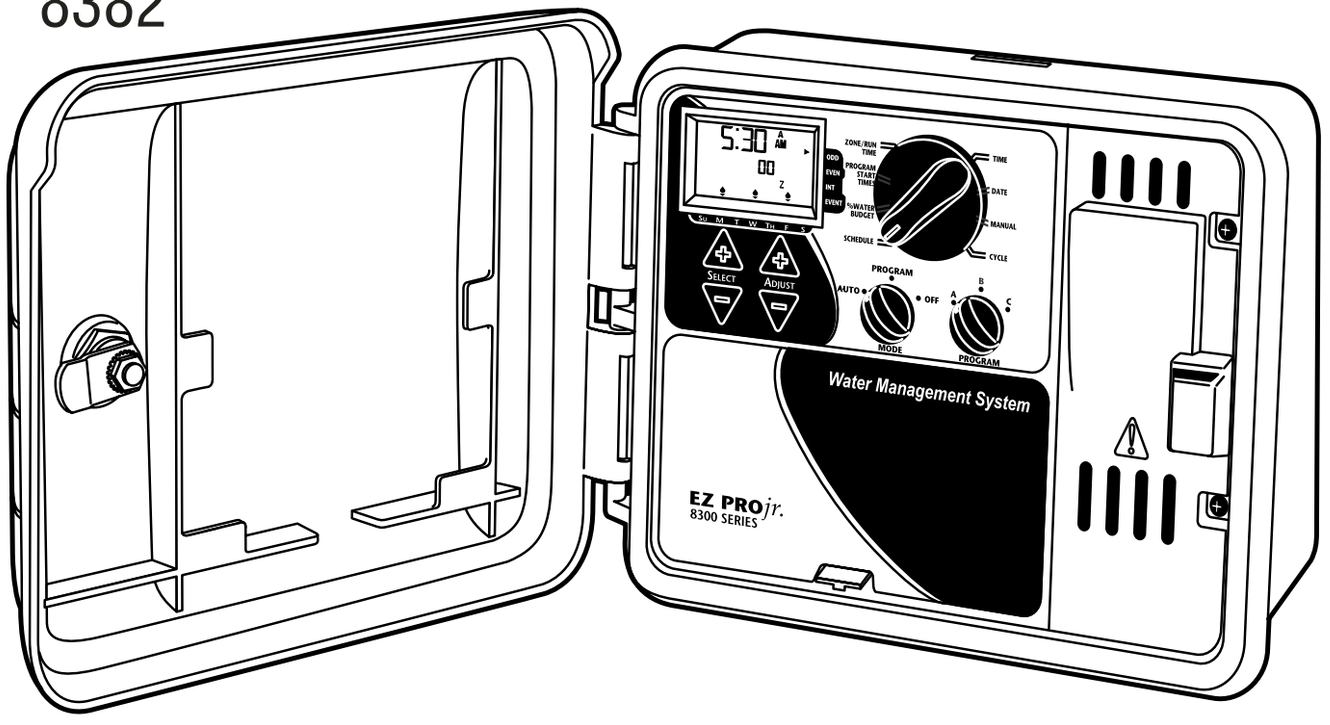
NELSON®
TURF

EZ Pro™ Jr.

Installation and Programming Guide

For EZ Pro™ Jr. models:

8304 8374
8306 8376
8309 8379
8312 8382



THANK YOU for purchasing the EZ Pro™ Jr. 8300 Series electronic irrigation controller. The EZ Pro™ Jr. 8300 Series is so “EZ”, you’ll probably be able to install and program this feature-packed controller without instructions. However, before installing and programming the controller, we recommend you read these instructions carefully to take full advantage of all the EZ Pro™ Jr. 8300 Series has to offer.

If you have questions, problems or comments on your new EZ Pro™ Jr. 8300 Series, please call our Technical Services Department toll-free at 1-888-NELSON8, or by visiting us on our website at LRNelson.com.

Leaders in Turf Irrigation Since 1911

NOTE: In our efforts to continually improve and update our products, features and specifications in this manual may change without notice.

