault. With the dial in AUTO, press the  ADVANCE button to clear the Alarm LED.</p>

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTION
	10. The sensor system is preventing irrigation.	See correction for Cause #6.
	11. Start time has not been entered for the program to which the valve is assigned.	See correction for Cause #2.
	12. Seasonal Adjust for the valve's program is set to 0%.	See correction for Cause #5.
Display is partially or completely blank.	13. An electrical surge or lightning strike has damaged the controller's electronics.	Push the RESET BUTTON. If the electrical surge did no permanent damage, the controller will accept programming commands and function normally.
Watering starts when it should not.	14.  MANUAL START / ADVANCE key has been pressed.	To cancel a program that has been manually started, set the dial to  OFF for three seconds. Then set the dial back to  AUTO.
	15. An unwanted start time may have been entered.	Turn the dial to  SET WATERING START TIMES and check to see if any programs have an unwanted start time. See page 11 for instructions on setting and eliminating start times.
	16. The programs may be stacked.	Programs will stack behind each other if they are scheduled to start while another program is running. Make sure Programs A, B, and C are not scheduled to start when any other program is scheduled.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Alarm LED is lit	17. No start time.	All start times have been removed. Enter at least one start time and set the dial back to  AUTO. The LED will turn off.
	18. No run times.	The default 10-minute run time for all active valves has been removed. Enter a run time for at least one active valve and set the dial back to  AUTO. The LED will turn off.
	19. Seasonal adjust is at 0%.	The  seasonal adjust % value has been set to zero. Enter a seasonal adjust value and set the dial back to  AUTO. The LED will turn off.
	20. Shorted station.	A short circuit in the solenoid or valve wiring has disabled the station. See correction for Cause #9.