TABLE OF CONTENTS

FEATURES

- Nelson exclusive SELECT&ADJUST™ programming
- Lithium battery back-up stores programs without AC or Battery power (AA)
- Programmable delay between zones
- Three independent programs
- Three start times per program (9 total starts)
- Stacking start times
- Three scheduling options to suit the needs of plant material or to comply with watering restrictions (days of the week, 1-30 day interval, true odd/even)
- Event days programming per program
- Rain Sensor bypass option
- Leap year compatible-automatically includes Feb 29th every four years
- Water budget option reduces or increases watering 0-200 percent
- Advanced water budget to set water budget for each month of the year
- Two test cycles (Manual with ManualAdvance™ feature and Cycle)
- Programmable run times from one minute to 1 hour 59 minutes
- Poly-fuse self resetting circuit protection

INSTALLATION INSTRUCTIONS

The **EZ Pro™ Jr. 8300 Series** can be mounted indoors or outdoors. Find a location near a 120V wiring source (230/240V for 8374, 8376, 8379, and 8382 models). Install the EZ Pro™ Jr. near eye level if possible. Use the supplied template to mark and pre-drill pilot holes in the wall. Insert screws through the holes in the case and screw each into the corresponding pilot hole in the wall.

Wiring the Transformer

120 VAC in United States, Canada and Mexico; 230 VAC in Europe, and 240 VAC in Australia and South Africa

NOTE: Refer to and follow local codes if different from these instructions.

CAUTION: Disconnect 120V (230/240V for 8374, 8376, 8379, and 8382 models) power source before wiring transformer. Complete all wiring and installation before connecting the transformer to power source. This will avoid accidental shorting which could damage the controller.

Power supply cables and cords used for connections are to be of ordinary duty or greater. Low voltage output cables should be enclosed in conduit affixed to the controller with a suitable adapter. Remove the two screws and lift out the transformer cover to provide access to the internal transformer, bring 120V (or 230/240 for 8374, 8376, 8379, and 8382 models) wires up through 1/2" conduit hole in the bottom of the case. (For field connection, AC wires must have an insulation rated at 75° C minimum). Conduit should be secured to the case (follow local codes).

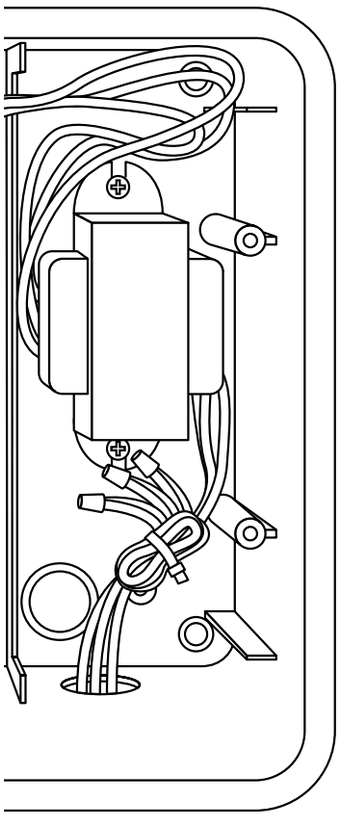
INSTALLATION INSTRUCTIONS

For models 8304, 8306, 8309, 8312 (see figure 1)

Remove the transformer cover by loosening the two screws. Attach AC wires to transformer wires using wire nuts. Also, ensure earth ground wire is attached to green with yellow stripe ground wire. Please check local codes for the grounding requirements in your area. Bundle wire within cable tie loop and tighten cable tie to prevent loose wiring from touching secondary circuits. The transformer is now wired. Replace the transformer cover and the two screws. ***DO NOT turn on power yet.***

NOTE: Failure to ground unit properly may cause severe damage to the controller and/or personal property and will void warranty.

Figure 1



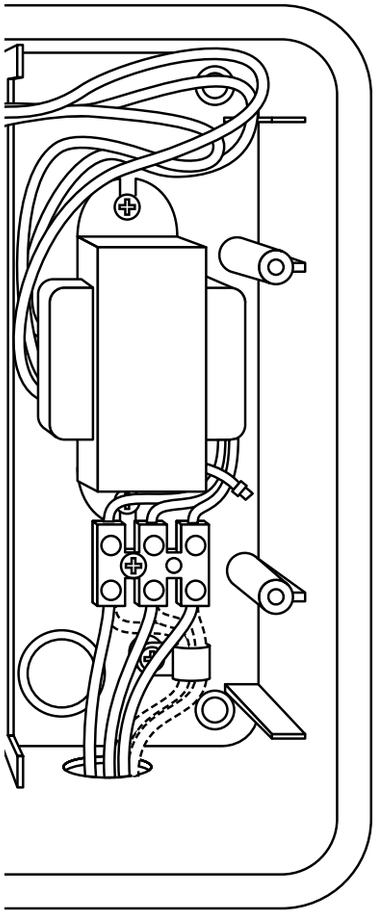
INSTALLATION INSTRUCTIONS

For models 8354, 8356, 8359, 8362 (see figure 2)

Remove the transformer cover by loosening the two screws. Route AC wires to connector provided. Cut and trim wires to install in chassis mount connector. Tighten the screws. (For Australia an extra clamp has been provided.) Observe proper polarity of wires as you install them (ie. L1, L2 and ground). The transformer is now wired. Replace the transformer cover and the two screws. DO NOT turn on power yet.

NOTE: Failure to ground unit properly may cause severe damage to the controller and/or personal property and will void warranty.

Figure 2



INSTALLATION INSTRUCTIONS

Terminal Strip

All zone, pump and sensor wire connections made inside the EZ Pro™ Jr. utilize screw type connectors that require a small screwdriver. The terminal strips in the controller accept 12 AWG (2.1mm) wire or smaller.

Connecting Master Valve or Pump-Start Relay

The EZ Pro™ Jr. is equipped with a shared circuit to operate either a pump-start relay or a master valve. Connect one wire from the pump-start relay to COM (common) on terminal strip, the other to PMP/MV (pump/master valve) on the terminal strip. Refer to the pump-start relay manufacturer's instructions for specific installation details.

Connecting Rain/Moisture Sensor

The EZ Pro™ Jr. is equipped to operate a sensor with normally-closed leads. To install a sensor, remove the factory-installed jumper wire from the sensor connector on the terminal strip and insert the sensor wires. Refer to the sensor manufacturer's instructions for specific installation details. (See figure 2)

If a sensor has suspended watering, the sensor indicator segment  will appear on the LCD. The symbol will go off when the sensor has dried out. The EZ Pro™ Jr. will resume operation based on the selected program.

NOTE: Manual operations will ignore the rain sensor

INSTALLATION INSTRUCTIONS

Connecting the batteries and starting the controller

Remove the terminal panel under the LCD of the unit by pushing up on the tab. Insert two new AA Alkaline (LR6 in Europe) batteries into the battery clips in the pocket directly above the terminal strip. The AA batteries enable the EZ Pro™ Jr. to be programmed without AC power and maintain the programs and real time clock in the event of a power outage. If the batteries are not installed, and the Lithium battery has not been activated, the controller will lose real time and programs in the event of a power outage. The batteries should be replaced every five years, or when low battery symbol appears.

CAUTION: Use AA alkaline batteries only. NiCad batteries may leak or explode causing personal injury or property damage.

Lithium Battery Backup

The EZ Pro™ Jr. controllers come with a lithium battery back-up, so you will not lose program settings or time during a power failure - even if there is no battery installed. There will be no visual indication that this backup is working, or when this battery is going dead. Please keep fresh Alkaline AA batteries in the unit for the main backup battery. ***To activate the Lithium Battery backup, remove the tab marked "PULL" located under the AA battery compartment.***

Attach the battery/wiring cover, being sure not to damage wires. If wires are stiff, you may find it helpful to pre-bend them. Turn on the power source.

You're now ready to start programming!

PROGRAMMING INSTRUCTIONS

Programming Overview

The EZ Pro™ Jr. can be programmed under AC power or powered from the two AA alkaline batteries. Before programming the EZ Pro™ Jr., it may be helpful to become familiar with some general programming guidelines:

- If a segment(s) on the LCD is flashing, it means that it can be changed by the user.
- When using keys, hold the button three seconds to start a fast scroll.
- Be sure the appropriate program letter is displayed when you are programming; program changes are specific to the program letter displayed on the LCD.
- There is no “ENTER” key. Key-presses and dial settings are stored automatically for you.
- If you make a programming change while a program is running, the program terminates immediately. The new program starts at the next start time scheduled.
- When not running, the controller displays the current time and the current day.
- During manual operations, there is a 5-second delay before the operation begins. During this time, you can change your settings. Each time you make a change, the delay resets to 5 seconds.
- MANUAL and CYCLE procedures only operate with the Program dial set in the AUTO position.
- After a test procedure runs, the controller reverts back to the AUTO procedure and runs the next program scheduled.
- The test procedures ignore the sensor connection; this allows you to water or run your program even if the sensor has suspended operation.
- To clear all programs and start over, press and hold SELECT ‘–’ and ADJUST ‘–’ for three seconds

PROGRAMMING INSTRUCTIONS

Front Panel Layout

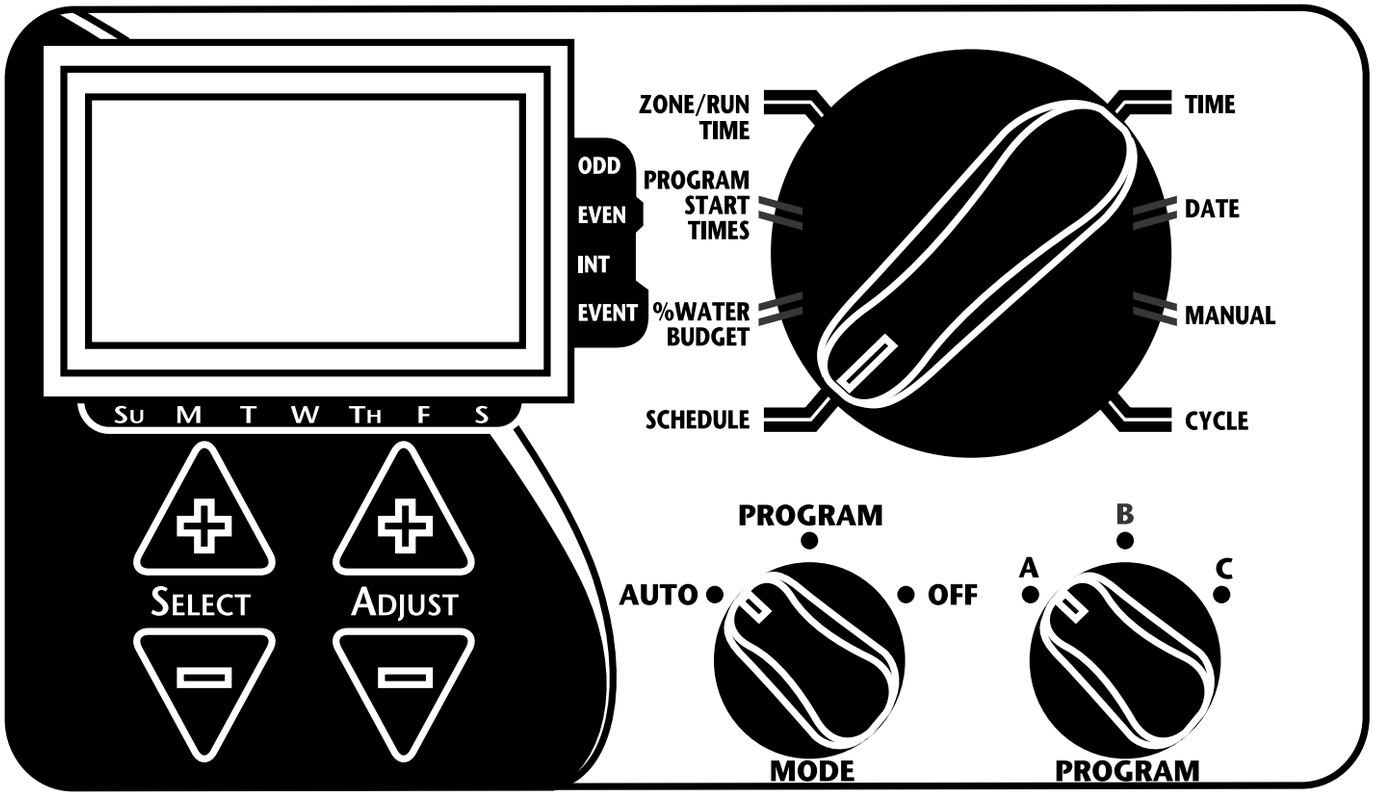
Looking at the front panel (see figure 3), you see a large LCD, 4 rubber buttons, one large rotary dial, and two small rotary dials. The rubber buttons are marked SELECT and ADJUST and are the core of Nelson's exclusive SELECT&ADJUST™ programming. The keys are identified with '+' or '–' for increasing or decreasing the segment you're working on.

SELECT&ADJUST™ works on the principle that you first SELECT what you want to set, and ADJUST the variables of what you selected. For example, if you want a run time of 10 minutes on zone 5, you would use the SELECT keys to select zone 5 and, once on zone 5, you would use the ADJUST keys to set the run time to 10 minutes.

There are instances when only SELECT or only ADJUST are required. They will be explained in this guide where appropriate.

PROGRAMMING INSTRUCTIONS

FIGURE 3



NOTE: The MODE dial must be in the PROGRAM position.

NOTE: Every time the '+' or '–' key is pressed, the display will increase or decrease one unit. Hold the '+' or '–' key for three seconds to initiate a fast scroll.

NOTE: Please refer to the Technical Data section for an explanation of the LCD segments.

PROGRAMMING INSTRUCTIONS - PROGRAM MODE

Set Time of Day

Turn the large dial to the TIME position. Press SELECT to select between hours, minutes, and 12/24 hour mode. Press ADJUST to scroll to the correct time or adjust between 12/24 mode. 'A.M.' will not appear on the LCD when in A.M. mode; 'P.M.' will appear on the LCD when in P.M. mode.

NOTE: In 24 hour mode, calendar is in D/M/Y format instead of M/D/Y

Set Today's Date and Current Day of the Week

Turn the large dial to the DATE position. Press SELECT keys to select between day, month and year positions. Press ADJUST keys to scroll to the current date. The correct day of the week will automatically show on LCD screen when today's date is adjusted. The EZ Pro™ Jr. controller is leap year compliant.

Select Zones and Set Their Run Times

A zone run time determines the duration a zone will run. Turn the large dial to the ZONE/RUN TIME position. Turn PROGRAM dial to choose program A, B or C. Press SELECT to choose the zone you want for the selected program (A, B, or C). With the zone number displayed on the LCD, press ADJUST to adjust the RUN TIME for that zone. RUN TIMES can be set from 1 minute to 1 hour 59 minutes. Continue selecting zones and adjusting their run times until you have all the zones you want in the selected program.

After the last zone and before the first zone, a RUN TIME summation is provided. This is useful for determining the total run time for a program. The LCD displays the letters "ALL" and a total RUN TIME is displayed. The time displayed is a summation of all the RUN TIMES for the selected program (100% water budget). (ex. A program has a run time of 5 minutes on zone 1; 12 minutes on zone 2; and 6 minutes on zone 4. The display at this position displays ALL and a run time of 23 minutes).

PROGRAMMING INSTRUCTIONS - PROGRAM MODE

Set Start Times

A START TIME is the time of day a program will start running. The EZ Pro™ Jr. allows three start times per program.

Turn the large dial to the START TIMES position. Press SELECT to select the start time you want to set (1, 2, or 3). Press ADJUST to set the time of day the program will start. Repeat as needed.

Start Time Stacking

The EZ Pro™ Jr. will stack start times if your program watering times overlap another start time. The additional start time will begin when the first cycle finishes.

Set % Water Budget

% WATER BUDGET changes the duration of run times in a program by the percentage entered 0 - 200% (i.e., a 10 minute run time at 50% water budget will run 5 minutes). This feature is useful when changes in weather occur. If it is unusually dry, you may want to extend your run time for each zone in a program. With % Water Budget, you can change one number, and all run times in the program are adjusted. If 24 hours of run time is exceeded 24 hr will flash on the LCD.

Turn the large dial to the % WATER BUDGET position. A % symbol will appear on the LCD to let you know you are working on the % Water Budget amount. Press ADJUST to choose the desired percentage amount.

If % WATER BUDGET is set for 110% or greater, the EZ Pro™ Jr. will split the run time in half to reduce runoff. Half of the calculated run time will operate for each zone in that program, followed by the second half of the run time for each zone.

NOTE: % WATER BUDGET is changeable by program. If you have programming in A, B, and C, you must enter three water budget values if you want every program to be changed.

Set Water Budget by Month (Advanced feature)

The EZ Pro™ Jr. allows you to set % WATER BUDGET by month. This feature allows you to customize your program by month over the year to allow for hot dry months and cooler wetter months.

Turn the large dial to the % WATER BUDGET position. Press both SELECT '+' and SELECT '–' together. Use the SELECT to select months 1-12. Use the ADJUST to choose the desired percentage amount from 0-200%. If 0% is chosen, no watering will take place in that month.

Set the Watering Schedule *(A quick note on scheduling and the EZ Pro™ Jr.…)*

The EZ Pro™ Jr. controller has three scheduling options plus the option for Event Days Programming:

- **WATER DAYS**, or daily, lets you choose which days of the week you want to water (i.e., Monday, Wednesday, Friday only).
- **ODD/EVEN** tells the controller to water on either the odd or even days of the month (i.e., the controller will water on the 31st and the 1st when an ODD schedule is chosen).

- **INTERVAL** waters every X number of days (from 1 to 30 days) (i.e., water every 3 days, waters every 10 days, etc.). A value of 1 in an interval schedule means to water every day. When using the interval option, you have the flexibility to tell the controller what day to start the interval program on (up to 30 days out).
- **EVENT DAYS** allows each program to block any specific day(s) from watering, regardless of the scheduling option (odd/even, interval, or daily).

The LCD will display the currently scheduled program (default is all WATER DAYS.) The SELECT keys will scroll the LCD display through each of the scheduling positions WATER DAYS, ODD, EVEN, INTERVAL, and INTERVAL START DATE. Be sure the PROGRAM dial is set on the program you want to change (A, B, or C) and that you want to change the current schedule. A scheduling option is chosen after you press a button, either SELECT or ADJUST. The old schedule is replaced with the new one. It's easy to program a schedule with the following procedures.

Set Water Days Scheduling Option

Turn the large dial to the SCHEDULE position. Use the SELECT till the raindrops appear above the days of the week. Press the ADJUST '+' button to select that day for watering or press ADJUST '–' for non-watering days. A flashing indicator appears over the day you're about to set. Raindrops appear over selected days to water. The indicator automatically moves one day to the right after an ADJUST '+' or '–' key press. Continue selecting or deselecting the days you want the controller to water until you have your 7-day calendar set.

NOTE: Programming a WATER DAYS schedule deletes any other schedule for the selected program.

Set Odd/Even Day Scheduling Option

Turn the large dial to the SCHEDULE position. The last scheduling option chosen for the current program appears on the LCD. To set either an ODD or an EVEN schedule press the SELECT button till an arrow appears on the LCD next to the appropriate schedule (ODD or EVEN). A DATE must be set for odd/even watering). The SELECT buttons act as toggle keys and will toggle between odd or even.

NOTE: Programming an ODD/EVEN schedule deletes any other schedule for the selected program.

Set Interval Scheduling Option

Turn the large dial to the SCHEDULE position. The last scheduling option chosen for the current program appears on the LCD. Press SELECT to scroll to the interval days position. An arrow will appear on the LCD next to INT (Interval). Use the ADJUST to choose interval days between watering (1-30). The date displayed is day one of the interval schedule. (Today's date if one has been set). To change day 1 date use SELECT to go to the interval start date position. As needed, change the date for day one of the interval schedule with ADJUST (can only be set up to 30 days out).

NOTE: Programming an INTERVAL schedule deletes any other schedule for the selected program.

PROGRAMMING INSTRUCTIONS - PROGRAM MODE

Set Event Days Programming (Optional)

Turn the large dial to the SCHEDULE position. The last scheduling option chosen for the current program appears on the LCD. Press both the SELECT '+' and SELECT '–' together. A flashing indicator will appear next to Event Days on the LCD. Use the ADJUST '+' button to select that day for watering or press ADJUST '–' for non watering days. A flashing indicator appears over the day you're about to set. Raindrops appear over selected days to water. The indicator automatically moves one day to the right after an ADJUST '+' or '–' key press. Continue selecting or deselecting the days you want the controller to water until you have your 7 day calender set.

NOTE: Programming an EVENT DAYS schedule does NOT delete any other schedule for the selected program.

Repeat the above procedures for each program (A, B, or C), as you require.

That's it! Your EZ Pro™ Jr. is now programmed. Turn the MODE dial to the AUTO position to run the program you entered.

PROGRAM REVIEW

To review the current program, turn the MODE dial to the PROGRAM position and turn the large dial to the setting you wish to review (i.e., turn the large dial to TIME to review the time set for the controller). When you need to view different zones or run times (1, 2, 3), use the SELECT buttons only.

NOTE: Since you are in the program mode, the potential exists to change the program accidentally.

PROGRAMMING INSTRUCTIONS - PROGRAM MODE

Set Master Valve or Pump Delay

You can delay the time between when the Master Valve/Pump turns on and the time the zones start. Turn the large dial to Zone Run Times. Press both the SELECT '+' and SELECT '–' keys together. Use the ADJUST '+' or '–' key to adjust the time delay. The LCD will show the time of the delay (Adjustable between 1 second – 30 minutes) with "del" underneath. To return to setting the Zone Run Times, press both the SELECT '+' and SELECT '–' keys together.

NOTE: The Master Valve/Pump Delay will be the same for all 3 programs (A, B, and C).

PROGRAMMING INSTRUCTIONS - AUTO MODE

Set the Rain Sensor Bypass

The EZ Pro™ Jr. is equipped with a Rain Sensor Bypass. This will cause the controller to water even if the rain sensor is tripped. To activate bypass the controller must be in AUTO Mode. While in Auto Mode press both the SELECT '+' and SELECT '–' keys together. The Sensor Suspend symbol will flash. To deactivate Press both the SELECT '+' and SELECT '–' keys together, while in AUTO Mode. This will cause the Sensor symbol to stop flashing and show the current rain sensor status.

NOTE: Rain Sensor Bypass will remain on until it is deactivated.

PROGRAMMING INSTRUCTIONS - OFF MODE

Turning the Controller Off

Turn the MODE dial to the OFF position. This suspends all watering operations (including manual/test procedures) from operating. The clock continues to maintain the current time and date and your program(s) is retained until you want to run your program(s) again. To run your program, turn the MODE dial back to the AUTO position.

ADVANCED FEATURES - AUTO MODE

The EZ Pro™ Jr. incorporates two manual/test procedures for checking the function of the controller or allowing you to bypass the current program to water immediately. The following section will show you how to set up the controller to:

- Run a zone manually
- Run a program manually

NOTE: All test procedures are run with the MODE dial in the AUTO position. This allows the controller to reset to the AUTO setting after running a manual/test procedure. It also allows you the ability to walk away from the controller after setting up a manual/test procedure and not have to come back to reset the controller to AUTO.

NOTE: All manual/test procedures ignore the sensor connection. Therefore, you can water utilizing one of the manual/test procedures even if the sensor has suspended your scheduled program.

Run a Zone Manually

Turn the large dial to the MANUAL position. The default of zone 01 and 00:10 minutes will be flashing (recall that this means you can change them). Press SELECT to select the zone number that you want to run. Press ADJUST to set the run time for the selected zone. The controller will delay 5 seconds before starting the zone.

ADVANCED FEATURES - AUTO MODE

The EZ Pro™ Jr. incorporates Nelson's ManualAdvance™ feature in the MANUAL procedure. ManualAdvance™ allows you to cease the currently running zone and immediately advance to any new zone you select. With the MANUAL or CYCLE procedure running a zone, Press SELECT to advance to a new zone. The last entered run time will be displayed. Press ADJUST to enter a new run time for the new zone (the controller will delay 5 seconds before starting the new zone).

NOTE: Once the zone has started running, the run time cannot be adjusted without deselecting and reselecting the zone.

Run a Program Cycle Manually

Turn the large dial to the CYCLE position. The current program letter will flash. To change to a different program, turn the PROGRAM dial to the desired program (A, B, or C). The controller will delay five seconds before starting the selected program. After running, the controller resets to the AUTO procedure.

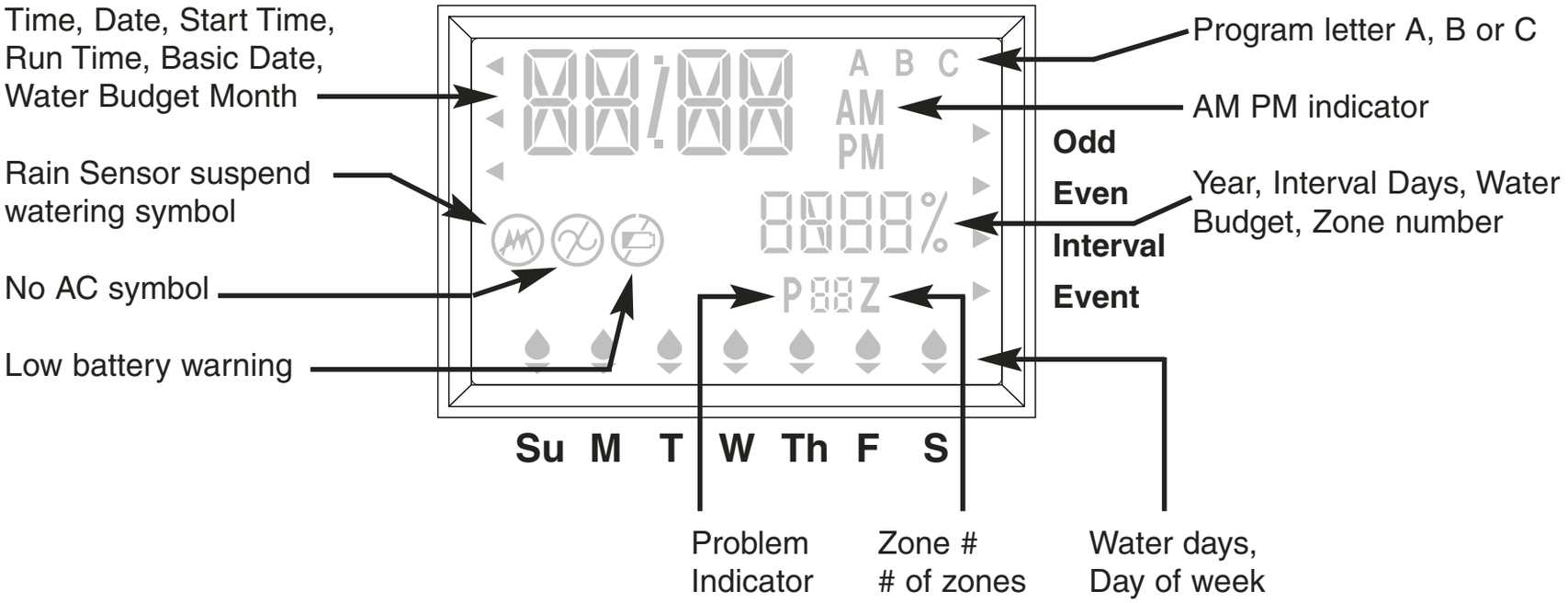
NOTE: CYCLE runs your current program immediately. Can ManualAdvance™ through the zones.

TECHNICAL DATA

1. **Transformer**
   24 VAC internal transformer; 20 VA, .83A for zones and logic. The transformer can run a pump or master valve and one zone valve, maximum.
2. **Surge Protection**
   600 watts TVS on zone outputs
   9J Mov on secondaries. (see Circuit Breaker below)
3. **Sensor Operation**
   The EZ Pro™ Jr. is configured to operate the controller with or without a sensor. Sensors must have normally closed connections (leads). The factory-installed jumper wire must be in place if no sensor is used.
4. **Zone Lines**
   The EZ Pro™ Jr. will operate a maximum of two (2) solenoids concurrently, providing one is the pump/master valve. Each zone output can operate one or two solenoids.
   I inrush .52A max
   I hold .33A max
5. **Temperature Range**
   Operating: -20° to +55° C (23° to 131° Fahrenheit)
   Storage: -30° to +85° C (-22° to 185° Fahrenheit)

TECHNICAL DATA

6. Display



7. Batteries

Two (2) AA (LR6 in Europe) Alkaline batteries are required. Do not use NiCad batteries. One (1) CR2032 Lithium Coin Cell battery, included with controller.

8. Program Retention

Lithium battery is used to retain time and programs when battery and AC power are lost.

NOTE: Tab must be removed in order to activate lithium battery backup.

9. Case Dimensions (approx.)

8" H x 10" W x 4" D (lid is removable without tools)

TECHNICAL DATA

10. Default Settings (12 hour mode)

12:00 A.M.
Sunday
Date is 01/01 2003
No Run Times (zone 01, —:—)
No Start Times (start number 01, —:—)
100% Water Budget
Every day watering schedule
Mode dial is at OFF position
Program dial is on A program
5 second delay between zones

11. Circuit Breaker

An electronic poly-switch is incorporated on the interconnect PCB of the controller. This type of circuit breaker does not require resetting or replacement by the user.

TROUBLESHOOTING/SERVICE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
No output to zone, pump, master valve or no AC indicator lit	• AC disconnected	• Check AC source, if AC is not detected by the controller, the no AC indicator will be lit
No AC and blank display	• No battery or dead battery	• Replace battery and press reset
LCD is blank	• No AC and no battery	• Install battery to regain use of display, check AC to ensure output to field
“M-X” appears on the LCD when trying to run a zone manually	• MODE dial is in program position	• Position the MODE dial in the AUTO position to run a zone manually
“C-X” appears on the LCD when trying to CYCLE a program	• MODE dial is in program position	• Position the MODE dial in the AUTO position to cycle a program
P with a zone number appears on LCD	• Wires not connected or short in wires or solenoid • More than 2 solenoids connected to a zone	• Check field wiring, check solenoid, replace solenoid
	• TVS damaged due to lightning or improper grounding	• Remove zone wire if Pxxz still shows when run manually or automatically, unit needs service/replacement
ALL 24HR flashing on LCD	• Greater than 24 hours of run time programmed	• Check zone run times and % WATER BUDGET
Rain Sensor symbol on	• Rain sensor is activated or if no rain sensor installed, the jumper is missing	• Check to see if jumper is installed if there is no rain sensor
Controller not responding to any dial/key press	• Unit needs reset	• Screwdriver across pads marked Reset
No output to a single zone	• Wiring issues or bad solenoid	• Check wiring and/or solenoid
No output to any zone	• Broken on disconnected common • RS wired into common wire is open or disconnected	• Check common wire

FCC RULES

This electronic irrigation controller generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this controller does cause interference to radio or television reception, which can be determined by turning the controller off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna

Relocate the controller with respect to the receiver

Move the controller away from the receiver

Plug the controller into a different outlet so that the controller and receiver are on different branch circuits

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00345-4.

CANADIAN RADIO INTERFERENCE REGULATIONS

NOTE: This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

NELSON TURF

Mode d'emploi du EZ PRO™ Jr.

Graphique des Zones

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

11 _____

12 _____